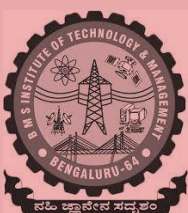
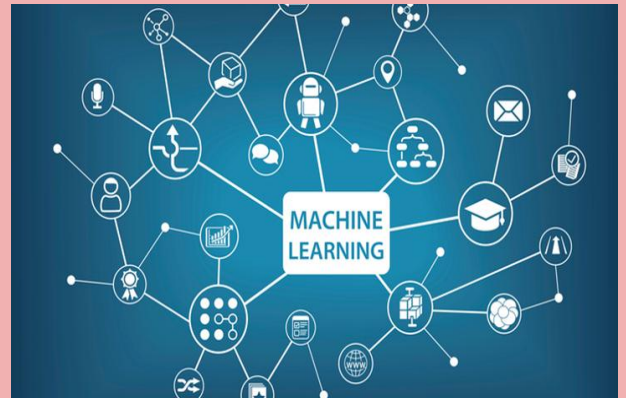




# Department of Information Science and Engineering

## “Five Day Open Course”

16<sup>th</sup> to 20<sup>th</sup> June 2020



**BMS Institute of Technology and Management**  
Doddaballapura Main Road, Yelahanka  
Bengaluru-64, Karnataka, India.

# Department of Information Science and Engineering

## VISION

Emerge as centre of learning in the field of information science & engineering with technical competency to serve the society.

## MISSION

To provide excellent learning environment through Balanced Curriculum, Best Teaching Methods, Innovation, Mentoring and Industry Institute Interaction.

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### THE EDITORIAL BOARD

**Honorary Editor**

**Dr. Usha B A**

**Coordinator**

**Editor**

**Mrs. Arpitha H M**

# Brochure

## ROBOTIC PROCESS AUTOMATION (RPA)-AUTOMATION ANYWHERE

**BMS Institute of Technology Management**  
Yelahanka, Bengaluru -560064  
**Department of Information Science & Engineering**



**Five Day Open Course**  
**On**

**“Robotic Process Automation [RPA]–  
Automation Anywhere”**



**Organizing Chair: Dr. Usha B A**

### About the Institute

In view of the growing demand for technical education and with the goal of establishing a premier technical education on par with international standards, a new technical institution by name 'BMS Institute of Technology and Management' was established in 2002.

Currently, BMSIT & M offers Eight UG, Three PG programs and Ph.D. /M.Sc. (Engg.) in Ten disciplines. BMSIT & M considers research to be of equal importance as academics for the betterment of an institution. Research culture has been embraced well by the faculty members and research scholars at BMSIT & M.

### About the Department

The Department of Information Science and Engineering started in the Year 2010 with an approved intake of 60 and Enhanced to 180 from the academic year 2019-20. The Department has qualified and professionally dedicated faculty members practising OBE in the academic deliverables. The faculties have published research articles in various National, International Conferences and Journals. The department has modern laboratories to serve the teaching and research needs of the students as well as faculty members. The Department has been organizing conferences, workshops, expert lectures and student centric activities to encourage students to instil lifelong learning. Few of our students are working for consultancy projects along with few faculty members. The staffs are encouraged to attend the 10 days internship to bridge the gap between the academics and industry. The department has admirable research ambience.

### About the Open Course

RPA is simple and powerful business process automation software. Robotic Process Automation enables you with tools to create your own software robots to automate any business process. Your “bots” are configurable software set up to perform the task you

assign and control. RPA bots can learn. They can be cloned. See how they are working and adjust scale as you see fit. It's code-free, non-disruptive, non-invasive and easy.

### Objectives of the Course

1. To learn various actions and recorder to build task bots to attain business process automation goals.
2. To build, edit and run a bot.

**Target Audience:**  
**All the Students of BMSIT&M**

### Course Content

Introduction to AA , Framework, Web Control Room, client, Bot creator, bot creator-recorders, Metabot, Bot Insight.

### Registration Details

**Registration amount is Rs:150/-**

Participants can register through google pay by clearly mentioning their name, USN and open course name, Details provided below :

**Vinutha, 9739924054, Vinutha.4290@okicici**

### For Details Contact

Prof. Ashwini N Asst. Prof., Dept. of ISE.  
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Prof. Bhavya G, Asst. Prof., Dept. of ISE.  
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Prof. Vinutha K, Asst. Prof., Dept. of ISE.  
Mob: 9739924054 , Email: [vinuthak\\_ise2014@bmsit.in](mailto:vinuthak_ise2014@bmsit.in)

## Web Stack Development for IT Career

**BMS Institute of Technology and Management**  
Yelahanka, Bengaluru -560064  
**Department of Information Science & Engineering**



**Five Day Open Course on**

**“Web Stack Development for IT Career”**  
**16<sup>th</sup>-20<sup>th</sup> June 2020**



**Organizing Chair: Dr. Usha B A**

### About the Institute

BMS Institute of Technology and Management was established in 2002 under the auspices of the BMS Educational Trust with a vision of establishing a premier technical institute on par with international standards. BMSIT & M offers eight UG, three PG programs and Ph.D. / M.Sc. (Engg.) in all the disciplines. BMSIT & M considers research to be of equal importance as academics for the betterment of an institution. Research culture has been embraced well by the faculty members and research scholars at BMSIT & M.

### About the Department

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### About the Open Course

A Web stack is the collection of software required for Web development. At a minimum, a Web stack contains an operating system (OS), a programming language, database software and a Web server. LAMP is one commonly used Web stack. It uses Linux as the operating system, Apache as the Web server, and MySQL as the relational database management system and PHP as the object-oriented scripting language. A Web stack is one type of solution stack -- an ordered collection of software that performs a particular task.

### Objectives of the Course

1. To learn stand-alone web application development.
2. To build real-time projects' using Web Stack.

### Target Audience:

All the Students of BMSIT&M

### Course Content

Introduction to LAMP, Web Stack and RDBMS.

### Registration Details

Categories	Amount
Students	200/-

### Account Details

9008610899@paytm

### For Further Details Contact

Prof. Shanthi D L, Asst. Prof., Dept. of ISE.  
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Email: [ambikasubhash@bmsit.in](mailto:ambikasubhash@bmsit.in)

# Applied Machine Learning

**BMS**Institute of Technology Management  
Yelahanka, Bengaluru - 560064  
Department of Information Science & Engineering



## Five Day Open Course On "Applied Machine Learning"

16<sup>th</sup> June to 20<sup>th</sup> June 2020



Organizing Chair: **Dr. Usha B A**

### About the Institute

In view of the growing demand for technical education and with the goal of establishing a premier technical education on par with international standards, a new technical institution by name 'BMS Institute of Technology and Management' was established in 2002. Currently, BMSIT & M offers Eight UG, Three PG programs and Ph.D. /M.Sc. (Engg.) in Ten disciplines. BMSIT & M considers research to be of equal importance as academics for the betterment of an institution. Research culture has been embraced well by the faculty members and research scholars at BMSIT & M.

### About the Department

The Department of Information Science and Engineering started in the Year 2010 with an approved intake of 60 and Enhanced to 180 from the academic year 2019-20. The Department has qualified and professionally dedicated faculty members practising OBE in the academic deliverables. The faculties have published research articles in various National, International Conferences and Journals. The department has modern laboratories to serve the teaching and research needs of the students as well as faculty members. The Department has been organizing conferences, workshops, expert lectures and student centric activities to encourage students to instil lifelong learning. Few of our students are working for consultancy projects along with few faculty members. The staffs are encouraged to attend the 10 days internship to bridge the gap between the academics and industry. The department has admirable research ambience.

### About the Open Course

As the technology advances and with huge potential for data generation ML is here to stay for next 25 years. Recognizing this dire need, Department of ISE, BMSIT&M is proposing an open course on Applied Machine Learning for its students. The program covers concepts and algorithm in ML with case studies delivered from experts on applications such as ML in health care, cyber security and education. The program also covers sessions with R and python in building ML models.

### Objectives of the Course

1. Apply Machine Learning concepts and methods to solve problems in real world contexts and communicate these solutions effectively.
2. Analysis of appropriate models, assess the quality of input, derive insights from the results and investigate potential issues.

### Target Audience

All the Students of BMSIT&M

### Course Material

Soft copy of presentation & software used in the program in the programs will be provided for all the students along with the participation certificate.

### Course Content

- > Introduction to Machine Learning
- > Machine Learning Algorithms.
- > Hands-on using R and Python
- > Big data and Hadoop Ecosystem
- > Deep learning
- > Case studies

### Registration Details

Category	Amount
CSI Member	150
Non-CSI Member	200

Payment through Google Pay only:  
**Dr.Rudresh S – 9823014550**

Join Whatsapp Group using link:  
<https://chat.whatsapp.com/HEvLoJf94De5UHnPQej6vO>

### For Details Contact

Dr.RudreshShirwaikar, Asst. Prof., Dept. of ISE.

Mob: 9823014550, Email: [rudresh@bmsit.in](mailto:rudresh@bmsit.in)

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Mob: 8660370728, Email: [gireeshbabu@bmsit.in](mailto:gireeshbabu@bmsit.in)

Prof. Veena N, Asst. Prof., Dept. of ISE.

Mob: 8660370728, Email: [veena@bmsit.in](mailto:veena@bmsit.in)

Mrs. Amudha T, Programmer, Dept. of ISE,

# Event Schedule

## Robotic Process Automation (RPA)



**BMS** Institute of Technology Management  
Yelahanka, Bengaluru -560064  
Department of Information Science & Engineering

### Open course Schedule on “Robotic Process Automation [RPA]–Automation Anywhere”

16<sup>th</sup> June to 20<sup>th</sup> June 2020

Day	Session-1		Session-2		Session-3
Time	10:00am – 11:30am		12:00pm -1:30pm		1:30pm – 3:30pm
Day1	Introduction to RPA Mr. Nitesh Product Trainer Automation Anywhere	Break	RPA in digital transformation Era, Basics of RPA Dr. Manjunath T N Dean Externals Relations BMSIT&M	Lunch Break	Assignments
Day2	Introduction to Business Analyst Role, RPA tools in the Market Mr. Murali Freelancer		How RPA works, Ideal Processes for RPA, Understand use cases for RPA Mrs. Divyatha		Assignments
Day3	What are BOTS Mrs. Vinutha K, Mrs. Ashwini N		Process modeling Mrs. Vinutha K, Mrs. Bhavya G		Assignments
Day4	Opportunity Assessment Mrs. Ashwini N, Mrs. Bhavya G		Business Analysis in RPA Environment, Industry Challenges Mrs. Ashwini N, Mrs. Bhavya G		Assignments
Day5	Assessment and Evaluation				

## Web Stack Development for IT Career



**BMS** Institute of Technology and Management  
Yelahanka, Bengaluru -560064  
Department of Information Science & Engineering

Open course Schedule for

### “Web Stack Development for IT Career”

16<sup>th</sup> June to 20<sup>th</sup> June 2020

Day	Session-1		Session-2		Session-3
Time	10:00am – 11:30am		12:00pm -1:30pm		2:00pm – 4:00pm
Day1	HTML	Break	CSS	Lunch Break	Assignment
Day2	DBMS (SQL)		Xampp, PHPMyAdmin		Assignment
Day3	Bootstrapping		APIs, Data inserting		Assignment
Day4	Core PHP		Core PHP		Assignment
Day5	WordPress		JavaScript		Assessment and Feedback

#### Resource Persons

Mr. Ashitosh, Managing Director, EduProf

Mr. Rahmat Khan, Managing Director, Tecidexa Services Pvt. Ltd.

Mr. Ayush Gupta, Chief Information Officer, Tecidexa Services Pvt. Ltd.

Mr. Chethan Kulkarni, Director, Mazon Technologies, Pvt Ltd.

## Applied Machine Learning



**BMS** Institute of Technology Management  
 Yelahanka, Bengaluru -560064  
 Department of Information Science & Engineering

### Open course Schedule on “Applied Machine Learning”

16<sup>th</sup> to 20<sup>th</sup> June 2020

Day	Session-1		Session-2		Session-3
Time	9:30am – 11:00am		11:30am -1:00pm		2:30pm – 4:30pm
Day1	Introduction to Machine Learning Prof. Gireesh Babu C N	Tea Break	Hands-on R / Python programming Prof. Gireesh Babu C N/ Mr.Abhijith	Lunch Break	Activity-1
Day2	Machine Learning Algorithms Mr.Abhijith		Machine Learning Algorithms Prof. Gireesh Babu C N		Activity-2
Day3	Introduction to Deep Learning Dr.Smitha Rao		Hands on Deep Learning Dr.Smitha Rao		Activity-3
Day4	BigData Applications Er.Mahanthesh, Data Analyst		Hadoop Ecosystem Er.Mahanthesh, Data Analyst		Activity-4
Day5	Machine learning in Health Care – Case study Dr.Rudresh Shirwaikar		Machine Learning in Cyber security Dr. Usha B A		Quiz/Feedback

# **COURSE OUTCOMES**

## **1. ROBOTIC PROCESS AUTOMATION (RPA)**

**CO1:** Acquire the basic knowledge on Applied machine Learning. – (PO4)

**CO2:** Apply various tools of Machine Learning Algorithms on different datasets. –(PO 5, PO 10)

## **2. ADVANCED IOT APPLICATIONS: A PRACTICAL APPROACH**

**CO1:** Understand fundamentals of Internet of Things - (PO1).

**CO2:** Analyze various software and hardware components for IoT applications – (PO2, PO5)

**CO3:** Apply programming concepts for IoT Applications - (PO1).

**CO4:** Design and Develop solutions for real time IoT applications - (PO3, PO4, PO9, PO10, PO12).

## **3. CYBER SECURITY AND CYBER FORENSICS**

**CO1:** Understand and apply the computer network and information security needs of an Organization - (PO1).

**CO2:** Analyse cyber security risk management policies in order to adequately protect an organization's critical information and assets - (PO2, PO4, PO8, PO9).

**CO3:** Study and Implement continuous network monitoring and provide real-time security Solutions - (PO3, PO5, PO6, PO7, PO9, PO10, PO12).

