

INTRODUCTORY LECTURE



CAD776 PROGRAMMING IN PYTHON

The Kick Start Session



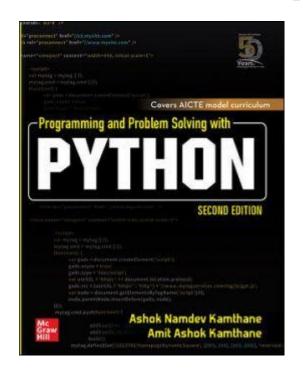
Course details

LTP - 3 0 2 [3-Lecture, 2-Practical/week]

Text Book

PROGRAMMING AND PROBLEM SOLVING WITH PYTHON by

ASHOK NAMDEV KAMTHANE AND AMIT ASHOK KAMTHANE, Tata McGraw Hill, India

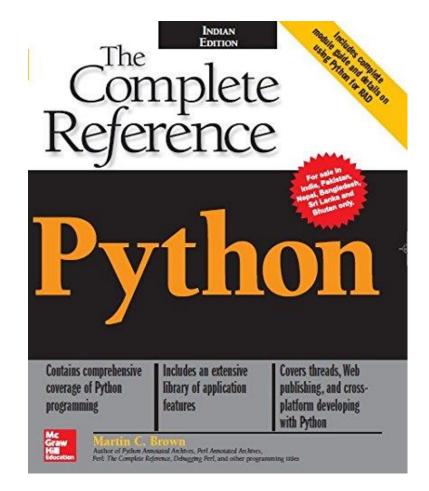


https://www.mheducation.co.in/programming-and-problem-solving-with-python-9789390113026-india



References:

THE COMPLETE REFERENCE by MARTIN C. BROWN, MC GRAW HILL



Course Assessment Model

Marks break up

 Attendance 	5
 Continuous Assessment(3 out of 4) 	45
• ETP	50
Total	100



The hitch...

Three BURNING questions in mind...

- Why we are learning Python?
- What would we do with it?
- What will the course outcome?



Course Outcomes:

- ✓ define the basic structure and features of Python programming
- ✓ understand the working of object-oriented programming concepts like encapsulation, inheritance and polymorphism
- ✓ apply pandas and NumPy libraries for data analysis and visualize results using matplotlib and seaborn
- ✓ analyze the situation specific problems and perceive solutions

Learnings for you...?

- Desktop applications (Tkinter library, toolkits such as the wxWidgets, Kivy, PYQT)
- Web applications (frameworks are Django, Flask, Pyramid)
 web-framework named Django is used on Instagram
- Machine Learning and Artificial Intelligence

(Library: Pandas, Scikit-Learn, NumPy)

Data Science and Data Visualization

(Matplotlib, Seaborn)

- Enterprise Applications (Odoo, <u>Tryton</u>)
- Scientific and Numeric (SciPy, Pandas, Numpy)

Python used in top industry like:

- Google
- Facebook
- Instagram
- Spotify
- Netflix
- Dropbox
- Reddit

Python Job Profiles

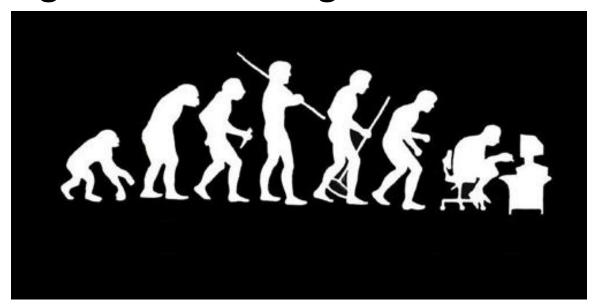
- Software Engineer
- Python Developer
- Research Analyst
- Data Analyst
- Data Scientist
- Software Developer

Let us re-invent ourselves

To begin with basics...

Let us go to basics.

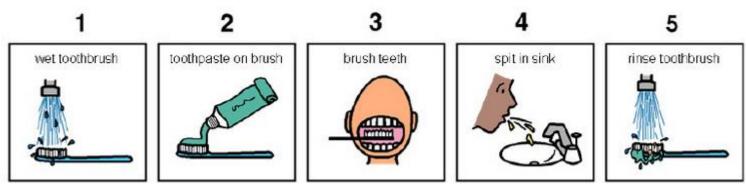
Let us begin from toddling to learn to walk



Get ready to be childish....

