IIT Spoken tutorials of Python Programming

Preface

Spoken Tutorial is an initiative of the "Talk to a Teacher" activity by the National Mission on Education through Information and Communication Technology (ICT) launched by the Ministry of Human Resources and Development (MHRD), Government of India and is being developed by IIT Bombay. The objective of Spoken Tutorial is to spread the knowledge of technology and Free Open Source Software (FOSS) across the country to the one who lack access and opportunities to learn any software.

In this semester we have selected course of python under IIT spoken tutorial.

Acknowledgement

The success of any event depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this workshop.

I would like to extend my sincere thanks to our Hon. Chairman Shri. K.N.Kadam and Hon. Trustee Dr.S. N. Kadam for their kind support and guidance.

I thank to respected Director General **Dr. K. G. Narayankhedkar** and Principal Dr .S.K **Narayankhedkar** for his continuous encouragement throughout the process.

I extend my thanks to the Head of Computer Department Dr. K. Sanakr who gave me suggestions and guidance whenever required.

The guidance and support received from all the faculty members who contributed and who are contributing to this IIT spoken Tutorial Programme was vital for the success of the project. I am grateful for their constant support and help.

Contents

In workshop following topics of Python has covered:

1. Getting started with **python** introduction
2. Using the plot command interactively
3. Embellishing a plot
4. Saving plots
5. Multiple plots
6. Additional features of Python
7. Loading data from files
8. Plotting the data
9. Other types of plots
10. Getting started with sage notebook
11. Getting started with symbolic
12. Using Sage
13. Using sage to teach
14. Getting started with lists
15. Getting started with for
16. Getting started with strings
17. Getting started with files
18. Parsing data
19. Statistics
20. Getting started with arrays

Programme (Date-wise)

We have conducted workshop in departmental slot. Students have seen some videos in session and others videos we have mailed to their group Ids.

Sessions Conductions Dates:

1	13 March 2018
2	20 March 2018
3	3 April 2018
4	10 April 2018

Summary

In Computer Engineering Department, we have included the course "Programming in PYTHON" for students and have enrolled 70 students for particular course respectively. Since the same courses are available in the curriculum also it becomes beneficial for student to understand the concept in more detail. We will conduct exam for this course in first week of May 2018. Students will get the certificate from IIT Bombay.

The student will secure the score 40% in exam then only they will get certificate. Exam will be around 1 hour with multiple choice questions.

The main advantage of IIT spoken tutorial is that videos are available offline. MHRD funded so entire program with Certificates is FREE of COST.

The main objective of this program was to train the students in the recent technology with "Easy Video Learning Process".

Introduction

In Computer Engineering Department, we have included the course "PYTHON" for students and have enrolled 70 students for particular course respectively. Since the same courses are available in the curriculum also it becomes beneficial for student to understand the concept in more detail.

As an audio-video tutorial helps in explaining the activity performed on the computer by seeing and hearing someone explain a process greatly improves understanding. The learning method is highly beneficial for self-learning student as the audio content is available in most 22 Indian languages such as Hindi, Kannada, Marathi, Telugu etc which overcome the language barrier in understanding the language. Due to Spoken Tutorial Project student are able to enroll in various programming languages, office tools, graphics and circuit design tools through audio video tutorials. Students are allowed to take online examinations and get certificates which are free of cost. Student will have various course certifications completed along with their UG Degree by the end of Degree course. This will make the student highly knowledgeable and confident enough to compete with the world.

Objectives

1. Learn many software by yourself.
2. Be a contributor to the community by creating original tutorials or dubbing into other languages
3. Lead the national effort for any FOSS
4. Lend your expertise in a particular FOSS by being a Reviewer / Domain Expert
5. Help conduct workshops in colleges and schools across India
6. Two purposes of IIT Spoken tutorial Skill focus for Employment and academic focus for improving exam performance
7. It is well known that listening is always better than reading that is why this methodology works.
8. Focus is imparting IT skills.

