DATA SCIENCE

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OBJECTIVES :

The objective of this assignment is to demonstrate a foundational understanding of Python programming concepts, such as *user-defined functions, input handling from user and working with basic datatypes in python*.

The following program is written and executed in Jupyter Notebook environment.

CODE :

Program #1 – To Calculate the Radius of a Circle

```python
from math import pi

def calc_area(rad):
    #Gets the Radius and returns the Area
    area = pi*(r**2)
    return area

r = float(input("Radius of Circle: "))              # Gets Input radius
area = calc_area(r)
print(f'The area of circle is {area:.2f} sq.units')
```

[1] ✓ 2.7s

```
The area of circle is 102.07 sq.units
```

Input : 5.7 units

Output : 102.07 sq. units

Program #2 - Sorting numbers

```
# Function starts with getting input from user in single line and appends them to a list.
# Then it sorts them and prints the output.
lst = []    #Empty list for storing elements
[a,b,c,d,e,f,g,h,i,j] = map(int,input("Enter any 10 random integers: ").split())  #Gets input in single line
lst.append(a)
lst.append(b)
lst.append(c)
lst.append(d)
lst.append(e)
lst.append(f)
lst.append(g)
lst.append(h)
lst.append(i)
lst.append(j)

print('initial Order: ')
for i in range(10):
    print(lst[i], end=' ')     #Prints elements one by one before sorting
print('\n')


#SORTING in ASCENDING ORDER
lst.sort()
print('After Sorting: ')
for i in range(10):
    print(lst[i], end=' ')
print('\n')

ls = sum(lst)                  #Computes the Sum and prints it
print(f'Sum: {ls}\n')
```

9] ✓ 8m 58.6s

```
initial Order:
2 4 43 23 54 22 11 34 14 9

After Sorting:
2 4 9 11 14 22 23 34 43 54

Sum: 216
```

Input: 2 4 43 23 54 22 11 34 14 9

Program #3 - Temperature Check

```
temp = {'Chennai': 35.3,                #Cities and temperatures are predefined
        'Delhi': 37.4,
        'Goa': 30.7,
        'Kolkata':32.1,
        'Mumbai': 36.5,
        'Ahmedabad': 33.7,
        'Hyderabad': 38.7,
        'Nagpur': 33.0,
        'Patna': 37.9}
while True:                             #Runs Unitl a proper execution
    inp = input('Enter the city number to check the temperature: ')
    if inp in temp:                     #Checks the city name in the dictionary
        print(f'The temperature in {inp} is {temp[inp]}°C')
        break
    else:
        print('Invalid city name. Try again')
```

[6] ✓ 2.7s

```
The temperature in Mumbai is 36.5°C
```

Input : Mumbai

LEARNING OUTCOMES :

1. Gather and convert user-provided data for program execution.
2. Learn to create and utilize functions for specific tasks.
3. Create, modify, and access elements in a list.
4. Store and retrieve data using key-value pairs in a dictionary.