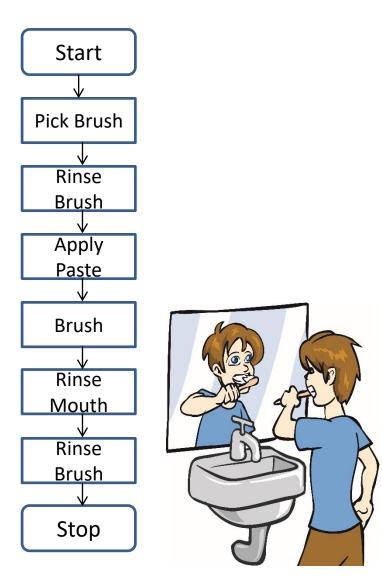
- Let us look around our daily routine...
- Let us see where all we do programming everyday
- Simple things we do to start the day





So there is ONE program you know which is there in you...

- There is a set procedure
- Each step is defined
- The occurrence is ordered
- Jump is NOT permitted
- A step cannot be skipped



Let us explore more as the day goes by...



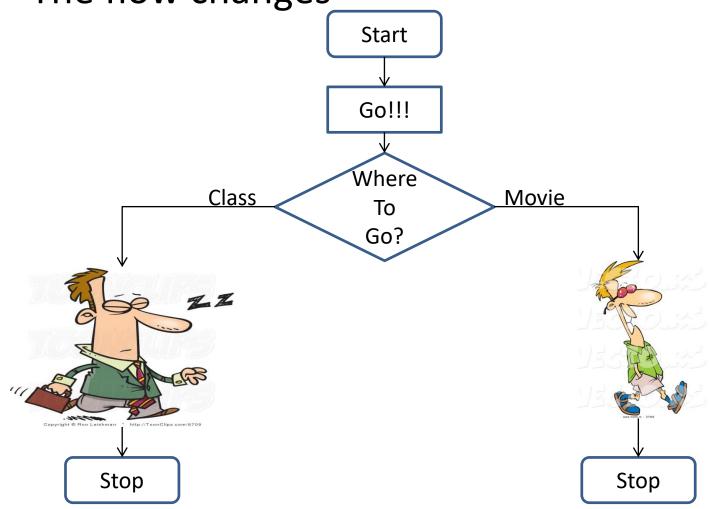
Going for a morning 0900 AM Class



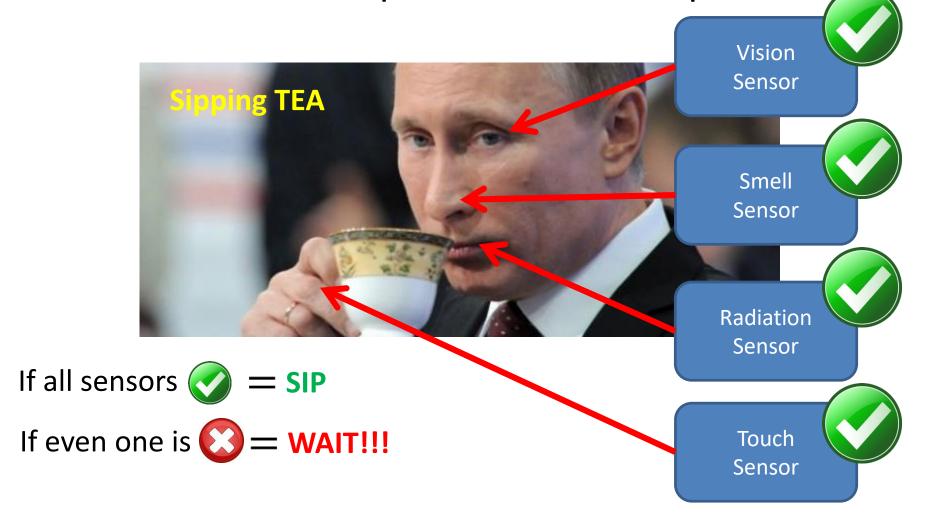
Going for a movie at 0900 AM

It is all about WHICH program is loaded WHEN

The flow changes



Yet another example but more complex



So what does this mean?