Detailed Report with Photographs

Date and Venue:

The training-workshop took place on 13 March 2018 in ground floor seminar all at MGMCET College of navi Mumbai.

Department of Computer Engineering organized workshop on IIT spoken tutorials. Computer engineering students were participated for the workshop. Department has inaugurated the IIT spoken tutorials. Respesected DG sir and Principal Sir lighten the lamp and both of them addressed the student in this workshop

IIT spoken tutorials are audio video tool that teaches the open source software. After the speech of Director sir and Principal sir, Prof .Rajeshwari has given brief idea on IIT spoken tutorials and Python language. In end of session we have shown some sample IIT spoken tutorials videos to the students.

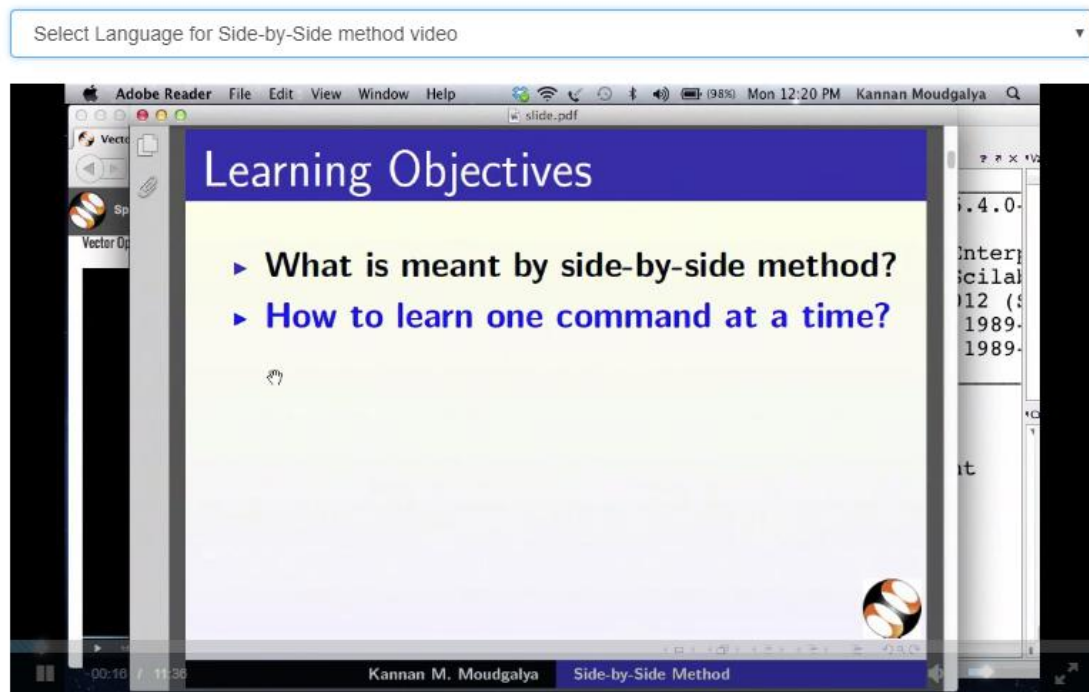The session is concluded with vote of thanks of HoD Dr.K.Sankar.

PHOTOS OF PROGRAM

PHOTOS OF THE VIDEOS

Session I - we have conducted training on the basics of PYTHON.

In this session , students are given hands on training on basic of Python. The practical video session is given to install the Python and how to run the Python program.

The simple programs and exercise are given to the students to practise to learn more .