## **4. PROGRAMMING FOR IT CAREER**

**CO1:** Apply data structures concepts to solve real time problems (PO1)

**CO2:** Analyze and choose suitable data structure for complex problems(PO2)

**CO3:** Design sustainable solutions for complex problems (PO3,PO7)

**CO4:** Engage in self learning to get eligible for placement (PO12)

## Participant List

**Total number of participants :**

<b>Web Stack Development for IT Career</b>		
<b>Sl No</b>	<b>Name of the Student</b>	<b>USN</b>
1	Pranav Rayapati	1BY17CS117
2	Rahul Mulimani	1BY17CS129
3	Siddartha Patel G M	1BY17CS161
4	Srinivas Reddy K	1BY17CS169
5	Chethan Jagannatha	1BY17EC037
6	Vivek Prakash	1BY17EC182
7	Shringar Agarwala	1BY17EE046
8	Mahima Choudhary	1BY17EE061
9	Shravya	1BY18CS156
10	Riddhi Jain	1BY18CS220
11	Palak	1BY18CS223
12	M Vijaya Bhargavi	1BY18CS226
13	Abhinav Sharma	1BY18IS001
14	Amandeep Singh	1BY18IS019
15	Anisha Diyya G	1BY18IS025
16	Chaithra V	1BY18IS039
17	Nikhita Gopal Honnatti	1BY18IS074
18	Nirisha B	1BY18IS075
19	Pavithra D A	1BY18IS081
20	Prajwal R	1BY18IS084
21	Ramya.S	1BY18IS097



22	Rashmi B S	1BY18IS098
23	Sanjana Gajanana Shetty	1BY18IS104
24	Spoorthi C Mahadimane	1BY18IS116
25	Anamika Sharma	1BY18IS129
26	S Harshatha	1BY18TE053
27	Ayush Ranjan	1BY19EC025
28	Himanshu Kumar Siddharth	1BY19EC062
29	Kiran Kumar Hegge	1BY19EC078
30	Akshat Srivastava	1BY19IS018
31	Aman Prasad	1BY19IS021
32	Ananya Ravishankar	1BY19IS025
33	Aparna Bhat	1BY19IS030
34	Chattada Saikusal	1BY19IS043
35	Dhivyaa Shree S N	1BY19IS051
36	Divya-Kalash	1BY19IS055
37	Ishika Agrawal	1BY19IS070
38	K Nikhil Aryan	1BY19IS075
39	Kavya Ganesh Shetty	1BY19IS078
40	Nandini	1BY19IS104
41	Neeraja Rajesh	1BY19IS108
42	Nidhi Balachandra Bhat	1BY19IS111
43	Poorna N S	1BY19IS118
44	Rajeshwari M	1BY19IS129
45	Rakshit D	1BY19IS130
46	Rohit Gangadhar	1BY19IS134
47	Roshan Poonacha	1BY19IS139
48	Sathvik Purushotham	1BY19IS145

49	Shashvathi G	1BY19IS147
50	Shreya	1BY19IS151
51	Shreya Anthapur	1BY19IS152
52	Shreya Salimath	1BY19IS153
53	Shrusty	1BY19IS154
54	Shruti Raj	1BY19IS156
55	Subhadip Pal	1BY19IS160
56	Sumithra Thapa R	1BY19IS165
57	Surya Dev Rathi	1BY19IS166
58	Suryansh	1BY19IS167
59	Tejaswini	1BY19IS169
60	Utkarsh Shukla	1BY19IS174
61	Vikas Pandey	1BY19IS179
62	Maha Pragya	1BY19IS188
63	Harish Kumar G	1BY19IS402
64	Kiran A	1BY19IS403
65	Naveen K	1BY19IS405
66	Sneha J S	1BY19IS409
67	Ullhas A	1BY19IS410

**A PRACTICAL APPROACH TO DATA**

**SCIENCE**

1.	Aditya Yadav	1BY18IS008
2.	Prakar Dewan	1BY16IS031
3.	Nikhil Anand Mahendrakar	1BY18IS073
4.	Atulya Jaiswal	1BY18IS032
5.	Buthuru Jagadeep Reddy	1BY18IS036
6.	Apurv Jha	1BY18IS028
7.	B E Abhijith	1BY18IS034
8.	Prashanth R	1BY18IS089
9.	Sanjana Gajanana Shetty	1BY18IS104
10.	Rashmi B S	1BY18IS098

11.	Mohammed Owais	1BY18IS067
12.	Raghavendra K M	1BY18IS093
13.	Shivani Sharma	1BY18IS110
14.	Sugandha Sinha	1BY18IS119
15.	Chaitanya Manoj Turmari	1BY18IS038
16.	Chaithra V	1BY18IS039
17.	Nibha Venkappa Rai	1BY18IS072
18.	Amisha Sawlani	1BY18IS020
19.	Rohan Garg	1BY17IS044
20.	Hemanth B N	1BY18IS052
21.	Prashast	1BY17IS039
22.	Kartikeya Singh	1BY17IS026
23.	Khyati Gupta	1BY18IS059
24.	Akanksha Tanu	1BY18IS012
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2.	Shohebahmed Najeerahmed Gadawale	1BY18IS112
3.	Achutha Sandesh S Chatra	1BY18IS003
4.	Charan S V	1BY18IS041
5.	Sumukha S	1BY18IS120
6.	Adarsh Sadanand Shetty	1BY18IS005
7.	Mithun G	1BY18IS066
8.	Rachana Nataraj	1BY18IS092
9.	Nirisha B	1BY18IS075
10.	S Reethu Shree	1BY18IS103
11.	Rakshitha R	1BY18IS096
12.	Poorvi Harish Nayak	1BY18IS082
13.	Sravya Kottapalli	1BY18IS117
14.	R U Rakshith	1BY18IS091
15.	Nithin Urala M R	1BY18IS076
16.	Shamanth Kumar Shetty	1BY18IS108
17.	Vinay C	1BY18IS125
18.	Sweekrithi Rao N	1BY18IS123
19.	Anisha Diyya	1BY18IS025
20.	Karan Venkatesh Iupamanya	1BY18IS057
21.	Suprit H.S	1BY8IS121
22.	Raghavendra P	1BY18IS094
23.	Apurva Gautham	1BY18IS027
24.	Tathagat	1BY18IS124
25.	Guru Anavarhadhan	1BY18EE022
26.	Akshaya. V	1BY18EE006
27.	Arshiya.S Yalgod	1BY15EE007
28.	Mahima Chowthary	1BY17EE061
29.	Shubham Singh	1BY17EE057
30.	Shivani Gujja	1BY18CS154
31.	Sharath M.K	

32.	Yashwanth. C	
33.	Vachan C.R	
34.	Meghana Mariam	1BY17EE027
<b>PROGRAMMING FOR IT CAREER</b>		
90	Ken K Thejesh	1BY17IS027
91	Hima	1BY17IS022
92	Erica	1BY17IS019
93	Nikitha Hasbi	1BY17IS036
94	Akash Sunil kumar	1BY17IS006
95	Spoorthy Shivakumar	1BY17IS056
96	Jhanavi V	1BY17IS024
97	Meghana BS	1BY17IS031
98	Varadraj	1By17IS061
99	Kruthika Ramesh	1BY17IS028
100	Anil	1BY17CS024
101	Disha N P	1BY17IS018
102	V. Sairitwik	1BY17IS060
103	Tej Kumar	1BY18IS405
104	Akanksh R C	1BY17EC008
105	Ashutosh S	1BY17IS013
106	Jeshwanth.M	1BY17IS023
107	Abu Faisal	1BY17IS002
108	Venkatesh Murthy	1BY17IS062
109	A. Rajesh Kumar Reddy	1BY17IS014
110	Jeshwanth.M	1BY17IS023
111	Kavya	1BY18IS402
112	Shreesh Katti	1BY17IS052
113	Ananya Hathwar	1BY17IS009
114	Sushan Prajapati	1BY17IS069
115	Hemanth H K	1BY18IS401
116	Sandhya	1BY17IS048
117	Aman K A	1BY17IS008
118	Sanjay Paudel	1BY17IS068
119	Heemangi Rupani	1BY17IS065
120	Sanketh S Jain	1BY17IS049
121	Sneha R	1BY17IS055
122	Simran I	1BY17IS054
123	Prachi Yadav	1BY17IS073
124	Vishal Anand	1BY17IS063
125	Usha R S	1BY18IS406
126	Rashmi Priya P	1BY18IS403
127	Shreya R T	1BY17IS053
128	Shuchitha K	1BY18IS404
129	Sai Rachana	1BY17IS046
130	Dhruva B M	1BY17IS017
131	Ashoka	1BY17IS012
132	Nida Mariam S A	1BY17IS034
133	Vikas Chauhan	1BY17IS072
134	Akshara Y Tarikere	1BY17IS007

135	Samrudhi	1BY17IS047
136	Sharmila Ganguly	1BY17IS050
137	Shivanand	1By16IS044
138	Aaqib	1BY17IS040
139	Aditya Kumar	1BY17IS064
140	Roopa B K	1BY17IS045
141	Kartikay Gupta	1BY17CS200
142	Amoghavarsha P	1BY18IS400
143	Chethan N	1BY17IS016
144	Prashanth	1BY17IS038
145	Gururaj B N	1BY17IS021
146	Lakshman Reddy V	1BY17IS029
147	Mamathesha S	1BY17IS074
148	Aditya Prashanth Kangokar	1BY17IS003
149	Sai Ramya	1BY17IS030
150	Mohd Rohmat Khan	1BY17IS032

## Profile of Resource Persons

Srivatsa Upadhya, Software Engineer, Security Business Group, Cisco Systems Bengaluru, Karnataka. Interests area : Network/Endpoint Security, Network Management, Deception Technologies, Cyber Risk, Malware Memory Forensics, Threat Intelligence Sharing, SDN, Open Source Projects and Web technologies.



Kotresh Mundrugi, Dedicated Entrepreneur Bengaluru, Karnataka. Active Director at Indian Tech-Keys. leading the business with motivation of becoming successful business person. Having good knowledge about PCB, Embedded system, A android app development, Industrial Automation and IoT. Worked as Software Engineer at CapGemini and developed many software related to IBM BPM tool. Also have experience of 6months as R&D engineer at RS Components and Controls PVT Ltd.



Prof. Shivakumara T, working for Department of MCA, BMS Institute of Technology and Management, Bangalore as an Assistant Professor since 2008. He has completed his masters' degree (Master of Computer Applications) in 2007. Teaching the masters' degree computer applications courses prescribed by Visvesvaraya Technological University (VTU). Actively involved in teaching-learning process, as an outcome of it he was able to publish 3 text books, laboratory manuals, learning materials in coordination with co-authors in the same field. He has published few national conference papers and journals. His current research focuses on data and information security - data leakage



prevention. He has been engaged to create awareness on cyber security-cyber safe Karnataka in association with cyber security center of excellence, Government of Karnataka, to school and college students. He is the member of ISTE chapter. Currently, pursuing PhD in Computer Applications under VTU. Additional Information: Currently heading the National Service Scheme (NSS) Cell.

I am a Computer Science Engineer with a background in Computer Security. I am currently a Research Assistant in the Indian Institute Of Science. My research focuses on Cybersecurity and Artificial Intelligence in the field of 5G Communication. I have authored multiple white paper articles and spoke at multiple workshops all around India, especially South India. In the past I have worked as an ICT (Information Communication Technology) Engineer at WeWork Bangalore. I am also serving as the Technology Lead at ThinkRobotics India, which deals in electronics and robotics components. ThinkRobotics is also India's first fully integrated Rapid Prototyping company.



Sai Yaswanth works as a Senior Data Scientist @Walmart Labs India, Indian Statistical Institute Bengaluru. Experienced Senior Data Scientist with a demonstrated history of working in the information technology and services industry. Skilled in R, Python, Data Science, Data Analysis, Statistics, and Machine Learning. Strong engineering professional with a MStat focused in Statistics from Indian Statistical Institute.



Dr. Usha B A has completed her B.E from RGIT, Bengaluru and M. Tech from RVCE, Bengaluru and Ph. D from Department of CSE R & D Centre, VTU, Belagavi. She obtained her Ph.D degree in the year 2016. She started her carrier as Lecturer in the Dept of CSE from 2006 to 2010 in R V College of Engineering. Started working as Asst. Professor in the Dept of CSE from 2010 to 2018. She has published more than 6 technical papers in various National & International Conferences and 16 papers in International Journals. She also has book chapter publication in reputed organization.



She has actively organized various technical talks, workshops and conferences. She has worked in multidisciplinary consultancy projects. She has professional membership in IEEE. Currently she is an Associate Professor & HoD in the Dept. of ISE, BMSIT&M.

Dr. Pushpa S. K. received her Bachelor's Degree in Computer Science and Engineering from Bangalore University, Bangalore, Karnataka, India during the year 1995 and M.E in Computer Science and Engineering from Bangalore University, Bangalore, Karnataka, India during the year 2004. Currently Dr. Pushpa S.K is



working as an Associate Professor in BMSIT & M, Dept. of ISE, Bengaluru. She is having 16+ year of teaching experience. She is having 8 Journal papers & 5 International Conference papers in her credit. She is life member of professional bodies like ISTE, ISC & IEEE member. Her areas of interests are Wireless Sensor Networks, Big Data.

Prof. Mahalakshmi completed her B.E from Jayaram College of Engineering and M.E from Bannari Amman Institute of Technology in the year 2003 and 2008 respectively. She is a rank holder and received gold medal in her PG from Anna University, Chennai and has won Best Student -2008 Award. She has completed certification on CCNA Exploration from Cisco Networking Academy and workshop on High impact teaching skills from Dale Carnegie Inc.



Her areas of interest include High performance Computing and Big data. She is pursuing her PhD in Vellore Institute of Technology, Vellore. She has published 15 technical papers in various National & International Conferences and 12 papers in Journals. She has actively involving in organizing various technical talks, workshops and conferences. She has teaching experience of more than 13 years in various Institutions like SRM University, VIT University. At present she is working as an Assistant Professor in BMSIT, Bengaluru.

Prof. Shanthi D L completed her B.E in Computer Science and Engineering from SJCIT, Chickballapur during 1999, and received her M.Tech in Computer Science and engineering from Visvesvaraya Technological University, Belgaum, Karnataka, India during the year 2017. She is having 16+ years of experience in teaching and 2 years in industry, currently she is working as assistant professor in Dept of ISE, BMSIT&M, Bengaluru. Her areas of interest include Networks, Wireless Sensor Networks, Computer network security, IoT, Big Data. She is pursuing her PhD in the Wireless Sensor Networks under VTU, Belgaum. She has published 16+ technical papers in various National & International Conferences and 10+ papers in Journals. She is a member of IEEE, ISTE, and has delivered various talks and lectures.



Mr. Chandrashekhara K. T received his Bachelor's Degree in Computer Science and Engineering from Visvesvaraya Technological University, Belgaum, Karnataka, India during the year 2002 and M. Tech in Computer Science and Engineering from VTU, Belgaum, Karnataka, India during the year 2008. Currently Mr. Chandrashekhara K. T is working as an Assistant Professor in BMSIT, Dept. of ISE, Bengaluru. He is having 6+ year of teaching experience and 3+ years of industry experience at Intellinet Technologies, Bengaluru and Wipro Technologies Ltd. Bengaluru. He is having 7



Journal papers in his credit. He is member of professional bodies like ISTE, CSI. His areas of interests are Smart Networks-IOT, Big Data and Data Mining.

Prof. Gireesh Babu C.N. received his Bachelor's Degree and M.Tech in Computer Science and Engineering from Visvesvaraya Technological University, Belagavi, Karnataka, India during the year 2009 and 2012 respectively. He has published more than 15 technical papers in various National & International Conferences and 10 papers in Journals. He has actively involving in organizing various technical talks, workshops and conferences. He has teaching and Industrial experience of more than 5 years.



He is a Life member of Computer Society of India and Indian Society for Technical Education. At present he is working as an Assistant Professor in BMSIT& M, Bengaluru. His areas of interests are Smart Networks- IOT, Big Data and Cloud Computing.

