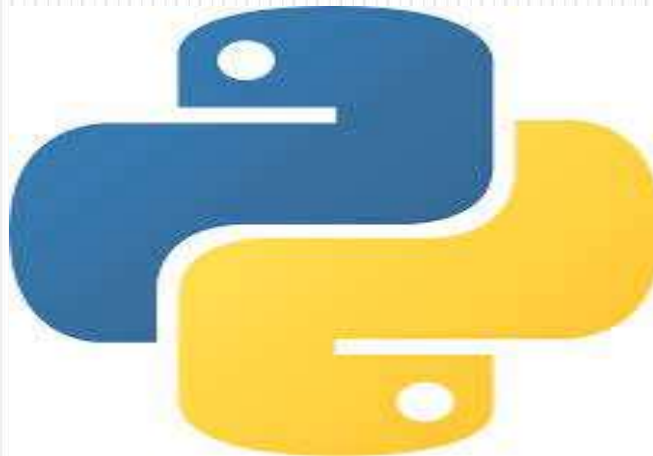


Lecture 0

INT108:: PROGRAMMING IN PYTHON (Program practice)



Course Overview

- L T P :

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- **Credit:** 3

- **Text Book:**

Fundamentals of Python –First Program Second edition by KENNETH A.LAMBERT,CENGAGE

- **References Book:**

Python Programming: Using Problem solving approach by REEMA THAREJA, OXFORD UNIVERSITY PRESS

Introduction to Programming using Python by Y. DANIEL LIANG, PEARSON

Marks Breakup

- Marks Breakup:

Activity	Marks
Attendance	5
Continuous Assessment (CA)*	65
End-Term Practical (ETP)	30

CA and MTE

CA

Programming Practice using CodeTantra/EBox	40
Mini Project	15
Best 1 out of 2 MCQ Based Test	10

ETP

Programming Challenge/Hackathon based

Course Assessment Model

Programming Practice using CodeTantra/EBox 40

Based on number of questions attempted

0-50%	->0 Marks
51%	-> 1 Marks
74%	->24 Marks
90-100%	-> 40 Marks

For each % of attempted question after 50%, student will be awarded 1 mark (max up to 45 marks)

MOOC

- https://onlinecourses.nptel.ac.in/noc21_cs32/preview

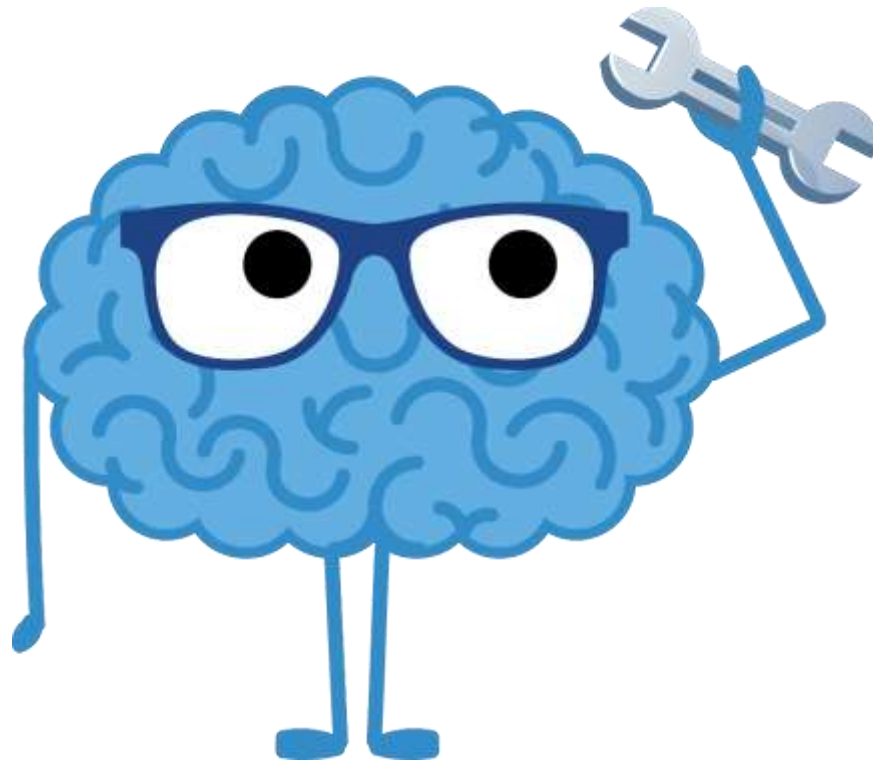
Exemptions:-

If student will provide the certificate, 2 weeks prior to ETE then 1 CA will be exempted.