Getting started with lists   Intermediate

Foss: *Python - English*

Outline: Getting started with lists empty filled lists heterogenity accessing len append elements del (+ remove)

Getting started with for   Intermediate

Foss: *Python - English*

Outline: Getting started with for blocks in python (indentation) blocks in ipython ... prompt hitting enter for with a list range function

Getting started with strings   Intermediate

Foss: *Python - English*

Outline: Getting started with strings strings single, double, triple quoted accessing elements show immutability tell that there are methods for manipulation

Getting started with files   Intermediate

Foss: *Python - English*

Outline: Getting started with files show file object read the file with read closing the file for line in file: print a line append the lines to a list

Session II

Training is given on intermediate level of the Python Language . The students are taught with intermediate concepts and examples related to it.


```
File  Edit  View  Search  Terminal  Help
Out[6]: 'eggs'

In [7]: nonempty[3]
Out[7]: 1.234

In [8]: nonempty[-1]
Out[8]: 1.234

In [9]: nonempty[-2]
Out[9]: 100

In [10]: nonempty[-4]
Out[10]: 'spam'

In [11]: nonempty.appen('onemore')
-------------------------------------------------------------------
--
AttributeError                            Traceback (most recent call las
t)

/home/fossee/<ipython console> in <module>()

AttributeError: 'list' object has no attribute 'appen'
```
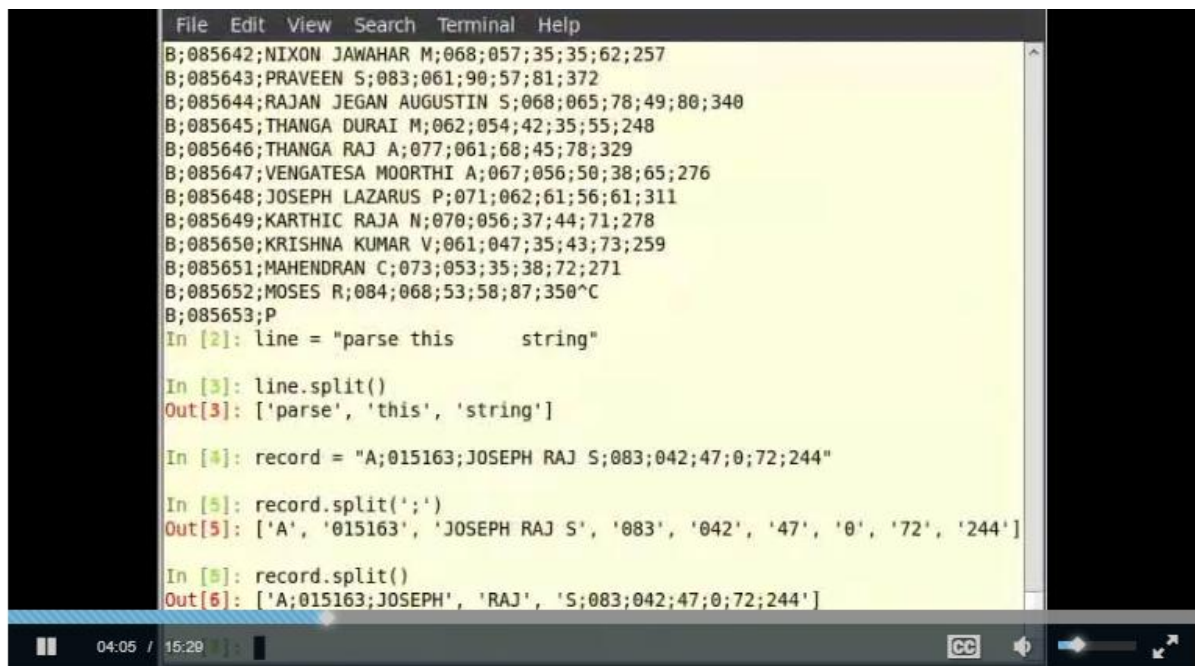
04:44 / 11:10   In [12]: nonempty.append('onemore')   CC