Prof. Swetha M S is associated with Information Science and Engineering department of BMS Institute of Technology and Management. She has 12 years of experience in Teaching and research. Her research work is published in Springer and web of science Journals. She is passionate to work on Network security, cyber security, Cloud Computing, AI & IoT and she has conducted workshops and delivered lectures at various FDPs. she has received Bachelor of Engineering from AIT Chikmagalur and



Master of Technology in Computer science and Engineering from RVCE- Bengaluru, Currently she is pursuing Ph.D. in Computer Science and Engineering at Visvesvaraya Technological University. She is has attended and presented more than 20 technical papers in various National & International Conferences and Published more than 15 papers in Scopus/web of science/ UCG approved Journals. She is reviewer and technical committee member for many Journals and conference She has got "EXCELLENCE IN REVIEWING AWARD" from Journal of Engineering Research and Reports in June Month 2020 which is Scopus and open access INTERNATIONAL journal For more details, kindly visit: <https://bmsit.ac.in/faculty/5656>

Prof. Veena N has completed her B.E from Basavakalyan Engineering College, Basavakalyan. and M. Tech from EPCET ,Bangaluru and Pursuing Ph. D from VTU, Belagavi. She has published more than 5 technical papers in various International journals. She has trained various students in companies like Wipro, Siemens, SAP Labs etc., on various courses such as C, Software Engineering, DBMS, IoT etc., She is a Life member of Indian Society for Technical Education, At present she is working





as an Asst.Professor in BMSIT& M, Bengaluru.

Vinutha K working as an Assistant professor in Dept of ISE, BMSIT&M. she has completed her B.E in Channabasaveshwar Institute of Technology Tumkur in 2011 and M.Tech from AMC Engineering College 2013 in CSE. She is having 4.5years of teaching experience and pursuing research in the field of prediction models using Machine learning. Her area of interest is Machine learning and Data mining. She has published 10+ research papers in various International Conference and Journals and delivered 7+ expert talks on various topics of Machine learning, python and data mining.



## About Open Course

### Robotic Process Automation(RPA)-Automation Anywhere

Cyber Security plays an important role in the field of information technology .Securing the information have become one of the biggest challenges in the present day. Whenever we think about the cyber security the first thing that comes to our mind is 'cyber crimes' which are increasing immensely day by day. Various Governments and companies are taking many measures in order to prevent these cybercrimes. Besides various measures cyber security is still a very big concern to many. Cyber Security focuses on challenges faced by cyber security on the latest technologies .It also focuses on latest about the cyber security techniques, ethics and the trends changing the face of cyber security

#### Day 1:

##### **MORNING SESSION 1(10:00AM to 11:30AM): -**

The session was started by welcoming all the participants of “Robotic Process Automation (RPA)-Automation Anywhere” open Course by Open Course Coordinator Prof Vinutha K.

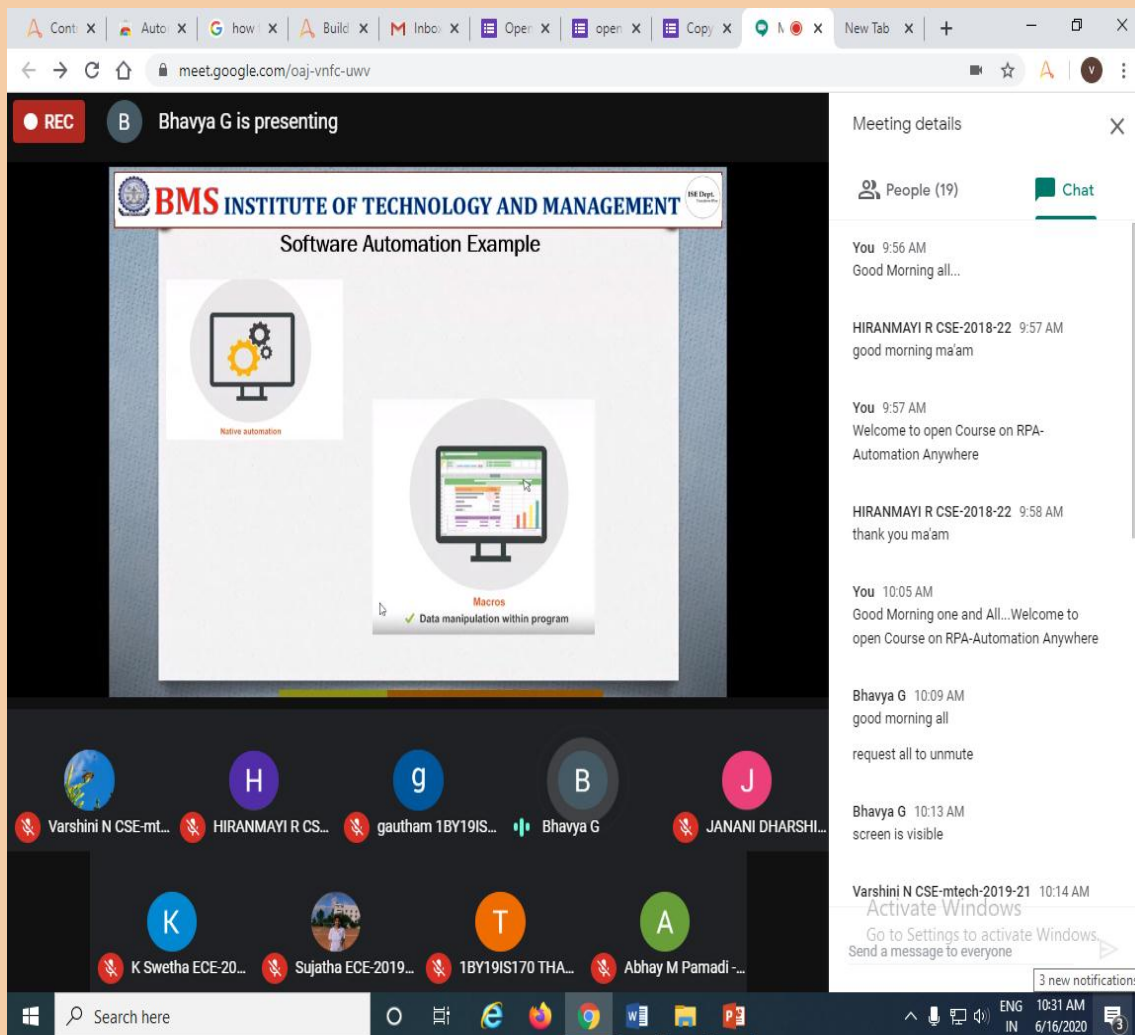
The first session was engaged by Bhavya G, Assistant Professor, Dept. of ISE, BMSIT&M. The session covered the basic concepts on automation, difference between types of automation The session concluded by an interactive quiz game, wherein questions related to the session were asked.

## MORNING SESION 2(12:00PM to 1:30PM):

The session was engaged by Session by Dr. Manjunath T N, Dean External Relations, BMSIT&M. The session covered the topic on Robotic Process Automation Architecture and Applications. The class was concluded by proving a two brainstorming questions, and solutions will be uploaded by students in RPA-Google classroom and discussions on that questions will be done in next day session.

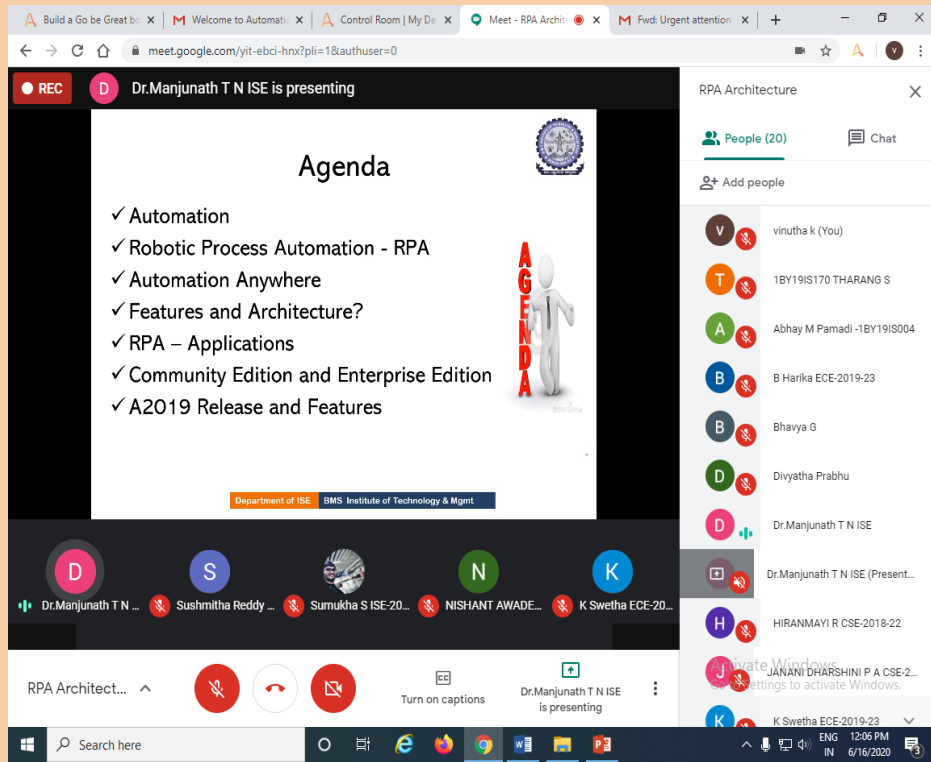
## AFTERNOON SESSION 1(2:00PM to 4:00PM): -

The first session was engaged by Bhavya G, Assistant Professor, Dept. of ISE, BMSIT&M. Think Share activity is done where students were given time of 20 minutes and told them to think and represent where/what all automations required/can be done, so that it will be problem statements for their PBL, Projects etc. Later they presented and discussed all the ideas they listed.

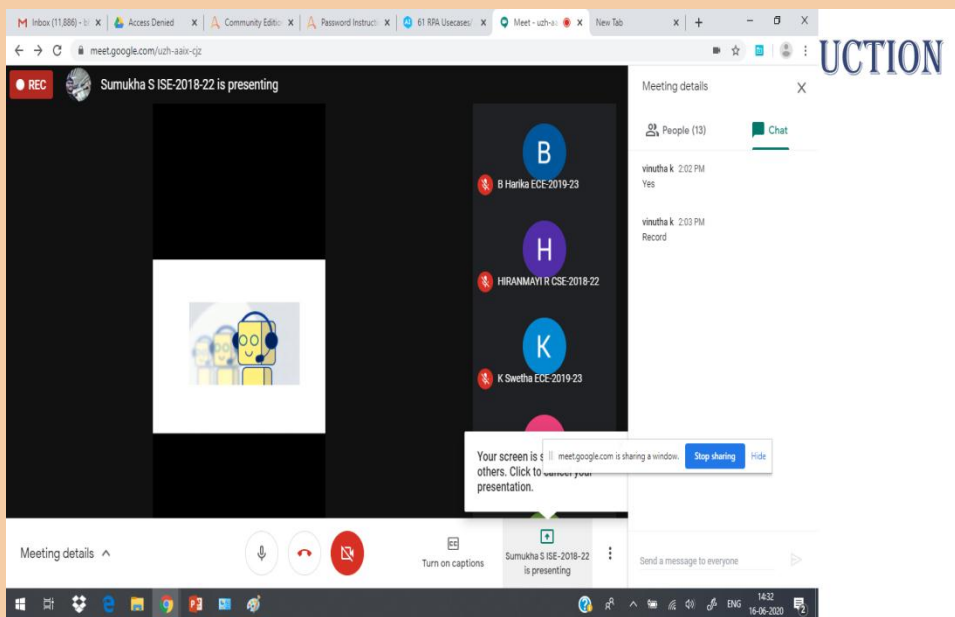


The screenshot displays a Google Meet interface during a presentation. The main window shows a slide titled "Software Automation Example" from BMS Institute of Technology and Management. The slide features two icons: "Native automation" (a gear on a monitor) and "Macros" (a computer monitor displaying a data table). Below the Macros icon, it says "Data manipulation within program". The meeting header indicates "Bhavya G is presenting". The bottom of the screen shows a grid of participant avatars, including Varshini N CSE-mt..., HIRANMAYI R CS..., gautham 1BY19IS..., Bhavya G, and JANANI DHARSHI... The right-hand side shows a chat window with messages from participants and a system message: "Activate Windows. Go to Settings to activate Windows. Send a message to everyone". The system tray at the bottom right shows the date and time as 10:31 AM on 6/16/2020.

Session by Bhavya G, Assistant Professor, Dept. of ISE, BMSIT&M



Session by Dr. Manjunath T N, Dean External Relations, BMSIT&M



Session by Bhavya G, Assistant Professor, Dept. of ISE, BMSIT&M

## Day 2:

### MORNING SESSION 1(10:00AM to 11:00AM): -

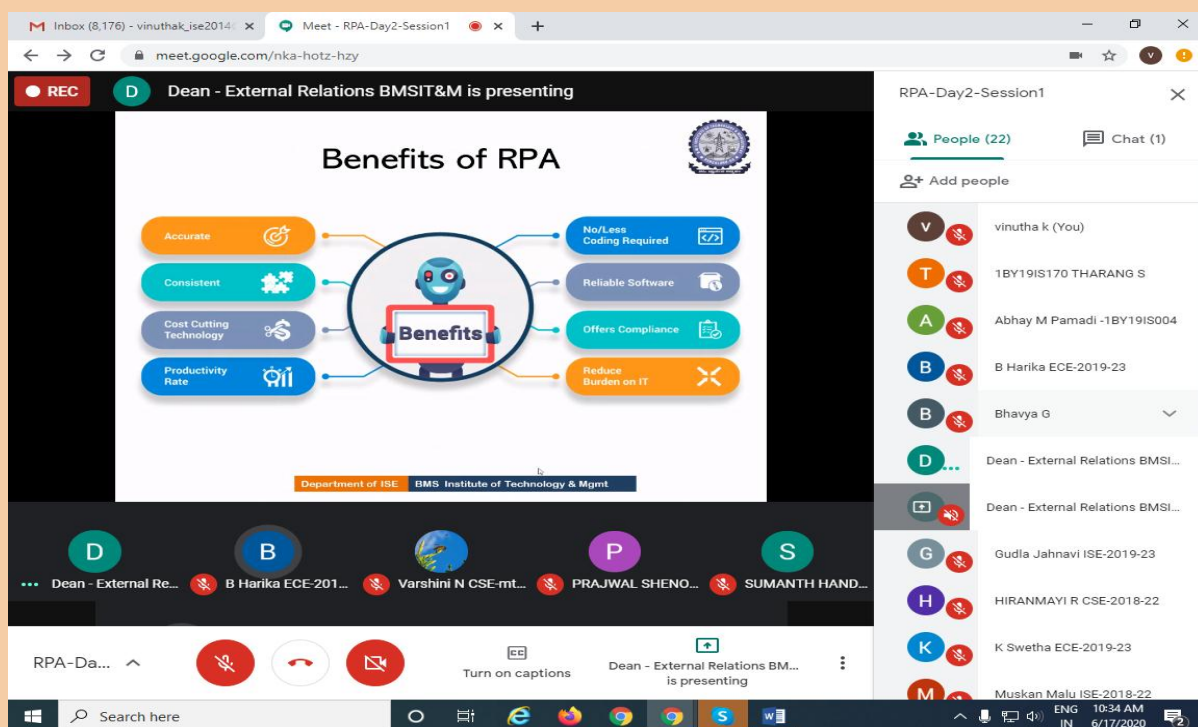
The first session was engaged by Session by Dr. Manjunath T N, Dean External Relations, BMSIT&M. The session started with revision of previous session and brainstorming questions solutions uploaded by students in Google Classroom was discussed and presented by them. Later session The session covered the topic on benefits of RPA and structure of Automation anywhere.

