**Python Programming Cheat Sheet**

**Week 1 : Day 1**

Install : vs code ,git for windows ,python 3.10

**Creating Files and Directories, Navigating Directories**

mkdir Inspire-Youth-In-STEM

cd Inspire-Youth-In-STEM Changes to the directory

dir --Lists all directories and files in the Inspire Youth in STEM

mkdir Week-1 Week-2 ……Week-8 Projects

dir

code . ( Opens visual studio code in the working directory)

vi helloworld.py

touch lesson\_1.py

python helloworld.py ---running python program

**Introduction to Python Programming**

**Programming Languages**

Is a way to give instructions to a computer, ways to talk to the computer.

Programming Language has syntax / rules to be followed

**Levels of Abstraction and Languages Diagram**

Hardware : Hard disk , keyboard,Screen,Mouse

Binary : 1s and 0s

Assembly Language : MOV , ADD

Low level / System Programming Languages: C ,C++ ,Rust

High Level Programming Languages: Java , JavaScript ,C#, Python

Compiled vs Scripted Language: C vs Python

**Why Learn Python**

Top 5 programming Languages : Python No 1 with over 25 % code written

Easy to learn and grasp

**Where Python is Applied**

Data Science: Data visualization

Web and Mobile development: Web ;Flask ,Django ,turtle

UI and UX : Tkinter ,PyQT ,not very popular use case

Developing models :AI and Machine Learning models

Rapid prototyping of Embedded systems, vision/ camera systems, Sensors, image recognition etc

Day 2:

**Python Language Syntax** : Rules to be followed when writing python Code

#!/usr/bin/python –shebang should be written on top of all python scripts / files

# single line comment

#Multiple

#Line

#comment

Indentation in python

Class student:

Tabbed indentation

No use of Semicolon; at the end of each line

Naming of variables in python

snake\_case : name\_of\_student

Camel Case : nameOfStudent ,cityOfChoice

Hello World Example

#!/usr/bin/python

print(“Hello World from JKUAT”)

#Printing multiple lines

print(“This is line 1 ……”)

print(“This is line 2 ……”)

print(“This is line 3 ……”)

Assignements / Activities :

Write a program to print a diamond pattern,triangle,X-mas tree and Your favourite Company Logo

Day 3

Introduction to Data Types

Integers : Positive and Negative whole numbers

f\_number = 19

s\_number = 45

Characters : Alphanumeric characters : a b c d ..z A,B C D …Z ,#,$,% <

my\_grade = “A”

Float : Decimal point Numbers

weight = 34.56

Strings : An array / a group of characters put together

first\_name = “Bob”

s\_name = “Afwata”

print(“My first number is :”,f\_number)

print(“My grade is :”,grade)

print(“My weight is :”,weight)

print(“My first number is :”,f\_name)

print(“My first number is :”,s\_name)

Write a program to add , subtract ,divide and multiply 2 numbers

Write a program to print a dummy Bank Slip with Bank details like ; Bank Name ,Acc No, Branch ,Acc Balance ,Date etc . Use variables as placeholders

Day4

String Addition / Concatenation

f\_name = “Bob”

s\_name = “Afwata”

full\_name = f\_name + s\_name

Print(full\_name)

Getting User Input:

name = input(“What is your name ?”)

age = input(“How old are you ?”)

print(“My name is “ +name+ “and I am”+age+ “years old”)

**Git and Github basics**

git init

git add \*

git commit –m “ my awesome code update”

git push