Instruction Sheet / Installation Sheet


```
File  Edit  View  Search  Terminal  Help
B;085642;NIXON JAWAHAR M;068;057;35;35;62;257
B;085643;PRAVEEN S;083;061;90;57;81;372
B;085644;RAJAN JEGAN AUGUSTIN S;068;065;78;49;80;340
B;085645;THANGA DURAI M;062;054;42;35;55;248
B;085646;THANGA RAJ A;077;061;68;45;78;329
B;085647;VENGATESA MOORTHI A;067;056;50;38;65;276
B;085648;JOSEPH LAZARUS P;071;062;61;56;61;311
B;085649;KARTHIC RAJA N;070;056;37;44;71;278
B;085650;KRISHNA KUMAR V;061;047;35;43;73;259
B;085651;MAHENDRAN C;073;053;35;38;72;271
B;085652;MOSES R;084;068;53;58;87;350^C
B;085653;P
In [2]: line = "parse this      string"

In [3]: line.split()
Out[3]: ['parse', 'this', 'string']

In [4]: record = "A;015163;JOSEPH RAJ S;083;042;47;0;72;244"

In [5]: record.split(';')
Out[5]: ['A', '015163', 'JOSEPH RAJ S', '083', '042', '47', '0', '72', '244']

In [6]: record.split()
Out[6]: ['A;015163;JOSEPH', 'RAJ', 'S;083;042;47;0;72;244']
```
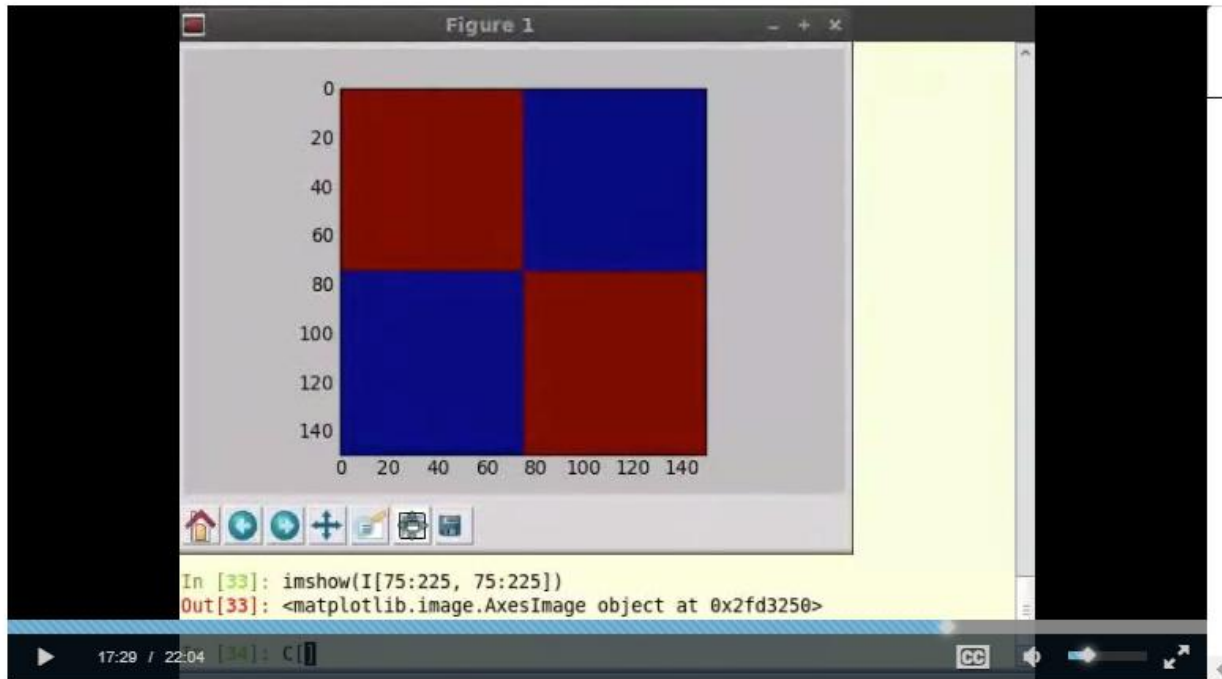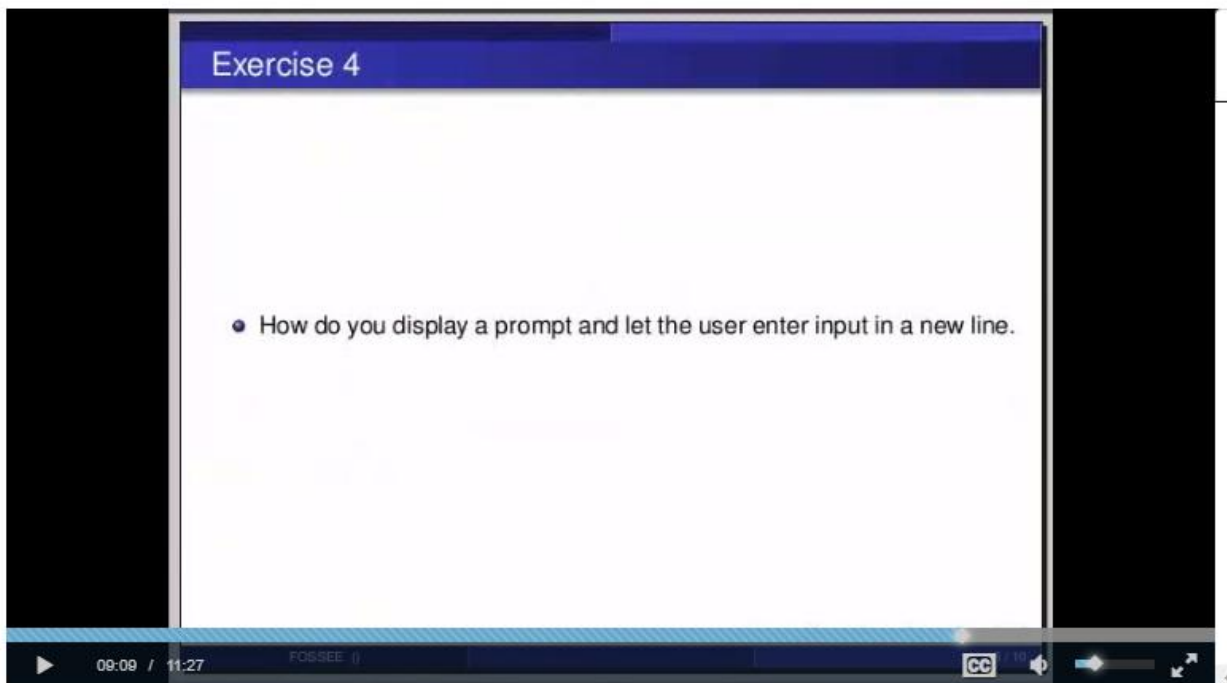
04:05 / 15:20   CC