### MORNING SESION 2(11:30PM to 2:30PM):

The session was engaged by Session by Ashwini N, Assistant Professor, Dept. of ISE, BMSIT&M. The session started how smart we are and how smartly and Automation tool should be there. All participants where help to install Community Edition of Automation Anywhere tool followed by creation of an “Hellobot” message. The class was concluded by showing some of the videos working on stock market which is a platform for tomorrow sessions.

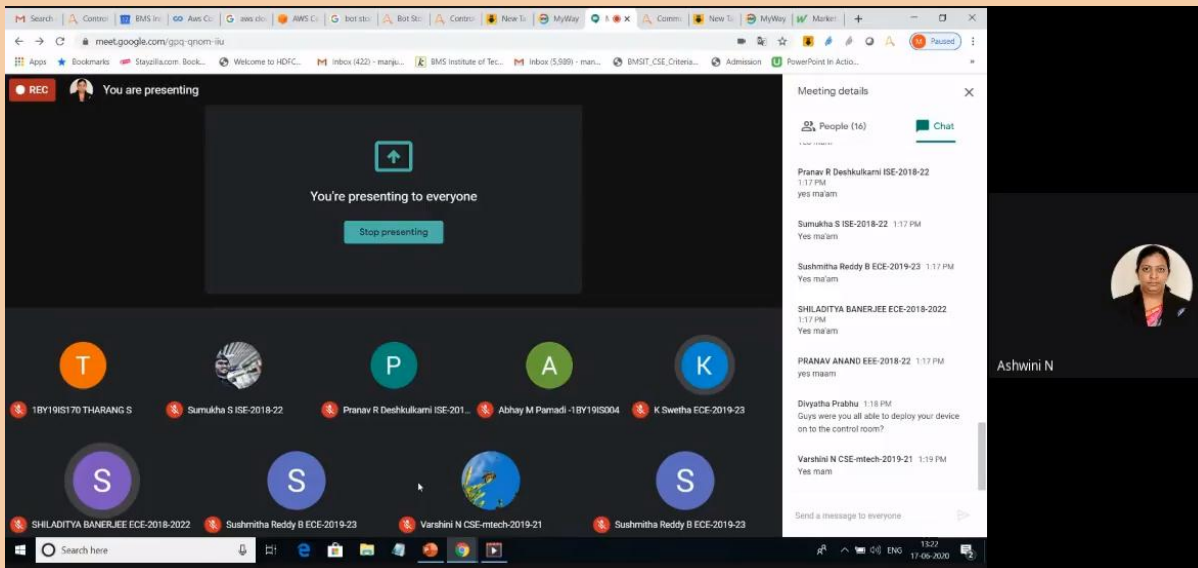
### AFTERNOON SESSION 1(3:00PM to 4:00PM): -

The session was engaged by Session by Ashwini N, Assistant Professor, Dept. of ISE, BMSIT&M. Creation of Bot activity was given to the participants, all participants were able to do and few students were helped to do. Participants are told to create a video of creating an “Hai Bot-RPA friends” and upload to Google classroom and discussed how all they can automat data for real time scenarios like COVID-19.



The screenshot displays a Google Meet interface during a session. The main content area shows a presentation slide titled "Benefits of RPA" with a central robot icon and a "Benefits" box. The slide lists several benefits: Accurate, Consistent, Cost Cutting Technology, Productivity Rate, No/Less Coding Required, Reliable Software, Offers Compliance, and Reduce Burden on IT. The slide footer identifies the Department of ISE at BMS Institute of Technology & Mgmt. The right sidebar shows a list of 22 participants, including the presenter, Dean - External Relations BMSIT&M, and several students. The bottom of the screen shows the Windows taskbar with the time 10:34 AM on 6/17/2020.

Session by Dr. Manjunath T N, Dean External Relations, BMSIT&M

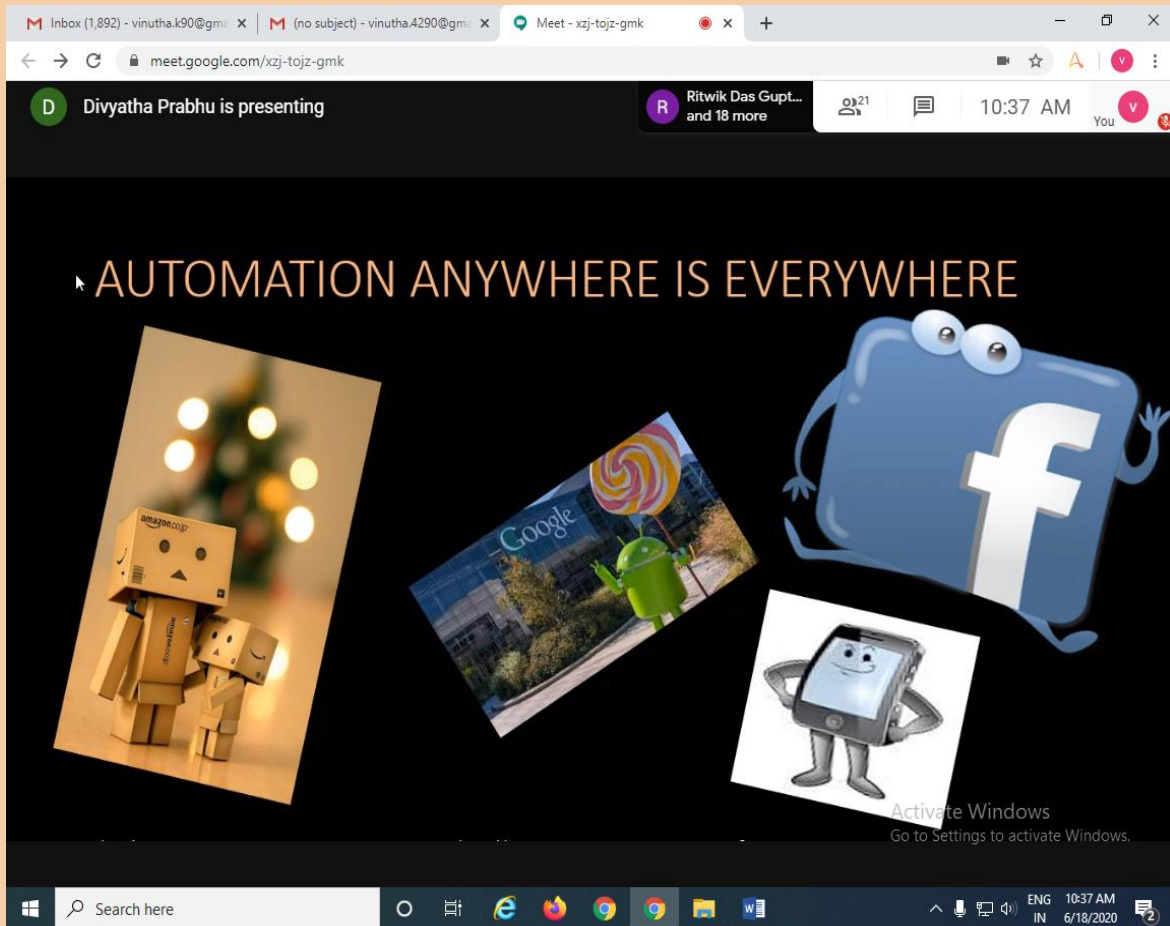


Session by Ashwini N, Assistant Professor, Dept. of ISE, BMSIT&M

### Day 3:

#### **MORNING SESSION 1(10:00AM to 12:30PM): -**

The first session was engaged by **Divyatha Prabhu, 8<sup>th</sup> semester, and Mrs. Vinutha K, Assistant professor, Dept. of ISE, BMSIT&M by BMSIT&M.** The session started with revision of previous session and appreciation of students who uploaded their previous class assignment in Google Classroom. Later the session covered the topic on IQ BOT, and Meta BOT Task BOT of Automation anywhere. Hands on creating bots on mail automation, data reading to excel automation and web scrapping. A live project (student performance Analysis) is demonstrated and shared the steps involved in creating a complete project.



Session by Divyatha Prabhu, 8th semester, BMSIT&M

### **AFTERNOON SESSION 1(2:00PM to 4:00PM): -**

The session was engaged by **Bhavya G and Ashwini N, Assistant Professor, Dept. of ISE, BMSIT&M.** Creation of Bot activity was given to the participants. The videos of various bot creation are uploaded in google classroom and asked students to follow the steps and after creation of bots, the screenshots /video will be uploaded by students.

The diagram illustrates the data flow for flight test data and post-analysis. It starts with an RF Receiver receiving data from an aircraft via RF Communication. This data is sent to a Data Recorder (PCM Data, Clock). The Data Recorder can store data offline on SSD type cartridge memory or a Memory slot Read/Write Device. The Data Recorder also sends data to a Data Processor. The Data Processor sends data to a Control Server via LAN Download and to a Flight Data Visualization System via LAN (TCP/UDP). The Control Server sends data to a Web Server via LAN Upload and is connected to an HFS File database. The Web Server sends data to an I/O PC via LAN Upload and to a Post-test Flight Analysis System via Import. The I/O PC sends data to the Memory slot Read/Write Device via SCSI Download.

## Day 4:

### MORNING SESSION 1(10:30AM to 11.45PM): -

The first session was engaged by Mrs. Bhavya. G, Assistant Professor, Dept. of ISE, BMSIT&M. The session started with revision of commands learnt in previous session. The sessions covered basic commands of Automation Anywhere tools like Web Recorder, File/Folder, Optical Character Recognition-OCR, etc., Many students were able to create a bot and run a bot using the commands discussed. The session was very interactive students also shared the screen and demonstrated various features of commands they executed.

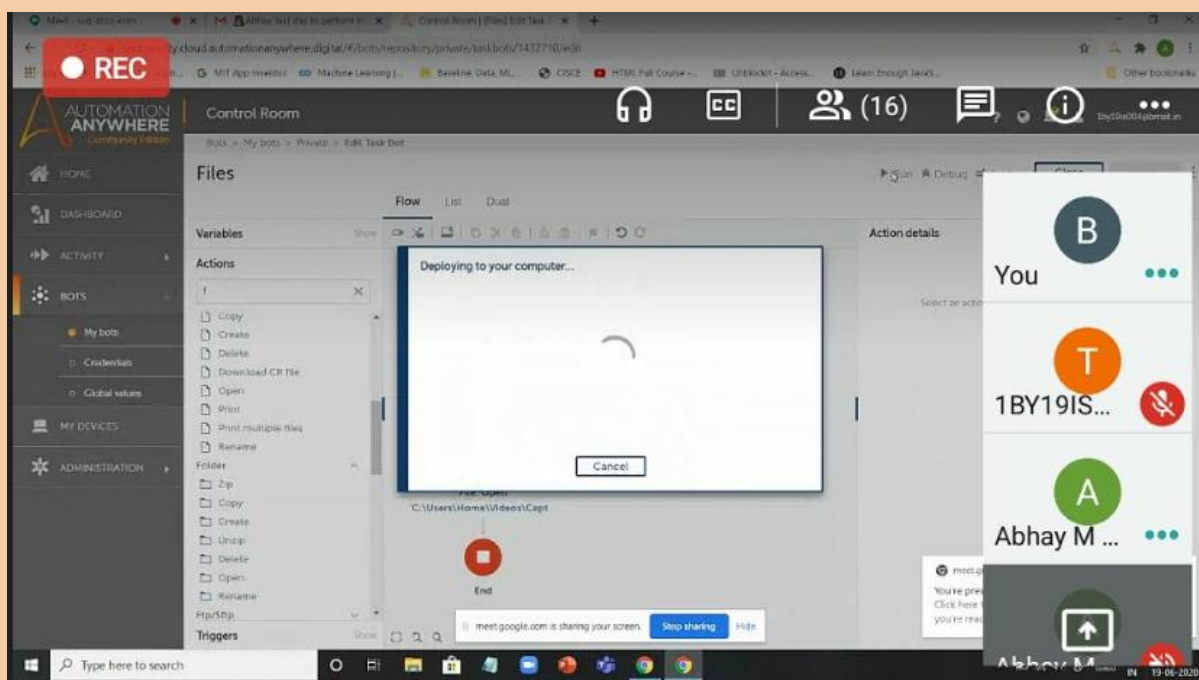
### MORNING SESSION 2(12:00PM to 1:00PM): -

The session was engaged by Dr. Manjunath T N, Dean External Relations, BMSIT&M. The sessions was all about “industry challenges and placements on RPA”. The sessions covered job descriptions, Role of RPA Developer, opportunities available on

RPA, few case studies, Job currently available in bangalore, few projects that can be carried out to automate certain tasks. The session is concluded by informing students about BotLab in the college and informed all too actively take part and work on RPA.

### **AFTERNOON SESSION 2 (2:00PM to 4:00PM): -**

The Session was handled by Mrs. Bhavya G, Assistant Professor, Department of ISE, BMSIT&M. The session was hands-on. All the students demonstrated the understanding of all the commands they learnt. Along with this few other commands like Excel Automation, email automation, REST Web services, String operations etc, also discussed. At the end of the session the assignment on “Excel Automation” is given where students have to create excel file with students marks details extract only students who failed in exam and copy the details to another excel file.