- Take ANY activity of the day...
- It will have a set procedure
- It has to be done in a designated way
- If not done the specified way will yield wrong results.
- Success in doing it depends on how closer one is to the prescribed method.
- This clearly shows that everything has a

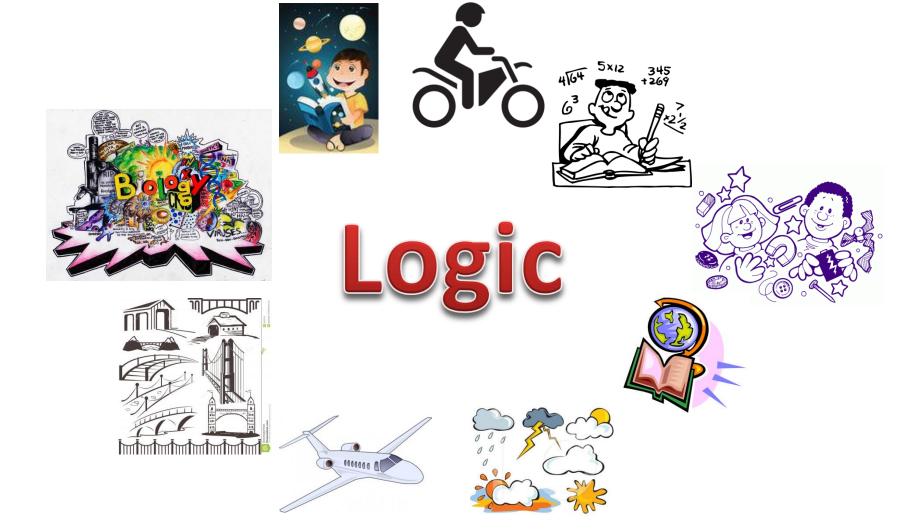








Logic, logic and logic



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What next?

- If there is logic in anything and everything
- There has to be ways to represent logic
- There has to be modes to modify and rerepresent logic.
- There should be methodology to implement and re-design logic.
- And for all this...

What next?

 There has to be logic machine to assimilate, understand, solve, store, retrieve and represent logic

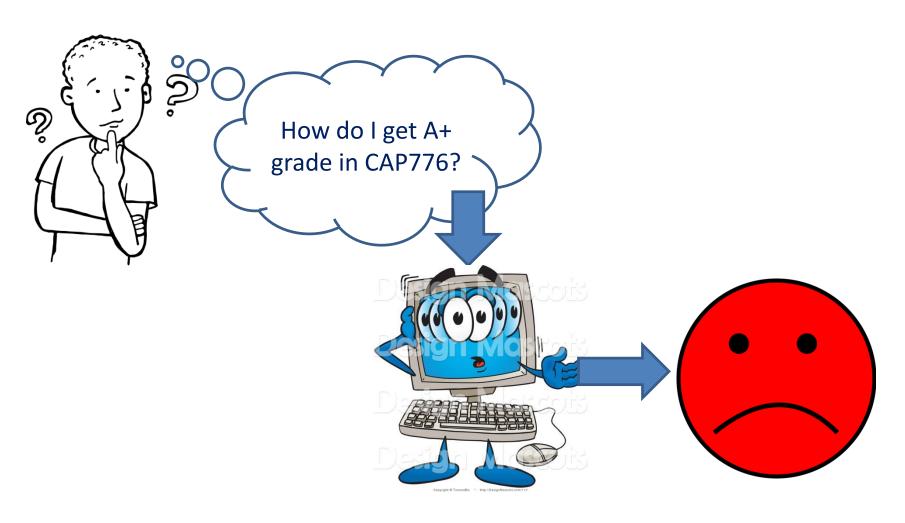
 There has to be a LANGUAGE to communicate with the logic machine

Otherwise....

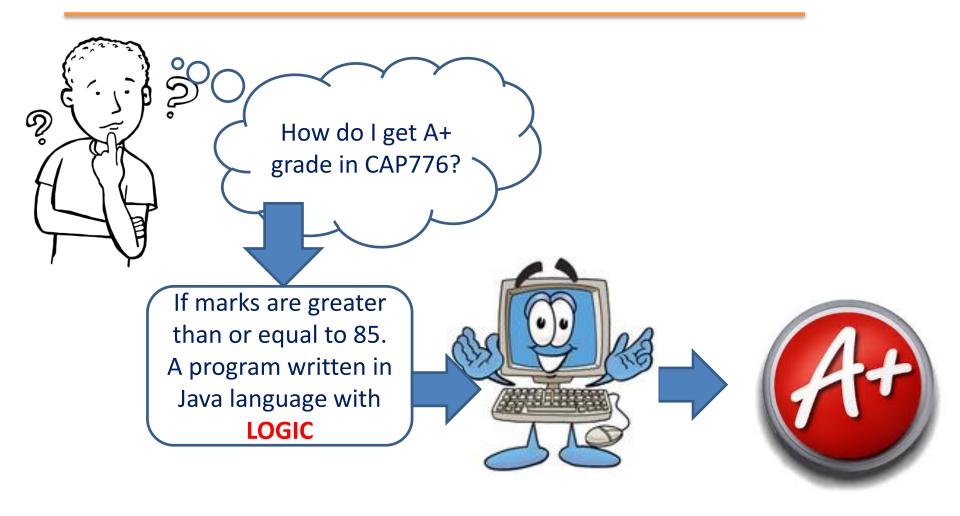


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Diving deeper...