Session III

The training is given on advanced level of the Python programming. The advanced concepts are cleared easily with the help of visual videos.
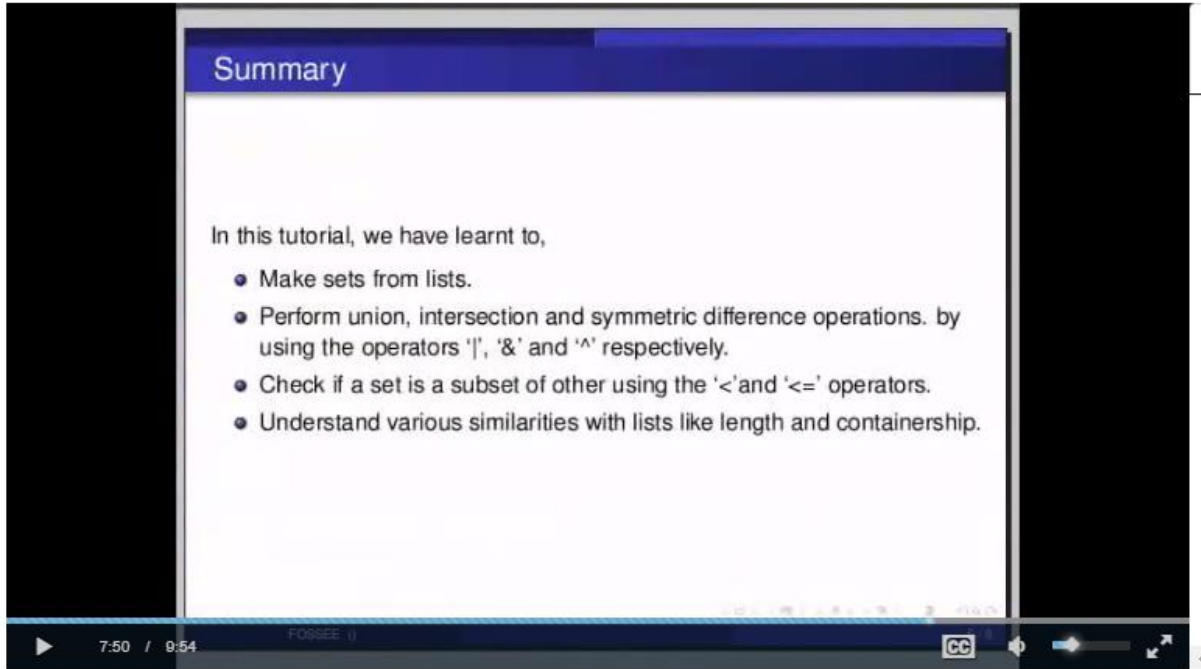
Accessing parts of arrays - English

I O - English

Sets - English

Summary

In this tutorial, we have learnt to,

- Make sets from lists.
- Perform union, intersection and symmetric difference operations. by using the operators '|', '&' and '^' respectively.
- Check if a set is a subset of other using the '<'and '<=' operators.
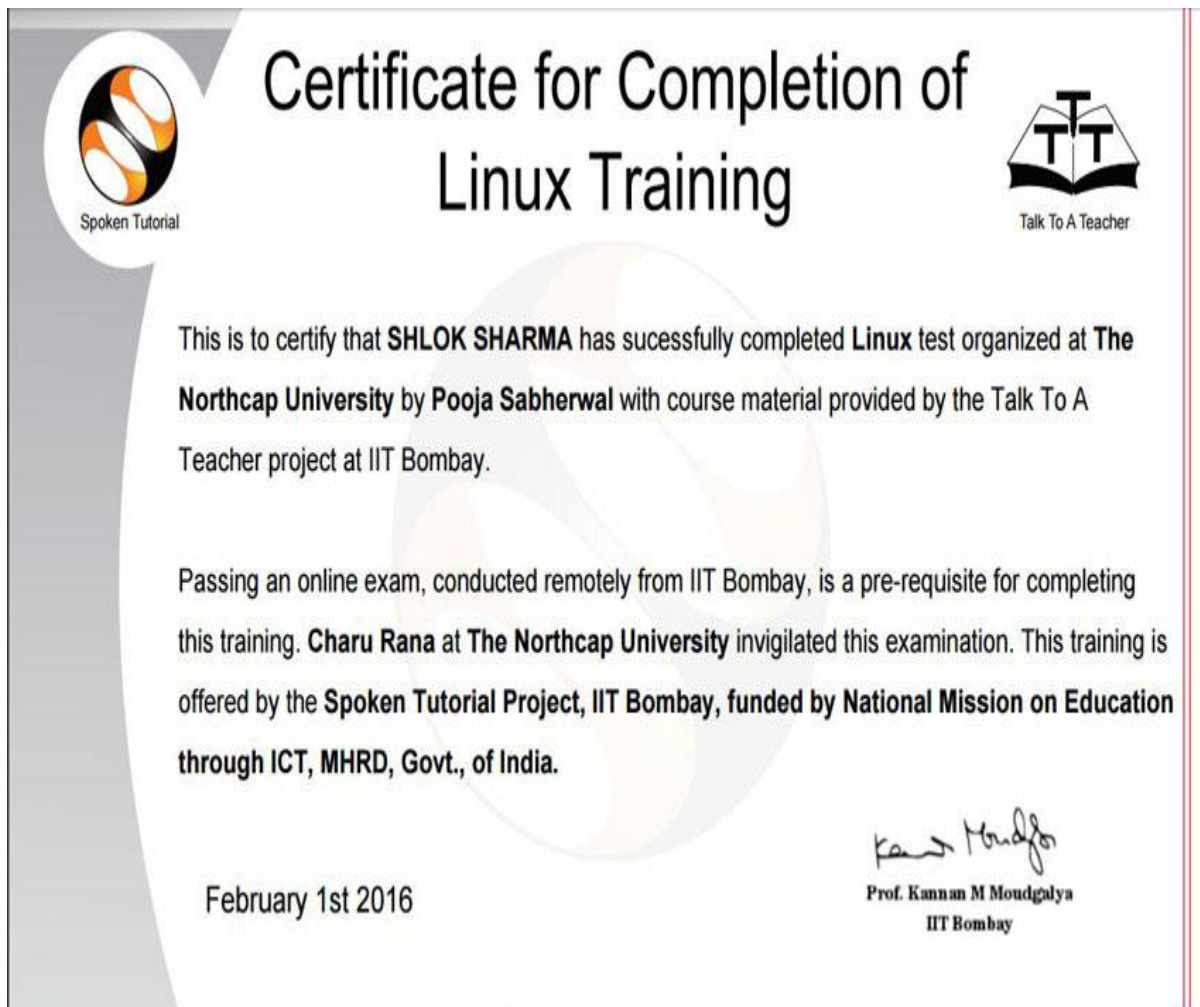- Understand various similarities with lists like length and containership.

