**1. Sample Program to print “Hello world”**

Step of working:

1. Open the terminal on Raspberry Pi.
2. Type the following command to create a new Python file:

nano hello\_world.py

1. In the file, write this Python code:

print("Hello, World!")

1. Save the file by pressing CTRL + X, then press Y to confirm, and press Enter to exit.
2. Run the Python program by typing:

python3 hello\_world.py

Output:

Hello, World! (Printed in the terminal)

**2. Sample program to read sensor (DHT11 Temperature and Humidity Sensor) values using Raspberry Pi 4.**

Steps of Working:

1. Hardware Setup: Connect the DHT11 sensor to the Raspberry Pi.

DHT11 Sensor:

* VCC to Raspberry Pi 5V pin.
* GND to Raspberry Pi GND pin.
* Data pin to any GPIO pin.

2. The Adafruit\_DHT library to interact with the DHT11 sensor. To install the library, run the following commands in the terminal:

sudo apt-get update

sudo apt-get install python3-pip

pip3 install Adafruit\_DHT

3. Open a terminal and create a new Python file

nano read\_sensor.py

4. Write sample Program:

import Adafruit\_DHT

# Define the sensor type and the GPIO pin where it's connected

sensor = Adafruit\_DHT.DHT11

pin = 4 # GPIO pin where the data pin of DHT11 is connected

# Read the sensor data

humidity, temperature = Adafruit\_DHT.read(sensor, pin)

if humidity is not None and temperature is not None:

print(f'Temperature: {temperature:.1f}°C, Humidity: {humidity:.1f}%')

else:

print('Failed to retrieve data from the sensor.')

5. Save the file (CTRL + X, then Y, and press Enter).

6. Run the program using the following command.

python3 read\_sensor.py

Output:

Temperature: 23.4°C, Humidity: 45.6%

Else

Failed to retrieve data from the sensor.