



# **MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **One Day FDP on “Data Structures using Python”**

**28<sup>th</sup> April 2021**

One day Faculty Development Programme was organized by the department of Computer Science and Engineering on 28<sup>th</sup> April 2021. The FDP was conducted through Zoom meeting in online mode. More than 240 participants have participated in the FDP in which 50 are from various colleges.

**Dr.D.Sujatha,HOD,CSE**, has welcomed the participants and thank our Director, principal for giving an opportunity on conducting this FDP. She also brief about the FDP and insists the participants to make use of this opportunity in learning newer things on python.

**Dr.S.Srinivasa Rao, Principal,MRCET** and **Dr.A Venu Gopal, Dean,MRCET** has formally addressed the faculty and participants with a warm welcome note.

**Dr. V.S.K. Reddy, Director, MRCET** addressed the faculty and participants about the need and benefits of Python. Also he took the session by giving an overview of python by its comparison, features, difference, flavors, application and its data types and few other basics.

#### **Resource Persons are:**

**Dr. V.S.K. Reddy, Director, MRCET**

**Mrs. K.Nirosha Asst. Professor, Dept. of CSE**

**Mr. A.Syam Prasad, Assoc. Professor, Dept. of CSE**

**Mr.A.Saleem, Asst. Professor, Dept. of CSE**

**K.Srilakshmi, Asst. Professor, Dept. of IT**

## **Topics covered on FDP:**

### **Overview of Python**

#### **MODULE 1:**

Introduction to programming, Downloading and installing Python

Data Structures, Types-User define, predefine, List, List comprehension, Arrays vs List, Tuples, Set, Dictionaries, Expressions, Slicing, strings, String processing, Python memory model: names, mutable and immutable values.

Variables and Operators, Control Flows and Loops

#### **MODULE 2:**

Functions, Functions Defining Your Own Functions, Calling Functions, passing parameters and arguments, Python

Function arguments: Keyword Arguments, Default Arguments, Variable-length arguments, Anonymous

Functions, Fruitful Functions (Function Returning Values), Scope of the Variables in a Function – Global and Local Variables. Powerful Lambda functions in python. Advanced comprehensions

#### **MODULE 3: OOP Concepts:**

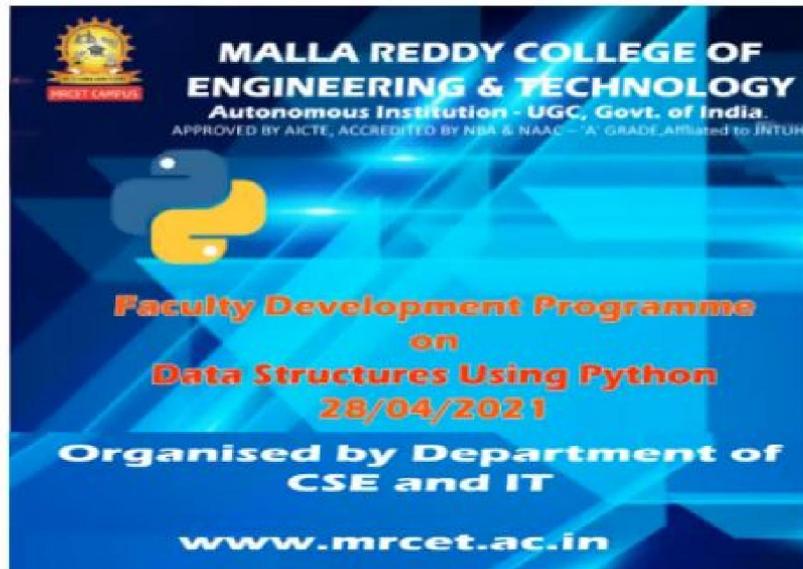
Classes and objects in python, types of variables, types of methods, inheritance, Encapsulation, Polymorphism, Abstraction, special functions, constructors

#### **MODULE 4: Data Structure:**

**General Data Structures (Liner Data Structures ,Non-Liner Data Structures, Python Specific Data Structures)**

Stacks and Queues implementation, Linked List (find, insert, delete)

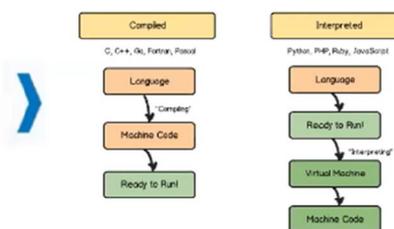
All the session was handled by the faculty in effective way with hands on session that makes the participants to understand more on the python concepts. There was also a query session in which the participant gets their doubts clarification. At the end of session Dr.D.Sujatha, HOD, CSE has thanked the Director, Principal and the speaker's for their support in making the event a grand success.



## Features of Python

### Interpreted Language

Python is an interpreted language i.e. interpreter executes the code line by line at a time. This makes debugging easy and thus suitable for beginners.