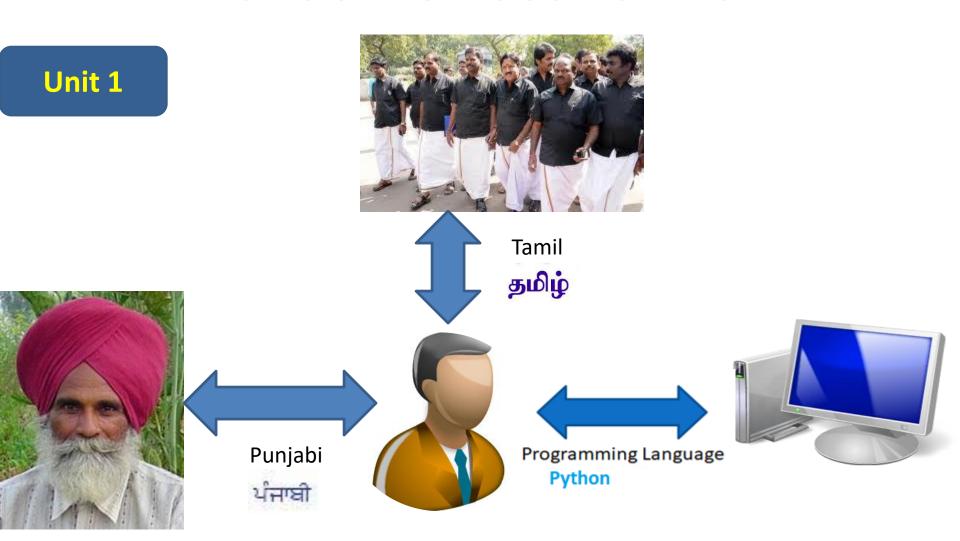


Diving deeper...



The course contents:

- ✓ Python basic
- **✓** OOP concepts
- ✓Introduction to NumPy
- ✓ Handling data with pandas
- ✓ Data visualization
- ✓ Machine learning



Need of Language :: Python basic

Unit 1

data types and operators

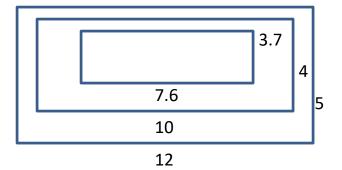
How to do calculations

Area = Length * Breadth

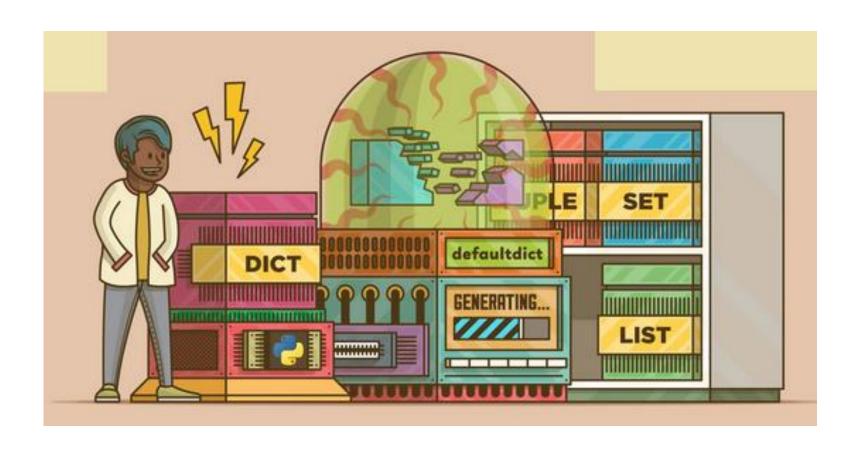
Area = 12 * 5

Area = 10 * 4

Area = 7.6 * 3.7



Unit 1



Unit 2

OOP concepts: class and object

Mobile-



Symbian (Keypad Phone)