## Day 5:

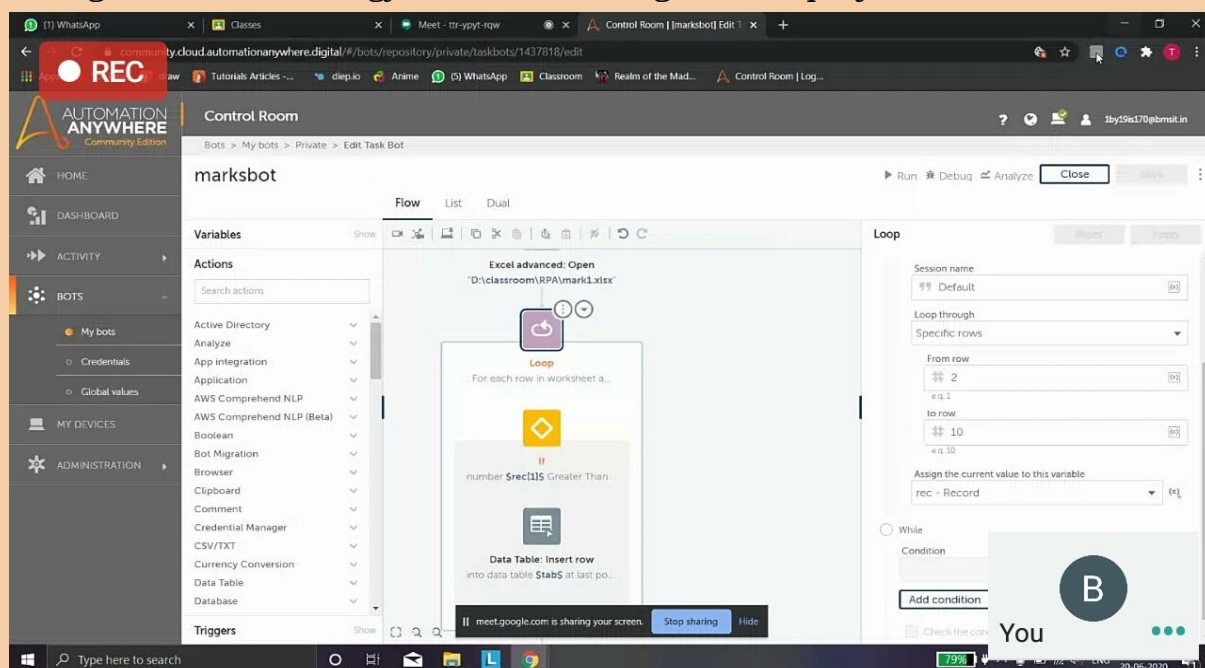
### MORNING SESSION 1(10:30AM to 11.30AM): -

The session was started by welcoming all the participants of “Robotic Process Automation (RPA)-Automation Anywhere” open Course by Open Course Coordinator Prof Vinutha K.

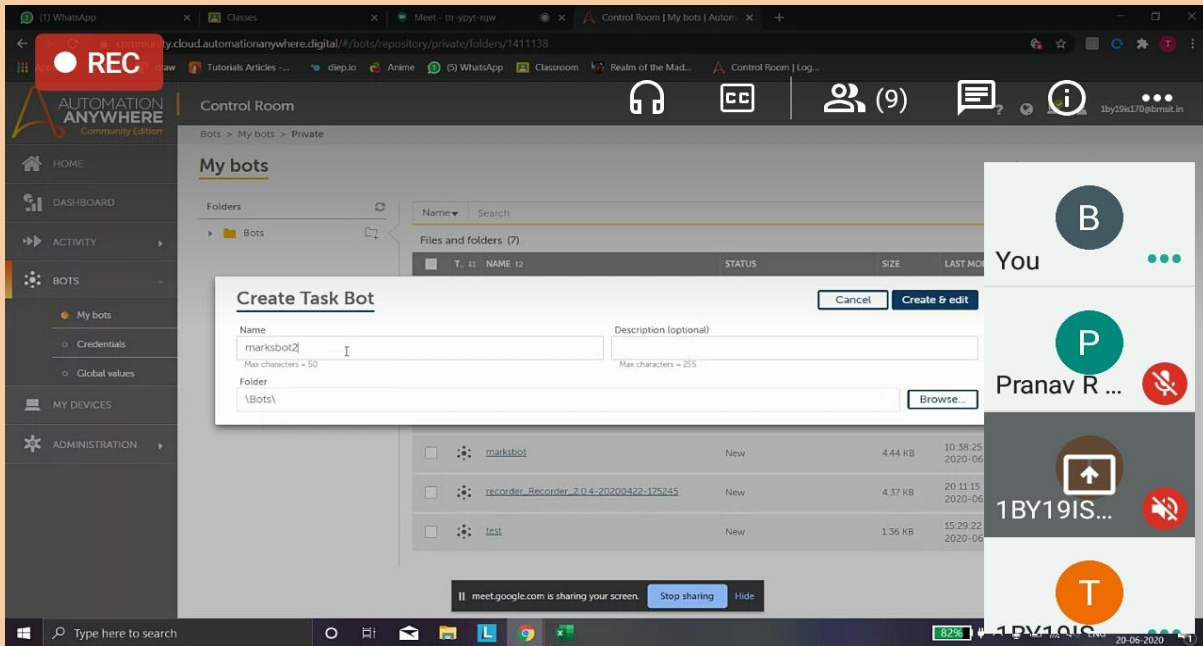
The first session was engaged by Mrs. Bhavya. G, Assistant Professor, Dept. of ISE, BMSIT&M. In the session the revision of RPA commands discussed in previous session is done. Followed by demonstration of complex bots that will sort and copy the data from excel file to another excel file is done by students. Various errors are discussed. Few students expressed that they were able to figure out what commands exists and when that can be used if certain bots to be created

### MORNING SESSION 2(12:00PM to 1:30PM): -

The session was engaged by all the coordinators. In this session quiz is posted to students which covers all the topics they learnt in the 5 days open course. Dr.Manjunath T N, conveyed his thanks to HOD,ISE for conducting this course and also thanked all the coordinators and thanked students for active participation. Few students all voluntarily gave good feedback and expressed that they will continue working on this technology further for doing various projects.



Demonstration of assignment by Mr Pranav, 4th sem, Dept of ISE, BMSIT&M



Demonstration of assignment by Mr Thanay, 2nd sem, Dept of ISE, BMSIT&M

## Web Stack Development for IT Career

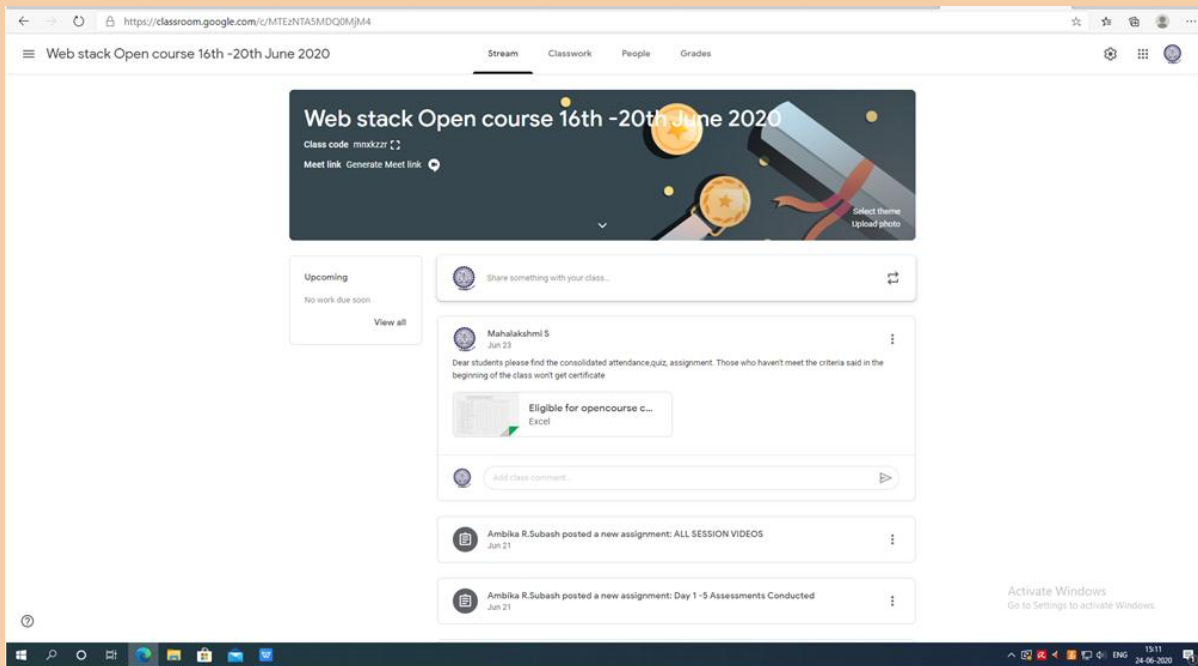
### **Day 1- Incharge: Prof. S Mahalakshmi**

Today's Session started at 10am through Google Meet by introducing the resource person Mr.Ayush Gupta, CIO, Tecidexa Services Pvt.Ltd.

Mr.Ayush Gupta Started the session the importance of full stack in industry and explained about how web applications has been used in their company. He then started explaining about the basic HTML tags , how to link images , how to use anchor tags with the demo. Students were very active and have good interaction with the resource person

Next Session he started explaining about Cascading Style sheets. Given demo on various styles how to use with in html tags and also using css. He explained and showed how to vary the font size, text and background colour, creation of buttons and forms. Student posted many questions and cleared their doubts.

Afternoon session starts with a quiz, 58 students submitted the quiz on time. Then Google class room was created and assignment has been posted. 50 students completed the assignments and posted in google class room.



## **Day 2 – Incharge: Prof. Ambika R Subhash**

Today's Session started at 10am through Google Meet by Mr.Ayush Gupta, CIO, Tecidexa Services Pvt.Ltd.

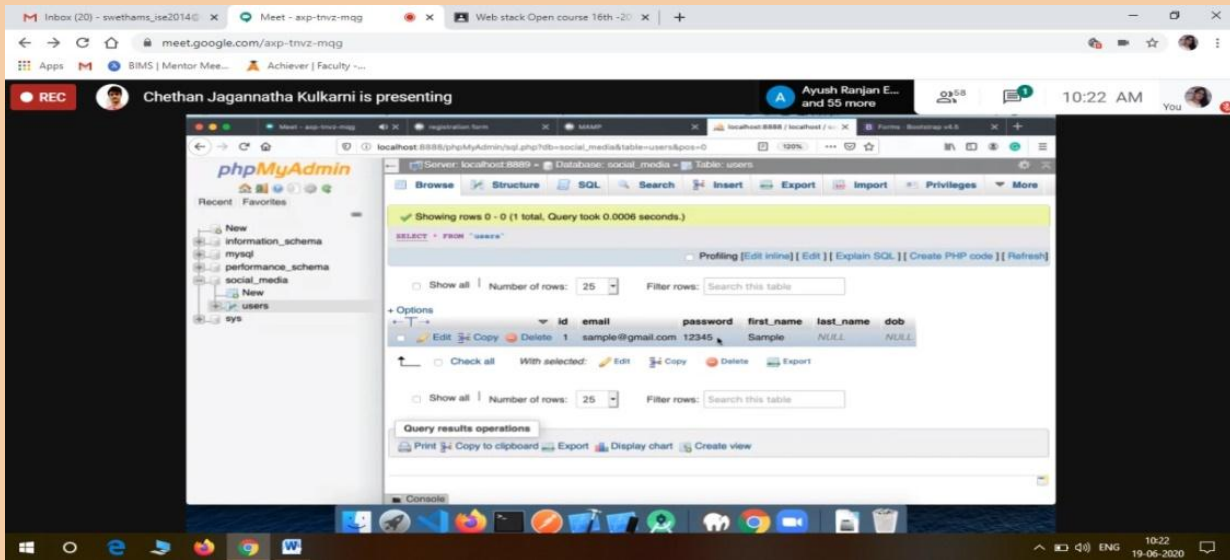
Mr.Ayush Gupta Started the session by giving a brief recap of cascading style sheets (css). He then went onto explaining css topics such as cover box, overflow, borders, shorthand, animation and media queries.

Students were informed to download Xampp software on their laptops and be prepared for session 2.

The next Session commenced at 12.00pm through Google Meet by introducing the second resource person of the day, Mr. Mohammed Rahmat Khan, Managing Director, Tecidexa Services Pvt.Ltd.

During this session the basics of bootstrapping, Mysql and PHP was introduced to students through real time examples.

A quiz was conducted during the afternoon session and 60 students submitted the quiz on time. An assignment was also posted on the GCR and 53 students completed the assignments and posted in google class room.



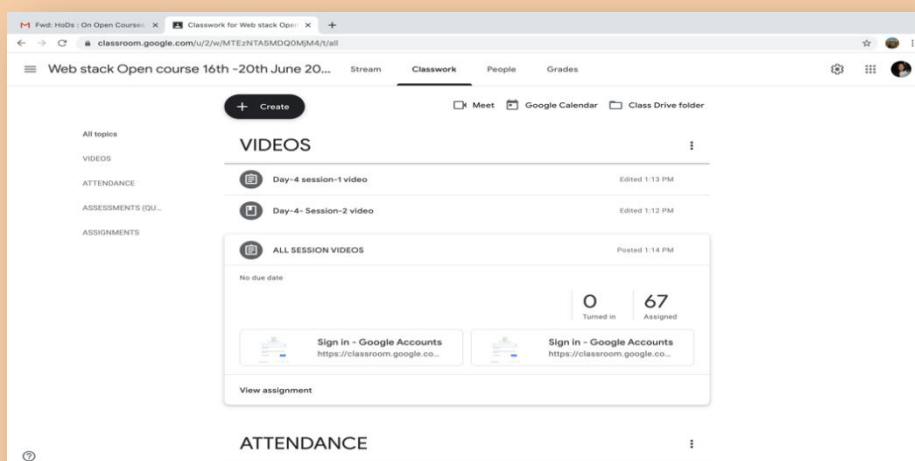
### Day 3 – Incharge: Prof. Shanthi D L

Today's Session started at 10am through Google Meet by introducing the resource person Mr. Mohammed Rahmat Khan, Managing Director, Tecidexa Services Pvt.Ltd.

Mr. Rahmat Khan Started the session with recap of the previous contents dealt during day2 that is the front end interface design importance of full stack in industry. Then he started with basics of PHP, with variable details and other tags required. He took all the session through practical approach developing with sample database creation. Students were very active and had good interaction with the resource person

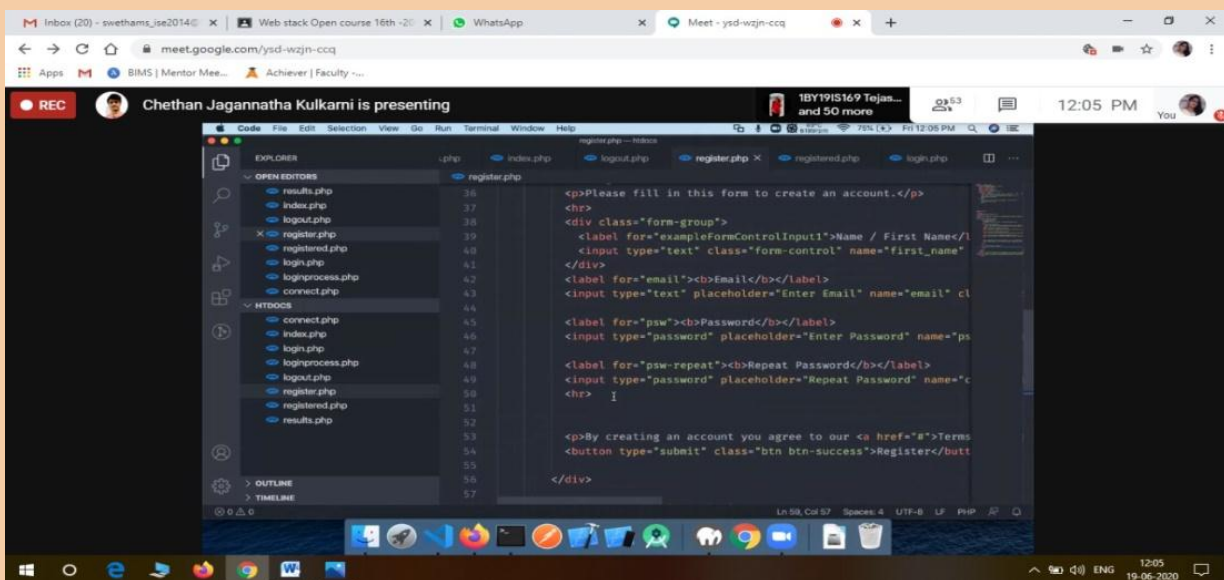
Second Session started explaining the need of having customized API creation with sample interface designs and incorporating the use of API created.