### GUI Programming Support

Graphical user interfaces can be developed using Python



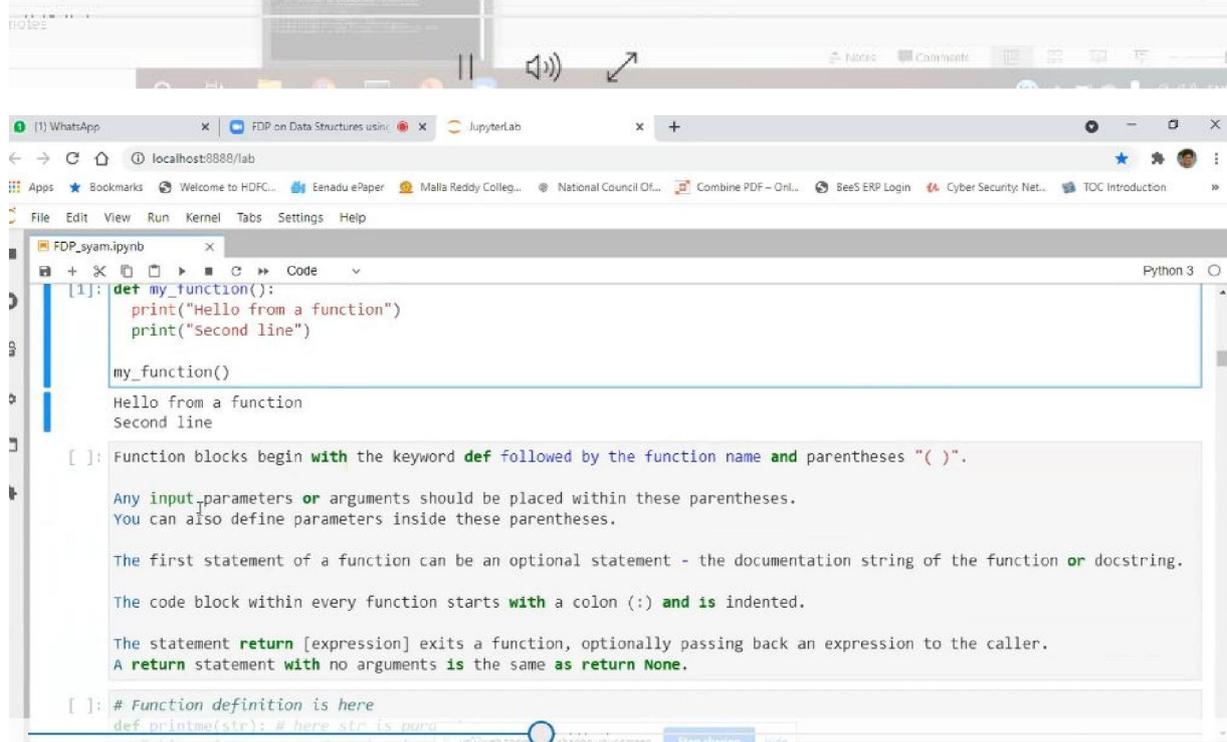
# Anaconda Installation

- Check whether python software has installed correctly or not

```
C:\Users\91991>python
Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> ^Z
```

- In cmd prompt give,

```
C:\Users\91991>python -m pip install jupyter
Collecting jupyter
  Downloading jupyter-1.0.0-py2.py3-none-any.whl (2.7 kB)
Collecting notebook
  Downloading notebook-6.3.0-py3-none-any.whl (9.5 MB)
Collecting
```



The screenshot displays a JupyterLab environment. The top part shows a browser window with the URL `localhost:8888/lab`. Below the browser, the JupyterLab interface is visible, showing a notebook titled `FDP_syam.ipynb`. The notebook contains a code cell with the following Python code:

```
[1]: def my_function():
    print("Hello from a function")
    print("Second line")

my_function()
```

The output of the code cell is:

```
Hello from a function
Second line
```

Below the code cell, there is a text area containing the following text:

```
[ ]: Function blocks begin with the keyword def followed by the function name and parentheses "( )".

Any input parameters or arguments should be placed within these parentheses.
You can also define parameters inside these parentheses.

The first statement of a function can be an optional statement - the documentation string of the function or docstring.

The code block within every function starts with a colon (:) and is indented.

The statement return [expression] exits a function, optionally passing back an expression to the caller.
A return statement with no arguments is the same as return None.

[ ]: # Function definition is here
def printme(str): # here str is a string
```

```
5 #we use the pass statement to construct a body that does nothing.
```

**Object**

When we define a class only the **description or a blueprint of the object** is created. There is no memory allocation until we create its object. The object instance contains real data or information.

```
In [5]: 1 class Student:
2         pass
3
4         obj = Student()
```

```
In [ ]: 1 class student:
2         name = "MRCET" # Attribute
3
4         def show(self): #self - self is a variable which refers to current class instance/object.
5             print("hello,Python") #here def show(self) is method
6             print(self.name)
7
8         # Here stud is an object
9         stud = student()
10        stud.show()
11
```

```
In [ ]: 1 class student:
2
3         def show(self):
4             print("hello,Python")
5
6         stud = student()
```

# Stack

- A stack is a linear data structure that stores items in a Last-in-First-out manner.
- It is used for evaluating expressions and syntax parsing, scheduling algorithms or routines, etc.
- Stacks can be implemented using lists in Python.
- Addition and removal of elements is done at the same end.
- The insert and delete operations are often called push and pop.