Course Objectives

- define the installation of python environment and basics of Python language.
- apply the condition and iteration statements for evaluating the appropriate alternates.
- apply to formulate Regular Expressions and use them for Pattern Matching .
- construct the core data structures like lists, dictionaries, tuples and sets in Python to store, process and sort the data.
- Apply the concepts of Object-oriented programming as used in Python using encapsulation, polymorphism, and inheritance .
- Apply the external modules for creating and writing data to excel files and inspect the file operations to navigate the file systems.

Why languages?



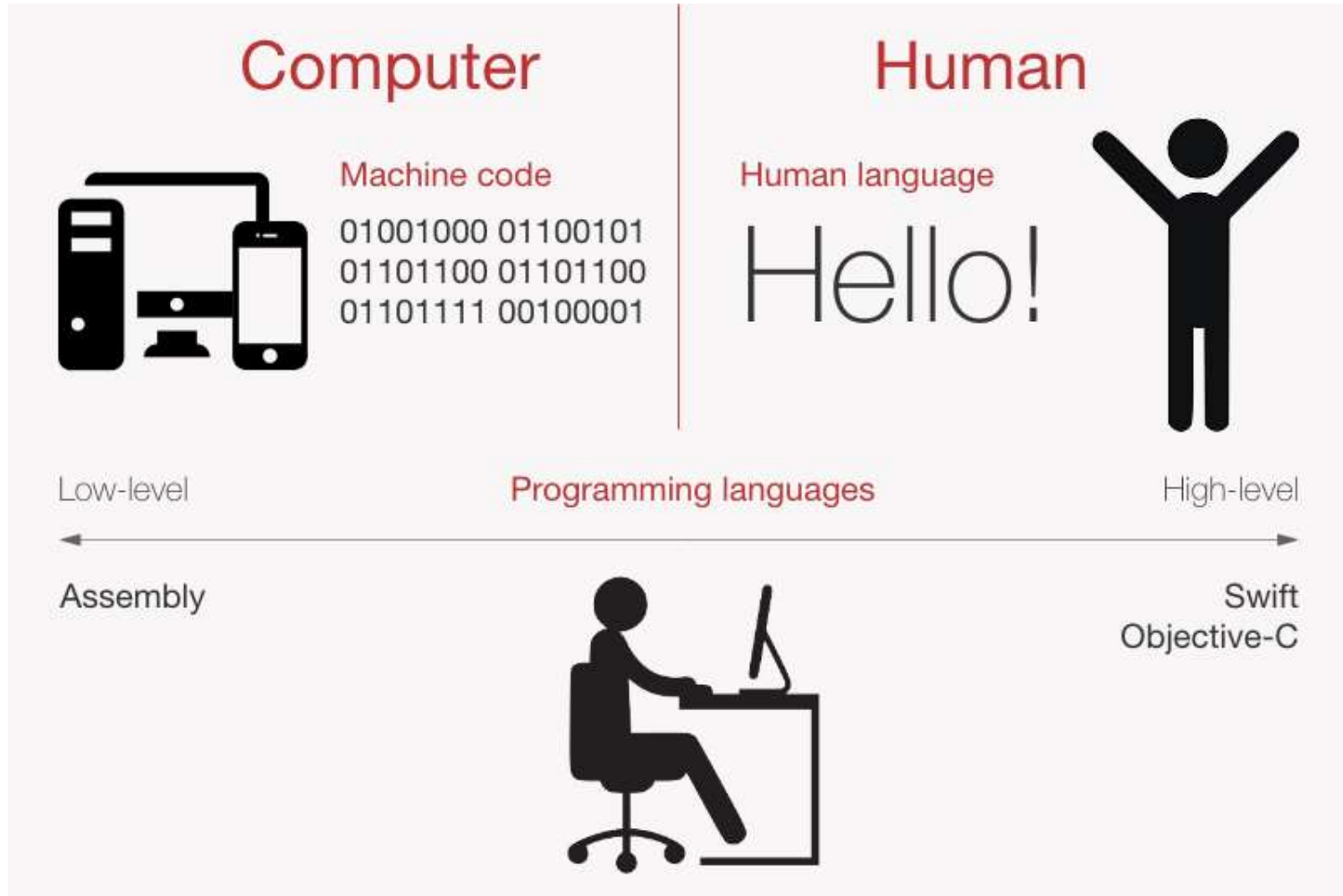


COMPUTER IS SMART ?????