During third session he deliberated about connection of front end and back end using connection file. Also gave an assignment on creation of sample interface and connection establishment, to post the code snap shots for better clarity. The assignment was posted in GCR.



## Day 4 – Incharge: Prof: Swetha M S

The session started by welcoming a resource person Mr. Chethan J Kulkarni, Director, Mazon Technologies Pvt. Ltd. In the session he explained and gives hands on approach on Validation, types of validation are available in PHP-1) client side validation and 2)server side validation, then Cookies are text files stored on the client computer and they are kept of use tracking purpose. PHP transparently supports HTTP cookies. An alternative way to make data accessible across the various page of an entire website is to use a PHP session. A session create a file in temporary directory on the server where registered session variables and their values are stored. PHP login script is used to provide the authentication for web pages, the script execute after submitting the user login button. With PHP, we can connect to and manipulate database. Cloud servers are basically virtual services that run within a cloud computing environment. Cloud deploy PHP is a web service that makes it easy to deploy, operate, and scale an in-memory data store or cache in the cloud.



The screenshot shows a Google Meet window with a code editor open. The code editor displays the following PHP code for a registration form:

```
<?php
<div class="form-group">
  <input type="text" class="form-control" name="first_name" />
</div>
<input type="text" placeholder="Enter Email" name="email" />
<input type="password" placeholder="Enter Password" name="password" />
<input type="password" placeholder="Repeat Password" name="password-repeat" />
<input type="submit" class="btn btn-success" value="Register" />
</div>
```

## Day 5- Incharge : Prof. S Mahalakshmi

Today's Session started at 10am through Google Meet by introducing the resource person Mr.Chethan, Tecidexa Services Pvt.Ltd. Mr.Chethan started the session with the importance of java script, basics of java script has been discussed. Then how to embed java script in HTML, how to use CSS in Java script has been discussed. He

also discussed about how to use inbuilt functions like onclick(), innertext and innerHTML onkeyup and onkeydown, he also taught how to change text, background colours using java script Next Session he started explaining about how to validate password using repeat password algorithm. He also taught about how to validate the emails using @ and . symbol .He also discussed about various platforms like ReactJS and NodeJS and advised students about how to learn the advance concepts. Students posted many questions and cleared their doubts. Afternoon session starts with a quiz, Then overall feedback and course feedback has been shared. Students given a positive feedback and actively involved in all the quizzes and assignments.

### Assessments:

#	Email Address	Starts	Choose the correct HTML element for the following heading	What is the correct HTML for adding a background color?	How can you open a link in a new tab/window/blank? (Use href="target"="")	Which element represents checked or highlighted text for reference purposes?	How can you make a numbered list?	What is the correct HTML for making a checkbox?	Which of the following property specifies the top padding of an element?	Which CSS property controls the text size?	What is the correct CSS syntax for making all the <p> elements size 70px?	Which property is used to change the left margin of an element?	HTML comments start with <!-- and end with -->
1		15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
2	Day151@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
3	Day152@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
4	Day153@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
5	Day154@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
6	Day155@gmail.in	11 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
7	Day156@gmail.in	8 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
8	Day157@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
9	Day158@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
10	Day159@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
11	Day160@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
12	Day161@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
13	Day162@gmail.in	12 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
14	Day163@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
15	Day164@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
16	Day165@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
17	Day166@gmail.in	13 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
18	Day167@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
19	Day168@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
20	Day169@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
21	Day170@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
22	Day171@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
23	Day172@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
24	Day173@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
25	Day174@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
26	Day175@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
27	Day176@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
28	Day177@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
29	Day178@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
30	Day179@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
31	Day180@gmail.in	13 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
32	Day181@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
33	Day182@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
34	Day183@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
35	Day184@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
36	Day185@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
37	Day186@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
38	Day187@gmail.in	13 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
39	Day188@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
40	Day189@gmail.in	13 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
41	Day190@gmail.in	15 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
42	Day191@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
43	Day192@gmail.in	14 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE
44	Day193@gmail.in	13 / 15	<h1>	y.style.backgroundColor	blank	<input checked="" type="checkbox">	<ol>	<input type="checkbox" checked="" type="checkbox">	padding-top	font-size	font-size: 70px;	margin-left	TRUE

### Assessments:

The screenshot displays a Google Classroom page for a course titled "Web stack Open course 16th -20th June 2020". The interface shows a list of assignments posted by the teacher, Swetha Ms. Each assignment entry includes the assignment title, the due date, and the number of students who have turned in their work. For example, the "Day-4 Webstack\_Open\_Course-quiz" assignment is due on June 19, 11:59 PM, with 28 students having turned in their work out of 39 assigned. Other assignments include "Day 3 Assignment" (52 turned in, 15 assigned), "Day 2-Assignment-2" (53 turned in, 14 assigned), and "Day-1 Assignment" (59 turned in, 8 assigned).

## Applied Machine Learning

### Day 1

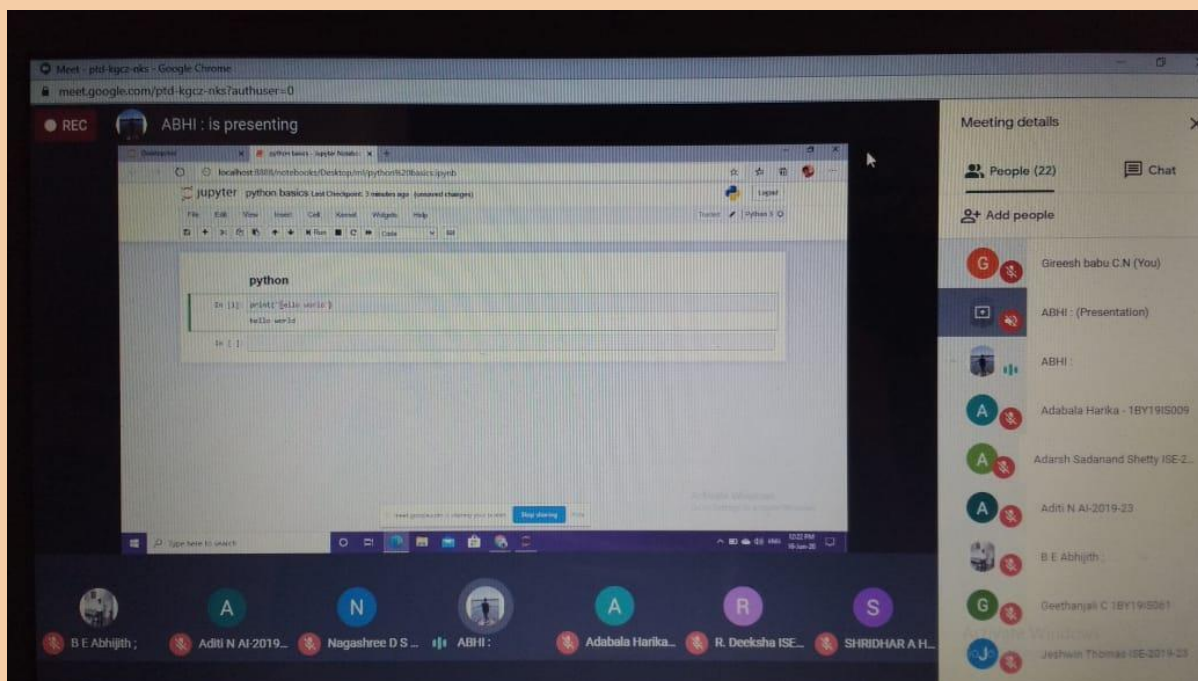
#### Session-1 (Introduction to Machine Learning)

The first session was handled by Professor Gireesh Babu C N. On day 1 students were introduced to Machine Learning, its classifications i.e. supervised, unsupervised and reinforcement learning. They were introduced with the differences between Data science and artificial intelligence.

It was a very good interactive session. Professor Gireesh Babu even showed a video to give an example for reinforcement learning. Certain examples were given even by students and all the doubts of the students were clarified. Overall, it was a very good introduction to Machine Learning.

#### Session-2 (Basics of Python)

Afternoon session was handled by Mr. Abhijith fourth Semester, Section A, ISE student introduced the basics of python, its Environment, basic syntax of python such as list, tuples and dictionaries. There was a hands-on session on Jupiter notebook. Overall, the session was very well presented and demonstrated.



Session by Mr Abhijith, Fourth Semester, Dept. of ISE, BMSIT&M

#### Assignment

At the End of the day there was assignment given on Python Programming

## Day 2

### Session-1 (Machine Learning Algorithm)

The first session was handled by Mr B E Abhijith. where there was an introduction to Machine Learning Algorithms. There was brief introduction given about the previous day topics. Explanation was given on target variable and were introduced to datasets. A Simple Linear Regression algorithm and Logistic Regression Algorithm was explained. A simple case study on house price prediction was done. overall, it was a very good and interactive session.

### Session-2 (Machine Learning Algorithm)

Afternoon session was taken by Prof. Gireesh Babu, it was an interactive session, where another classification algorithm k-nearest neighbours was explained with the help of iris dataset. Students also learnt about confusion matrix. Overall, the session went very well.

```
In [1]: import pandas as pd
from sklearn.linear_model import LogisticRegression
from sklearn.model_selection import train_test_split

In [2]: data=pd.read_csv("heart.csv")
data.head()

Out[2]:
   age  sex  cp  trestbps  chol  fbs  restecg  thalach  exang  oldpeak  slope  ca  thal  target
0  63   1   3    145   233   1     0    150     0    2.3   0  0   1     1
1  37   1   2     130   260   0     1    187     0    3.5   0  0   2     1
2  41   0   1     130   204   0     0    172     0    1.4   2  0   2     1
3  56   1   1     120   236   0     1    170     0    0.9   2  0   2     1
4  57   0   0     120   264   0     1    183     1    0.6   2  0   2     1

In [3]: data.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 302 entries, 0 to 302
Data columns (total 14 columns):
age          302 non-null int64
sex         302 non-null int64
cp          302 non-null int64
trestbps    302 non-null int64
chol        302 non-null int64
fbs         302 non-null int64
restecg     302 non-null int64
thalach     302 non-null int64
exang       302 non-null int64
oldpeak     302 non-null float64
slope       302 non-null int64
ca          302 non-null int64
thal        302 non-null int64
target      302 non-null int64
```

Session by Mr Abhijit, Fourth Semester, Dept. of ISE, BMSIT&M

### Assignment

A dataset with Gender, Age, Body size and Brain weight was given to apply machine learning concepts and find the accuracy



## Day 3

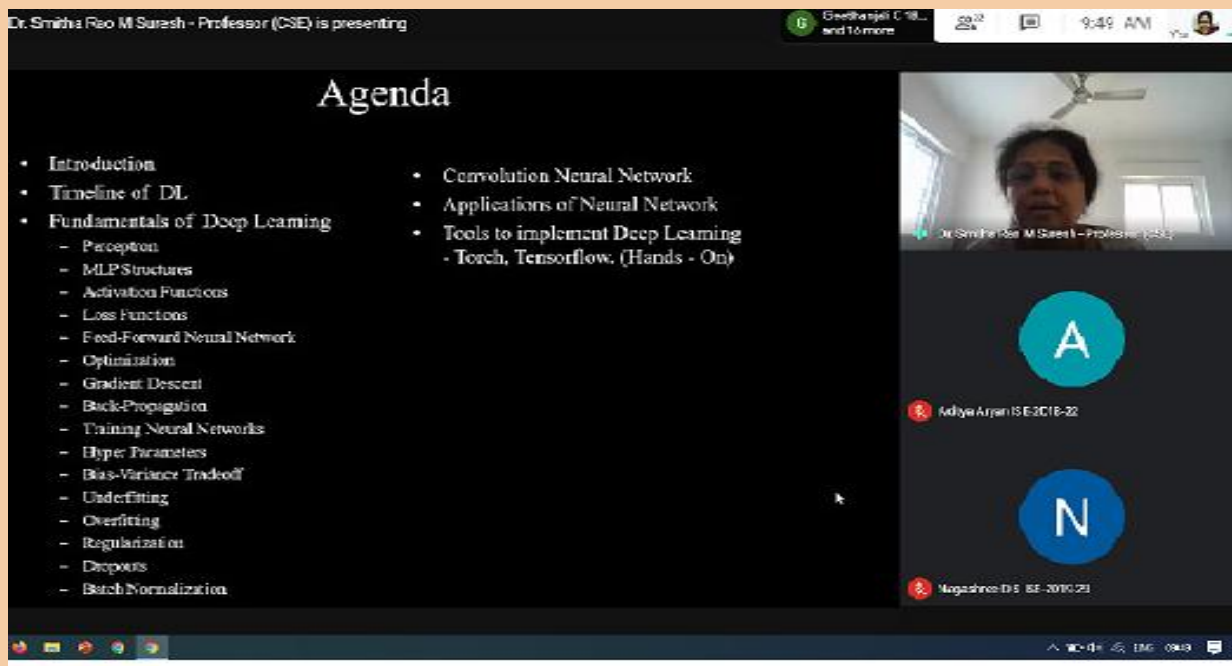
### Session-1 (Introduction to Machine Learning)

The session was started by Dr Smitha Rao, Professor, Presidency University with the real time example to make the students understand the importance of testing and training dataset and introduced them to the classification problem.

### Session -2 (Convolution Neural Networks with image database was explained)

Different concepts with respect to Deep learning was covered such as difference between Simple Neural Network and Deep Learning Neural Network, MLP, perceptron, activation function, error, different types of loss functions, bias and variance.

**Assignment** was been given to try on varying data split, number of layers in Neural Networks etc



The screenshot shows a Zoom meeting interface. The main content is a slide titled "Agenda" with the following items:

- Introduction
- Timeline of DL
- Fundamentals of Deep Learning
  - Perceptron
  - MLP Structures
  - Activation Functions
  - Loss Functions
  - Feed-Forward Neural Network
  - Optimization
  - Gradient Descent
  - Back-Propagation
  - Training Neural Networks
  - Hyper Parameters
  - Bias-Variance Tradeoff
  - Underfitting
  - Overfitting
  - Regularization
  - Dropouts
  - Batch Normalization
- Convolution Neural Network
- Applications of Neural Network
- Tools to implement Deep Learning
  - Torch, Tensorflow, (Hands - On)

The Zoom interface also shows a video feed of Dr. Smitha Rao, M. Suresh - Professor (CSE) and a list of participants: Aditya Arjan (SE-2018-22) and Nageshree (DS - 2018-23).