Conclusion

The department of Computer Engineering has organized a "WORKSHOP ON IIT spoken tutorial" for ensuring that the students will get to know more about Python. The aim was to provide knowledge about the topics related to **Python**. Prof Rajeswari I.B and Prof. Sucheta Nikam were the coordinators of the workshop

List of participants

Sr No	Student Name	Class
1	Tejas Sinde	TE
2	Aniket Vartak	TE
3	Alpesh Pawar	TE
4	Vaibhav Talekar	TE
5	Siddhart Thote	TE
6	Utkarsh Sharma	TE
7	Prathamesh Patil	TE
8	Kamlesh Pawar	TE
9	Sugam Thale	TE
10	Piyush Rane	TE
11	Vinay kumar Maurya	TE
12	Suryaprakash Pandey	TE
13	Sanjeev Maurya	TE
14	Pratik Shaha	TE
15	Ajinkya Parab	TE
16	Shrigandhi Praveen	TE
17	Surve Ronil	TE
18	Anup Rawat	TE
19	Hareram Shah	TE
20	Prabhodhan Pradhan	TE
21	Diptesh Salvi	TE
22	Kshitij Wadankar	TE
23	Suraj More	TE
24	Dhanashri Patil	TE
25	Apoorva Patil	TE
26	Sujata Mohite	TE
27	Simran Patnaik	TE
28	Janak Parmar	TE
29	Shrutika sawant	TE
30	Lalita Tambade	TE