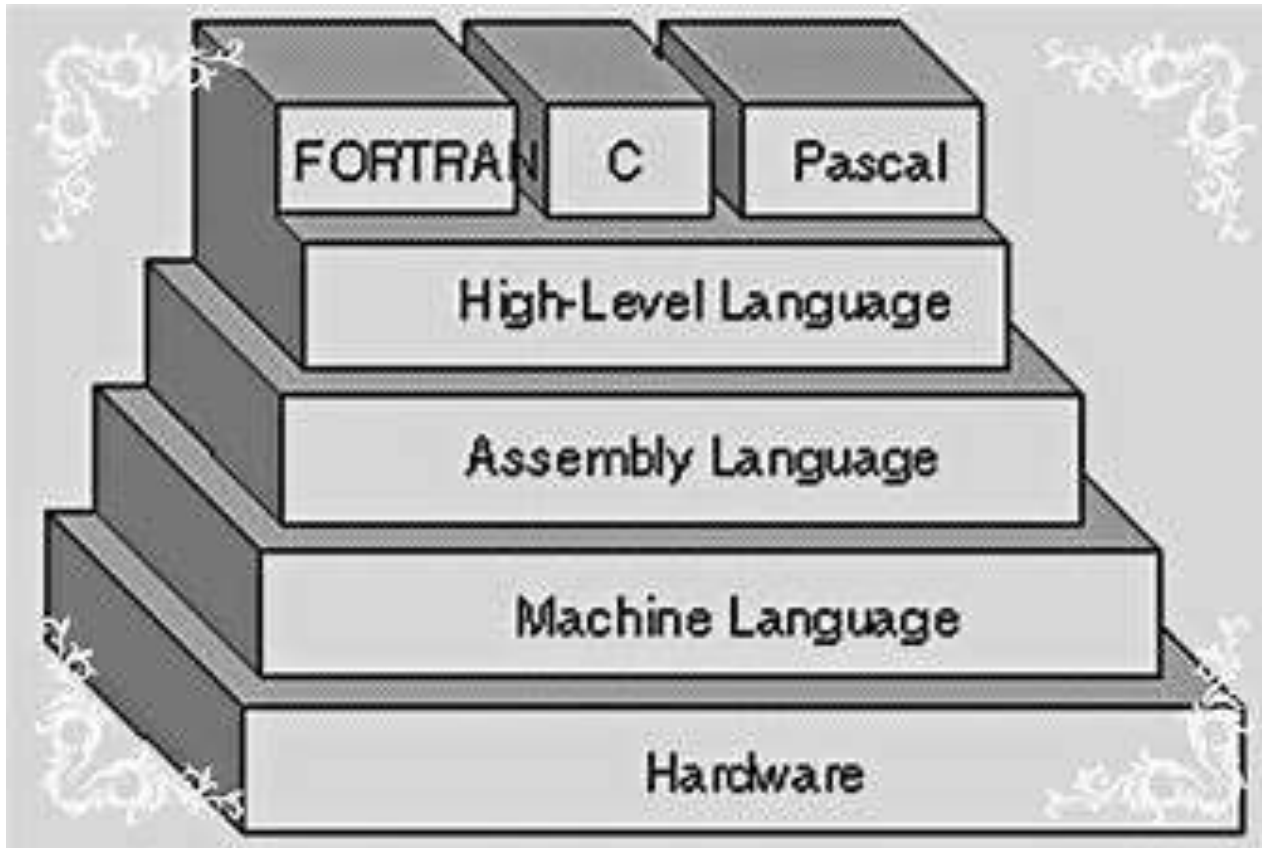


<https://www.youtube.com/watch?v=lfuUiBanVDM>

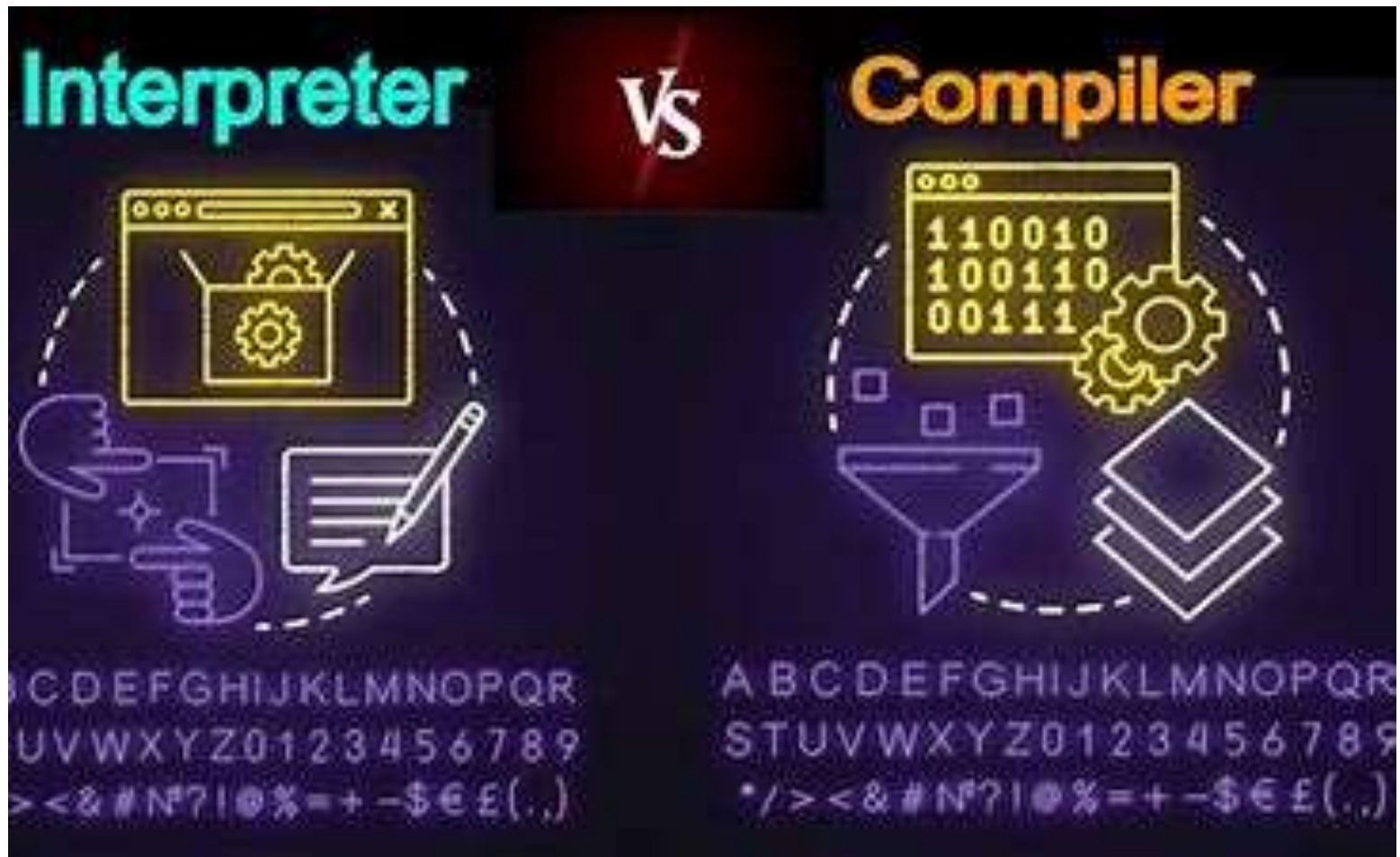
Computer Language vs. Human Language



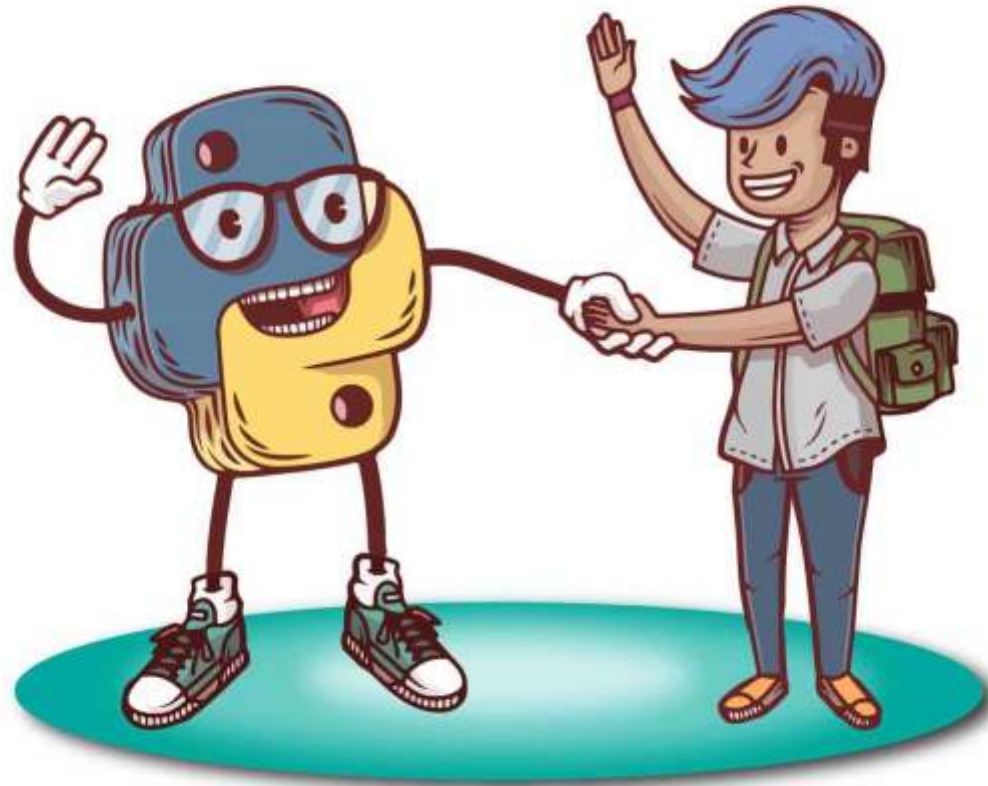
Different Computer Languages



Compiler vs. Interpreter



Make language your Friend



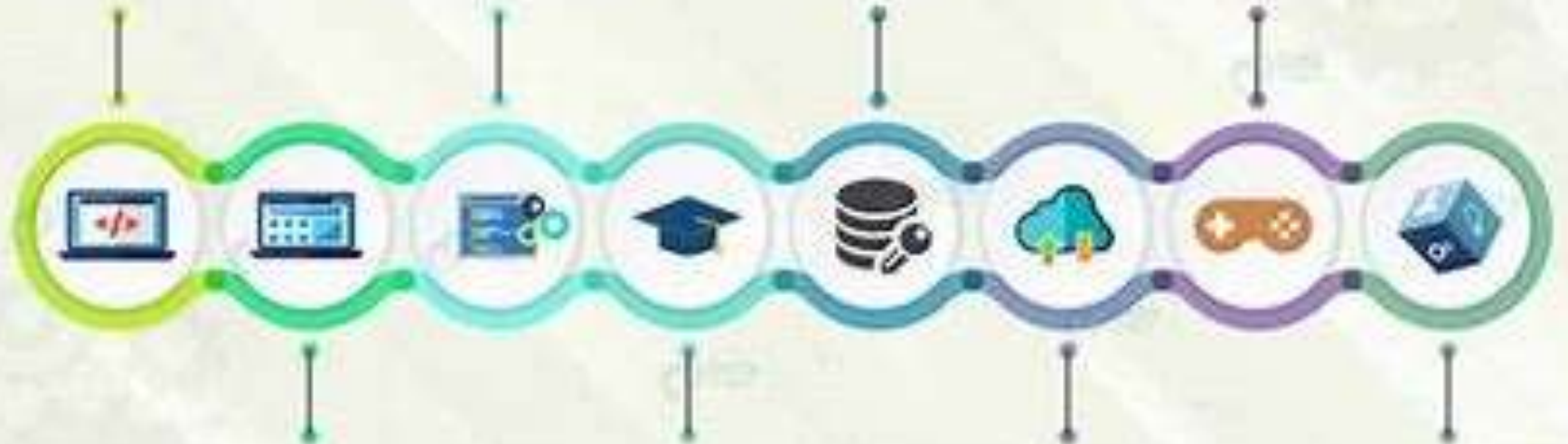
Python Applications

Web
Development

Software
Development

Database
Access

Game
Development



Desktop
Applications

Education

Network
Programming

3D Graphics

16 Famous Companies that uses PYTHON



Overview of Unit 1



Unit 1

- **Setting up your Programming Environment:** Python versions, Python on windows, running a 'Hello World' program
- **Variables, Expression and Statements:** Naming and using variables, Avoiding Name Error when using variables, Values and types, variables, variables name and keywords, statements, operators and operand, order of operations, operations on string, composition and comments

Overview of Unit 2

If

Elif

Else Ladder



Unit 2

- **Conditional statements:** modulus operator, Boolean expressions, logic operators, conditional, alternative execution, nested conditionals
- **Iterative statements:** while statements, for loop statement, Nested for, Nested while, Random numbers in loops, encapsulation and generalization

Overview of Functions and Recursion



Unit 3

- **Functions and recursion:** function calls, type conversion and coercion, math functions, adding new function, parameters and argument, recursion and its use