**Session by Smitha Rao, Professor, Presidency University**

How a computer sees an image

Size of the image will be -  $B \times A \times 3$

Pixel values of R, G, B

**Session by Smitha Rao, Professor, Presidency University**

Simple Neural Network

Deep Learning Neural Network

Input Layer

Hidden Layer

Output Layer

**Session by Smitha Rao, Professor, Presidency University**

## Day 4

### Session1 and Session2 (Big Data and Hadoop)

The session was started by Mr Mahantesh Angadi, Data Scientist, Sakha Global Information System, Bangalore.

#### Topic covered:

Evolution of Big data

What is Big data?

Application of Big Data

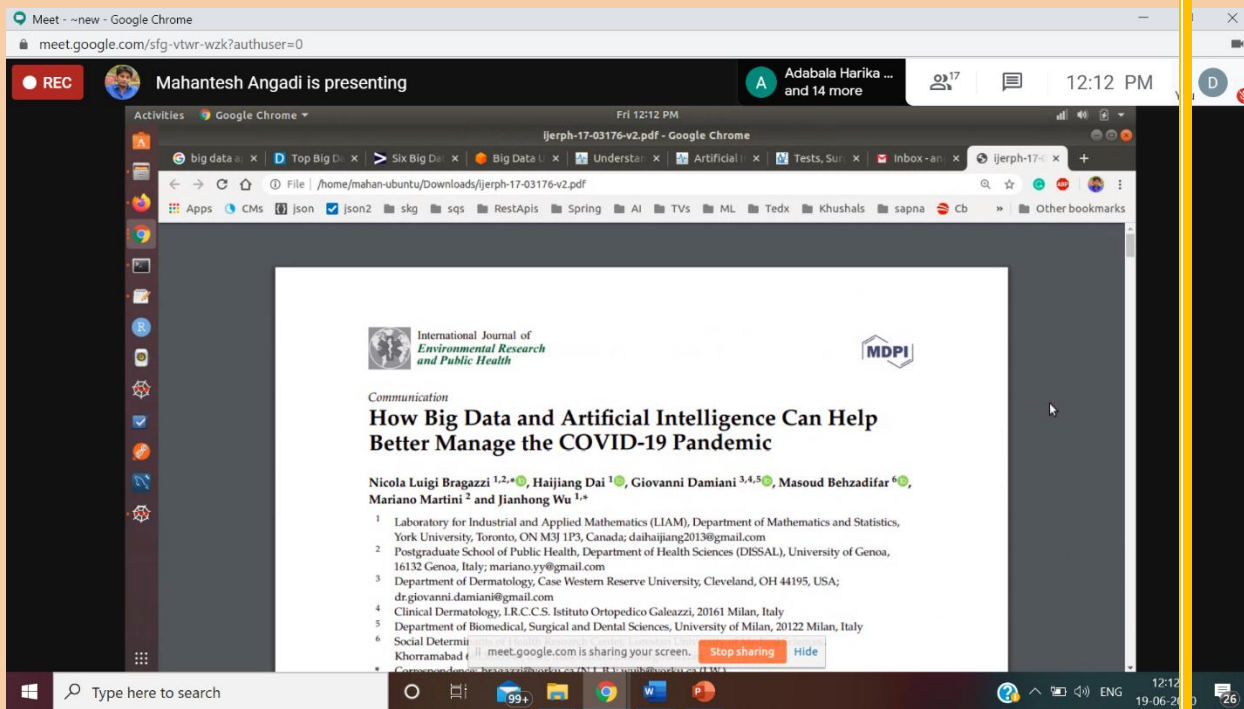
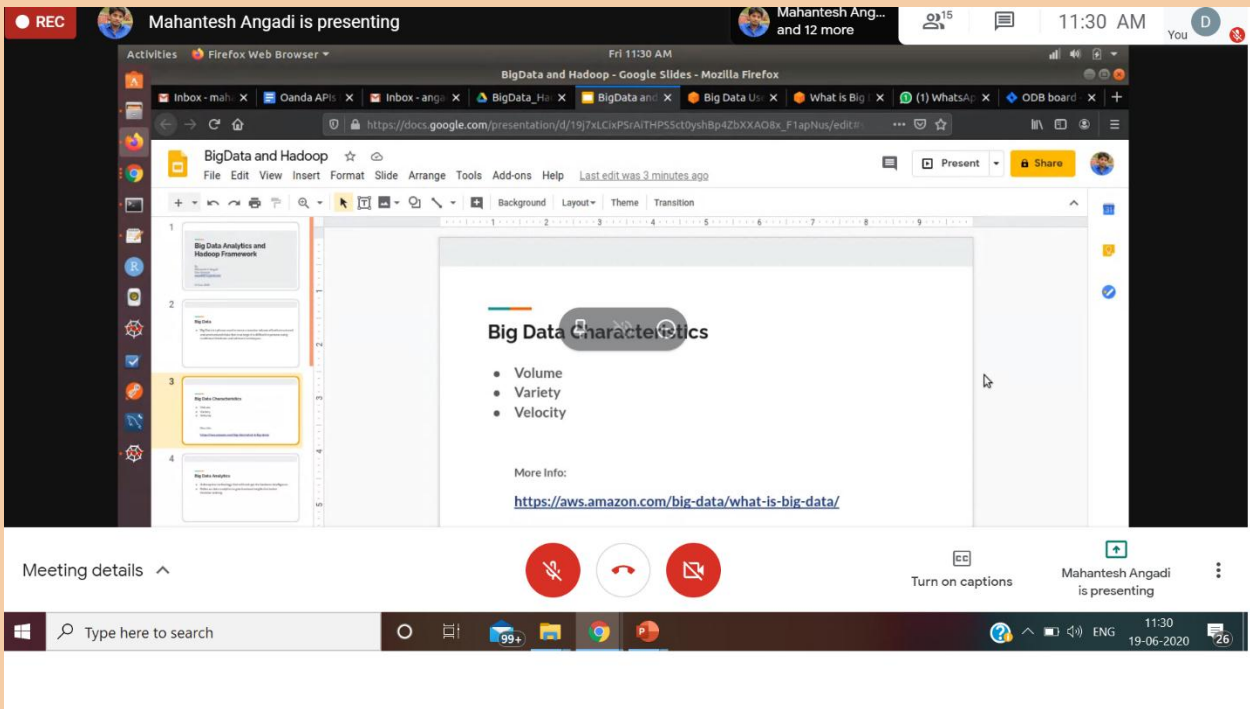
Hadoop Ecosystem

Case study - vital role of big data on in the fight against Covid-19

Installation of Hadoop cluster

The screenshot shows a Google Meet interface. The main content is a presentation slide from BMS Institute of Technology and Management. The slide is titled "Human Learning V/s Machine Learning" and compares human and machine learning. On the left, a human character is shown with a speech bubble that says "I can learn everything automatically from experiences. Can u learn?". On the right, a robot character is shown with a speech bubble that says "Yes, I can also learn from past data with the help of Machine learning". The Meet interface includes a "REC" button, a "G" icon for the presenter (Gireesh babu C.N), a list of participants (Pankaj kumar singh, Prashanth R, R. Deeksha, Rajath.m.hegde, SHIVANSH BHARTI, SHRIDHAR A HONNAPPANAV..., SMIT MITESHKUMAR SHAH E..., SUSHMA K Ec), and a "Meeting details" panel. The Windows taskbar is visible at the bottom, showing the search bar and system tray.

**Session by Mr. Gireesh Babu C N, Assistant Professor, Dept of ISE, BMSIT&M**



**Session by Mr. Mahantesh Angadi, Data Scientist, Sakha Global Information System, Bangalore**

## Day 5

The session was continued by Mr Mahantesh Angadi, Data Scientist, Sakha Global Information System, Bangalore also Dr. Rudresh Shirwaikar conducted a session on Machine Learning for Health care.

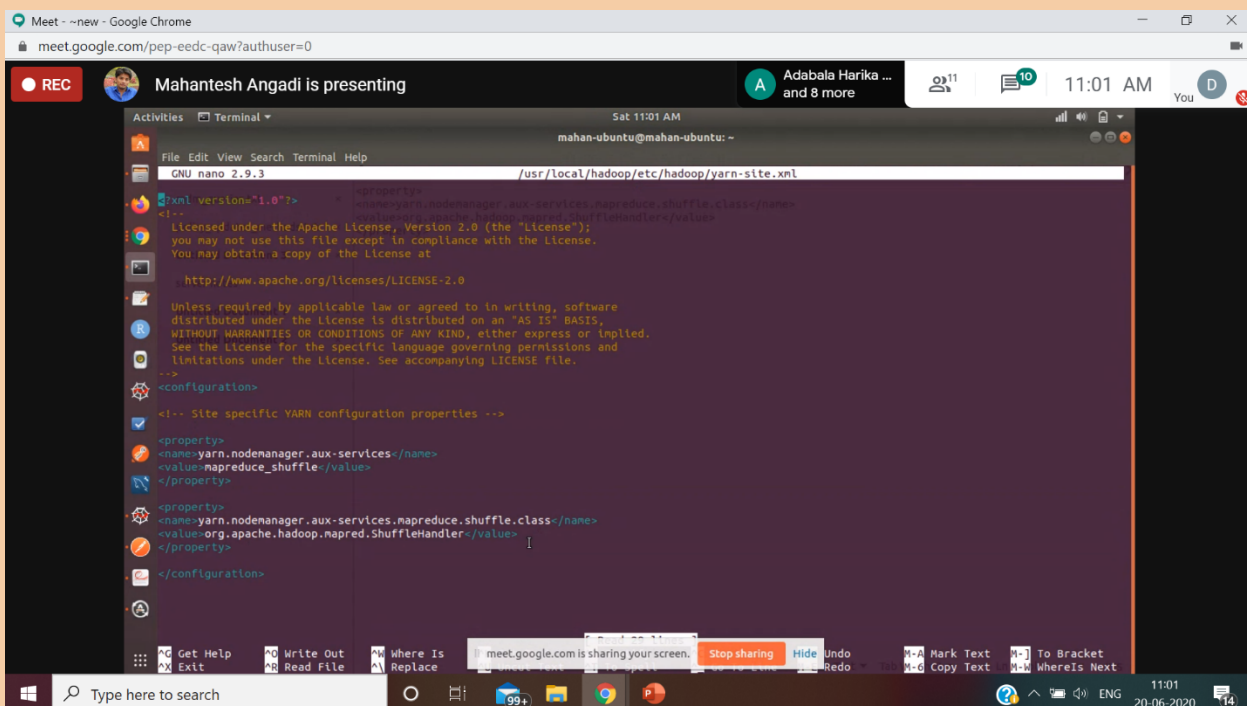
### Topic covered:

Hadoop Ecosystem

case study - vital role of big data on in the fight against Covid 19

Installation of Hadoop cluster.

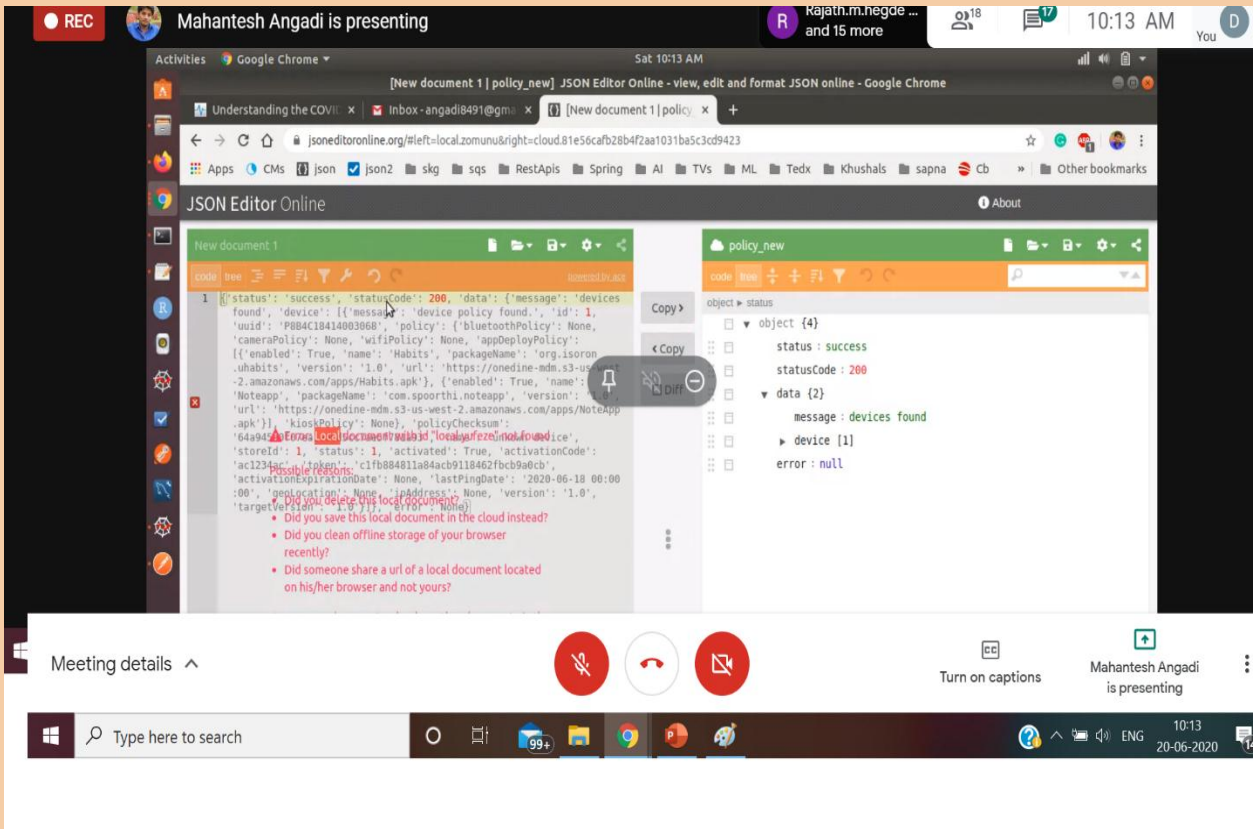
Case study on use of machine learning in drug dosage prediction for Neonatal Intensive care unit.



The screenshot shows a Google Meet window with a terminal window open. The terminal window displays the contents of the file `/usr/local/hadoop/etc/hadoop/yarn-site.xml` using the nano editor. The XML configuration includes the following elements:

```
<?xml version="1.0"?>
<configuration>
  <!-- Site specific YARN configuration properties -->
  <property>
    <name>yarn.nodemanager.aux-services</name>
    <value>mapreduce_shuffle</value>
  </property>
  <property>
    <name>yarn.nodemanager.aux-services.mapreduce_shuffle.class</name>
    <value>org.apache.hadoop.mapred.ShuffleHandler</value>
  </property>
</configuration>
```

The terminal window also shows the Apache License, Version 2.0, and the URL `http://www.apache.org/licenses/LICENSE-2.0`. The Google Meet interface shows the presenter's name as Mahantesh Angadi, the time as 11:01 AM, and the date as 20-06-2020.