31	Harshada Narvekar	TE
32	Samyukta Sahu	TE
33	Aarshiya Wali	TE
34	Ruchira Patil	TE
35	Ritubala Rai	TE
36	Gargi Pawar	TE
37	Dipali Naik	TE
38	Anagha Sargan	TE
39	Supriya Sarvade	TE
40	Aditi Rajput	TE
41	Ruchita Sharma	TE
42	Anurag Gupta	TE
43	Aditya Kanvinde	TE
44	Vaibhav Andhale	TE
45	Manish Jadhav	TE
46	Onkar Hegiste	TE
47	Nitin Kulkarni	TE
48	Janhavi Doke	TE
49	Chetana Apraj	TE
50	Sanju Gawade	TE
51	Pankaj Dusane	TE
52	Saikrishna Boddula	TE
53	Rushikesh Gholap	TE
54	Mali Jhangamani	TE
55	Siddhi Chorge	TE
56	Shalaka	TE
57	Sahil Mahadik	TE
58	Swapnil Chopade	TE
59	Aadesh Borgaonkar	TE
60	Shruti Bhagat	TE
61	Sushant Lagade	TE
62	Karishma Dalvi	TE
63	Shweta Londhe	TE
64	Akshay Khade	TE
65	Visaka Kadam	TE
66	Darshana Jadhav	TE
67	Saket Kamble	TE
68	Vipul Dala	TE
69	Akshay Hinge	TE

Sample Certificate

Certificate for Completion of Linux Training

Spoken Tutorial

Talk To A Teacher

This is to certify that **SHLOK SHARMA** has sucessfully completed **Linux** test organized at **The Northcap University** by **Pooja Sabherwal** with course material provided by the Talk To A Teacher project at IIT Bombay.

Passing an online exam, conducted remotely from IIT Bombay, is a pre-requisite for completing this training. **Charu Rana** at **The Northcap University** invigilated this examination. This training is offered by the **Spoken Tutorial Project, IIT Bombay, funded by National Mission on Education through ICT, MHRD, Govt., of India.**

February 1st 2016

Prof. Kannan M Moudgalya
IIT Bombay

Student Feedback format

Workshop Evaluation Form

Your feedback is important for us to ensure we are meeting your educational needs. We would appreciate if you could take a few minutes to share your opinions with us so we can serve you better.

Please return this form to the instructor or organizer at the end of the workshop. Thank you.

Workshop
title:_____

Date:_____

		Strongly agree				**Strongly disagree**
1.	The content was as described in publicity materials	1	2	3	4	5
2.	The workshop was applicable to my job	1	2	3	4	5
3.	I will recommend this workshop to other conservators	1	2	3	4	5
4.	The program was well paced within the allotted time	1	2	3	4	5
5.	The material was presented in an organized manner	1	2	3	4	5
6.	The instructor was knowledgeable on the topic	1	2	3	4	5
7.	I would be interested in attending a follow-up, more advanced workshop on this same subject	1	2	3	4	5

9. Given the topic, was this workshop: ❑ a. Too short   ❑ b. Right length   ❑ c. Too long

10. In your opinion, was this workshop: ❑ a. Introductory ❑ b. Intermediate   ❑ c. Advanced

11. Please rate the following:

		Excellent	Very Good	Good	Fair	Poor
a.	Visuals	❑	❑	❑	❑	❑
b.	Acoustics	❑	❑	❑	❑	❑
c.	Meeting space	❑	❑	❑	❑	❑

d.	Handouts	❑	❑	❑	❑	❑
e.	The program overall	❑	❑	❑	❑	❑

12. What did you most appreciate/enjoy/think was best about the course? Any suggestions for improvement?

_____

Future Needs

13. Please describe the top two topics you would like to learn more about in the next 12 months:

Topic1:_____

    Preferred level: ❑ a. Introductory ❑ b. Intermediate ❑ c. Advanced

    Preferred format: ❑ a. Seminar/workshop (how many days?_____)

                              ❑ b. Self-study materials

                              ❑ c. Interactive distance learning (i.e., Web-based)

  ❑ Other:_____

Topic2:_____

    Preferred level: ❑ a. Introductory ❑ b. Intermediate ❑ c. Advanced

    Preferred format   ❑ a. Seminar/workshop (how many days?_____)

                              ❑ b. Self-study materials

                              ❑ c. Interactive distance learning (i.e., Web-based)

                              ❑ Other:_____

Thank you!

Please return this form to the instructor or coordinator at the end of the workshop.