Lists and Tuples

LIST 1 →

LIST2 →

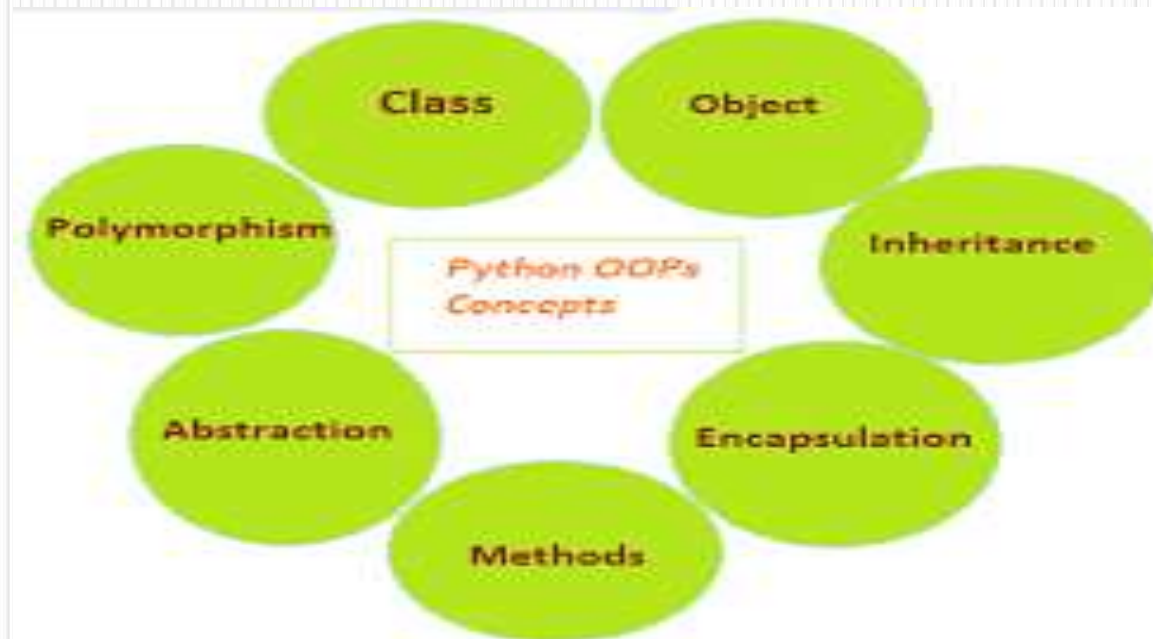
LIST3 →



Unit 4

- **String:** string a compound data type, length, string traversal, string slices, comparision, find function, looping and counting
- **Lists:** list values, length, membership, operations, slices, deletion, accessing elements, list and for loops, list parameters and nested list.
- **Tuples and Dictionaries:** mutability and tuples, tuple assignment, tuple as return values, dictionaries operations and methods, sparse matrices, aliasing and coping

OOP



Unit 5

- **Classes and objects:** Creating classes, creating instance objects, accessing attributes
- **Object oriented programming terminology:** Class Inheritance, Overriding Methods, Data Hiding, Function Overloading

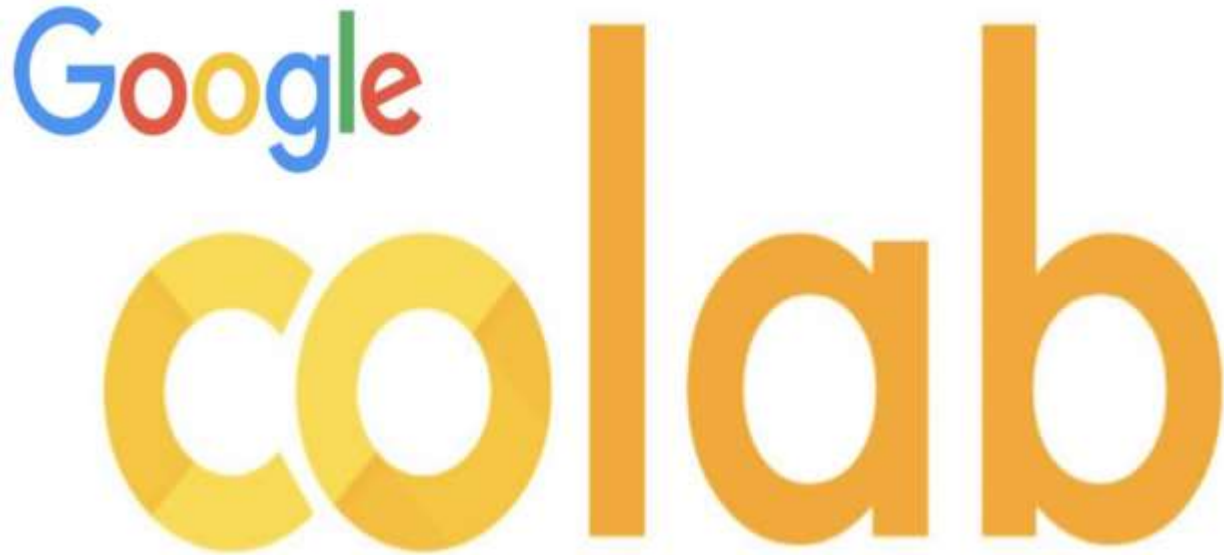
Unit 6

- **Files and Exceptions:** text files, writing variables, Reading from a file, writing to a file, directories, pickling, handling the zero Division error exception, using try-except blocks, The else block, Handling the File Not found error exception
- **Regular Expressions** – Concept of regular expression, various types of regular expressions, using match function, Web Scraping by using Regular Expressions

Different Python IDEs and Code Editors

IDE	Size in MB	Developed in
<u>PyCharm</u>	BIG	JAVA, PYTHON
<u>Spyder</u>	BIG	PYTHON
<u>PyDev</u>	MEDIUM	JAVA, PYTHON
<u>Idle</u>	MEDIUM	PYTHON
<u>Wing</u>	BIG	C, C++, PYTHON

Python Version : 3



Colaboratory, or "Colab" for short, allows you to write and execute Python in your browser, with

- Zero configuration required
- Free access to GPUs
- Easy sharing