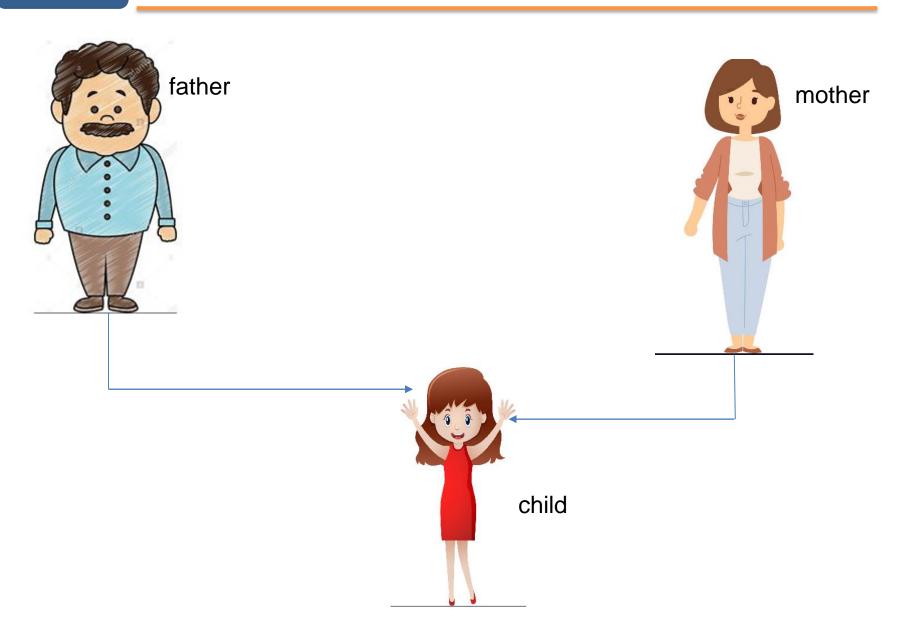




Android phone

Unit 2

Inheritance: reusability

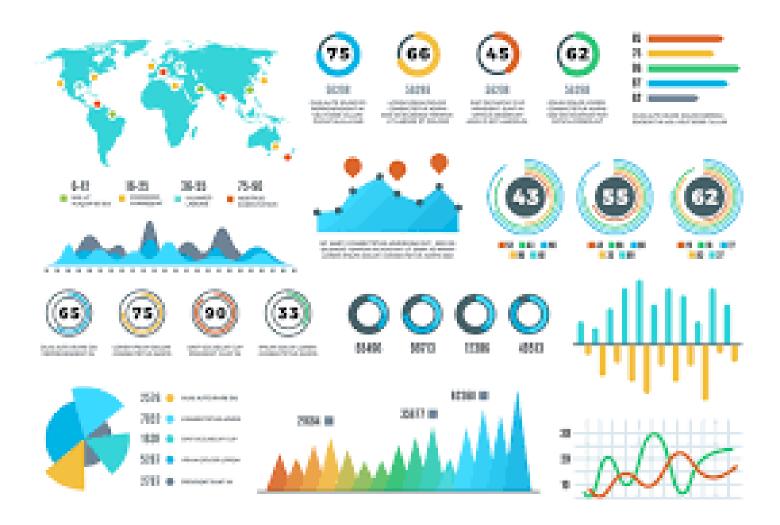




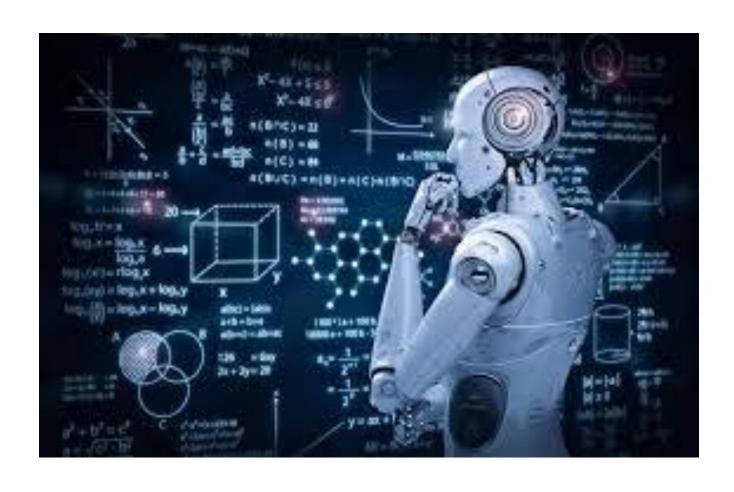
Handling data with pandas



Data visualization



Machine learning



Recognize?



- A. Dennis Ritchie
- B. Bjarne Stroustrup
- C. James Gosling
- D. None

Recognize?



Who developed?

Python was developed in 1989 by **Guido Van Rossum**



Acknowledgements

- NPTEL(National Programme on Technology Enhanced Learning)
- Simplilearn
- Coursera
- edureka







Next: Basics in Python