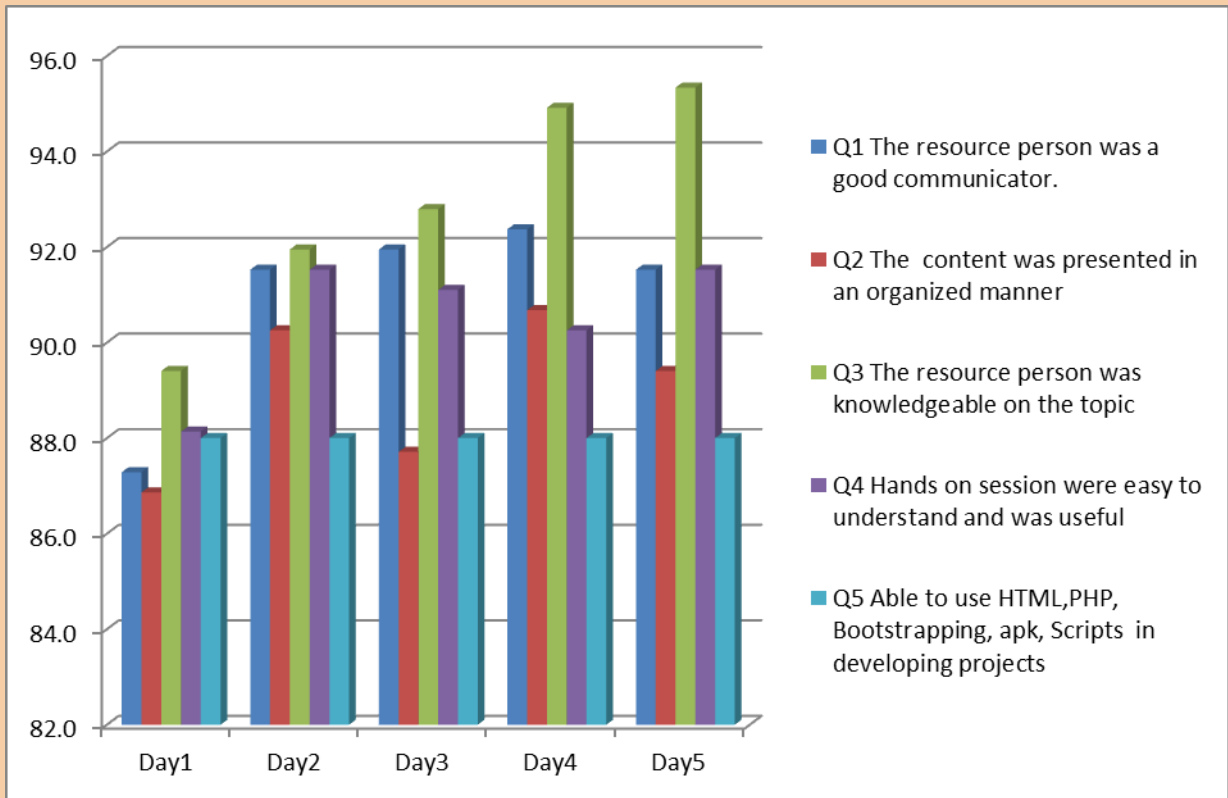
**Session by Mr. Mahantesh Angadi, Data Scientist, Sakha Global Information System, Bangalore**

## **Feedback**

**Web Stack Development for IT Career**

#	Email Address	NAME	USN	1. The resource person was a good communicator.	2. The content was presented in an organized manner	3. The resource person was knowledgeable on the topic	4. Hands on session were easy to understand and was useful	5. Able to use HTML and CSS in developing web sites
1	pranavrayapatin@gmail.com	Pranav Rayapati	1BY17CS117	Agree	Strongly Agree	Agree	Agree	Yes
2	1by17cs129@bmsit.in	Rahul	1BY17CS129	Agree	Agree	Agree	Agree	Yes
3	1by17cs161@bmsit.in	Siddhartha patel g m	1by17cs161	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
4	1by17cs169@bmsit.in	Srinivas reddy k	1by17cs169	Agree	Agree	Agree	Agree	Yes
5	1by17ec182@bmsit.in	Vivek Prakash	1BY17EC182	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
6	1by17ee046@bmsit.in	Shringar Agarwala	1by17ee046	Agree	Agree	Strongly Agree	Strongly Agree	Yes
7	1by17ee061@bmsit.in	Mahima Choudhary	1BY17EE061	Agree	Agree	Agree	Agree	Yes
8	1by17is032@bmsit.in	Rahmat khan	1by17is032	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
9	1by18cs156@bmsit.in	Shravya	1BY18CS156	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
10	1by18cs220@bmsit.in	RIDDHI JAIN	1BY18CS220	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
11	1by18cs226@bmsit.in	M Vijaya Bhargavi	1BY18CS226	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
12	1by18is001@bmsit.in	Abhinav Sharma	1BY18IS001	Agree	Agree	Agree	Agree	Yes
13	1by18is019@bmsit.in	Amandeep Singh	1by18is019	Strongly Agree	Strongly Agree	Agree	Agree	Yes
14	1BY18IS025@bmsit.in	Anisha Diyya G	1BY18IS025	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
15	1by18is039@gmail.in	Chaithra V	1BY18IS039	Agree	Neutral	Agree	Agree	Yes
16	1by18is074@bmsit.in	Nikhita G Honnatti	1BY18IS074	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
17	1by18is075@bmsit.in	Nirisha B	1BY18IS075	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
18	1by18is081@bmsit.in	PAVITHRA D A	1by18is081	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
19	1by18is084@bmsit.in	Prajwal R	1BY18IS084	Agree	Agree	Strongly Agree	Strongly Agree	Yes
20	1by18is098@bmsit.in	RASHMI B S	1BY18IS098	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
21	1BY18IS104@bmsit.in	Sanjana Shetty	1by18is104	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
22	1by18is116@bmsit.in	SPOORTHI.C.MAHADIMA	1by18is116	Agree	Agree	Agree	Agree	Yes
23	1by18is129@bmsit.in	Anamika Sharma	1by18is129	Agree	Agree	Neutral	Agree	Yes
24	1by18te053@bmsit.in	S HARSHATHA	1BY18TE053	Agree	Agree	Strongly Agree	Strongly Agree	Yes
25	ayushranjan.iit@gmail.com	Ayush Ranjan	1BY19EC025	Agree	Agree	Agree	Neutral	Yes
26	1by19ec062@bmsit.in	Himanshu Kumar Siddha	1BY19EC062	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
27	kiranhegge@gmail.com	Kiran Kumar Hegge	1by19ec078	Agree	Agree	Agree	Agree	Yes
28	1by19is018@bmsit.in	Akshat Srivastava	1BY19IS018	Agree	Agree	Agree	Agree	Yes
29	1by19is021@bmsit.in	Aman Prasad	1BY19IS021	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
30	1by19is025@bmsit.in	Ananya ravishankar	1BY19IS025	Agree	Agree	Strongly Agree	Neutral	Yes
31	1BY19IS030@bmsit.in	Aparna Bhat	1BY19IS030	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Yes
32	1by19is043@bmsit.in	Chattada Saikusal	1BY19IS043	Strongly Agree	Strongly Agree	Strongly Agree	Agree	Yes

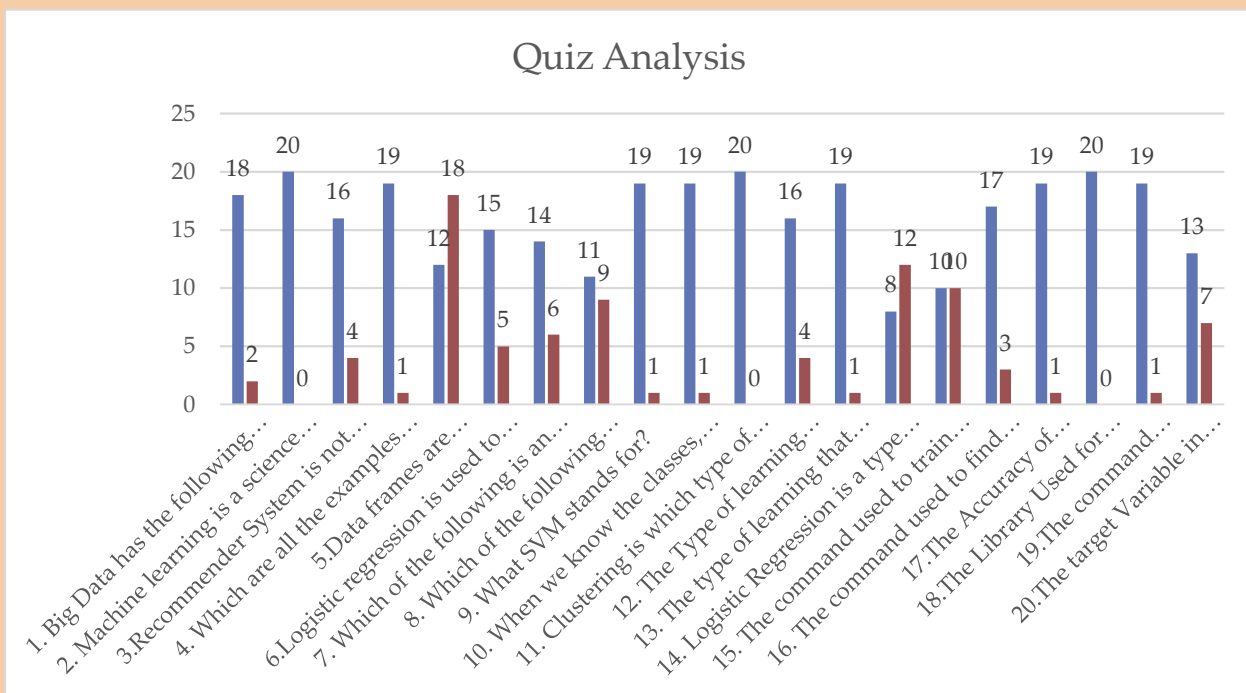
Q.No	Feedback Questions	Day1	Day2	Day3	Day4	Day5
Q1	The resource person was a good communicator.	87.3	91.5	91.9	92.4	91.5
Q2	The content was presented in an organized manner	86.9	90.3	87.7	90.7	89.4
Q3	The resource person was knowledgeable on the topic	89.4	91.9	92.8	94.9	95.3
Q4	Hands on session were easy to understand and was useful	88.1	91.5	91.1	90.3	91.5
Q5	Able to use HTML,PHP, Bootstrapping, apk, Scripts in developing projects	88.0	88.0	88.0	88.0	88.0



Questions	Correct answer	Wrong answer
1. Big Data has the following characteristics	18	2
2. Machine learning is a science which deals with the creation of algorithms and programs which predicts results or takes actions in order to optimize a system based upon the data that is constantly generate	20	0
3.Recommender System is not used by which of the following	16	4
4. Which are all the examples of speech recognition products?	19	1
5.Data frames are _____data objects	12	18
6.Logistic regression is used to regress	15	5
7. Which of the following is an example of a deterministic algorithm?	14	6
8. Which of the following sentence is FALSE regarding regression?	11	9
9. What SVM stands for?	19	1
10. When we know the classes, the learning is called?	19	1
11. Clustering is which type of learning method?	20	0
12. The Type of learning without target variable	16	4
13. The type of learning that learns from its mistakes or previous	19	1

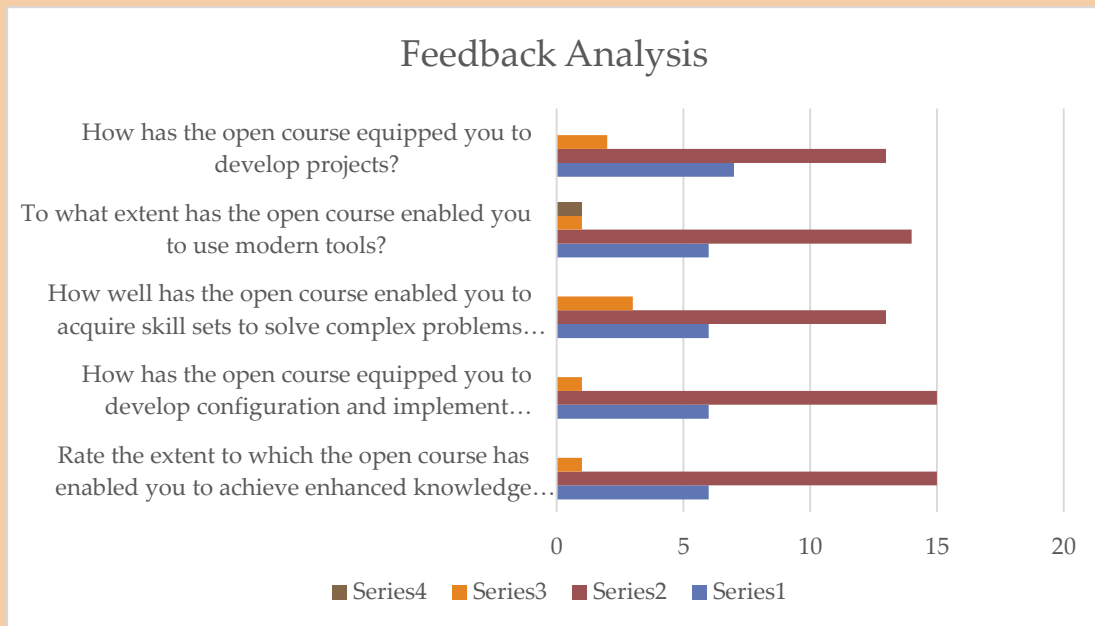


experiences		
14. Logistic Regression is a type of	8	12
15. The command used to train a model	10	10
16. The command used to find accuracy of model	17	3
17. The Accuracy of classification problem is obtained by	19	1
18. The Library Used for plotting a graph in python	20	0
19. The command train_test_split() is a part of	19	1
20. The target Variable in Regression is type of	13	7
<b>Total</b>	<b>324</b>	
<b>Percentage</b>	<b>98%</b>	



Question	Ratings			
	Excellent	Good	Average	Poor
Rate the extent to which the open course has enabled you to achieve enhanced knowledge in the area of mathematics, Applied Machine Learning?	6	15	1	0
How has the open course equipped you to develop configuration and implement complex systems?	6	15	1	0
How well has the open course enabled you to acquire skill sets to solve complex problems with research perspective?	6	13	3	0
To what extent has the open course enabled you to use modern tools?	6	14	1	1

How has the open course equipped you to develop projects?	7	13	2	0
---	---	----	---	---



## PROGRAMME OUTCOMES (PO'S)

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### **PROGRAM SPECIFIC OUTCOMES (PSO'S)**

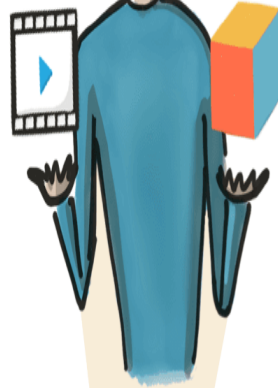
**PSO-1:** Apply the knowledge of information technology to develop software solutions.

**PSO-2:** Design and Develop hardware systems, manage and monitor resources in the product life cycle.

Learning first



Learning on your terms



Learning with relevance



Learning to share

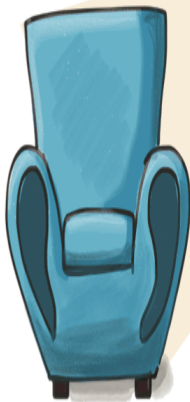


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Thought: The Open University