SRM INSTITUTE OF SCIENCE & TECHNOLOGY KATTANKULATHUR CHENNAI

Name ➢ GAURAV GUPTA

Subject ➢ ADVANCED PROGRAMMING PRACTICE

Section ➢ W2

Roll No. ➢ RA2211026010284

Title ➢ ASSIGNMENT WEEK 9

ASSIGNMENT

WEEK 9

Q1) Write a python program to calculate the sum of Two numbers and Three numbers. However, if the sum is between 120 to 320 it will return 200.

CODE:

```
ch=int(input("Enter your choice of 2 or 3 numbers: "))

if (ch==2):
    a=int(input("Enter the number"))
    b=int(input("Enter the number"))
    sum=a+b

else:
    c=int(input("Enter the number"))
    d=int(input("Enter the number"))
    e=int(input("Enter the number"))
    sum=c+d+e

if (sum>120 and sum<320):
    print(200)
else:
    print(sum)
```

Output

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter your choice of 2 or 3 numbers: 2
Enter the number5
Enter the number200
200
>>>
```

Q2) Implement a python function to find the Maximum of Three numbers.

CODE:

```
def find_maximum(a,b,c):
    max_num = max(a,b,c)
    return max_num

a=int(input("Enter the number"))
b=int(input("Enter the number"))
c=int(input("Enter the number"))
result = find_maximum(a,b,c)
print(result)
```

Output:

```
>>>
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter the number2
Enter the number5
Enter the number6
6
```

Q3) Write a python program to calculate the Factorial of a given number.

CODE:

```
n=int(input("Enter the No.: "))
if (n==0):
    print(1)
else:
    f=1
    for i in range(1,n+1):
        f*=i
print("Factorial of ",n,"is ",f)
```

Output:

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter the No.: 5
Factorial of  5 is  120
>>>
```

Q4) Write a python program to Check if a Number is Even or Odd and also check whether it is Prime or not.

CODE:

```
# Get user input for the number
num = int(input("Enter a positive integer: "))

# Check if the number is even or odd
if num % 2 == 0:
    print(f"{num} is even.")
else:
    print(f"{num} is odd.")
```

```
# Check if the number is prime
if num < 2:
    is_prime = False
else:
    is_prime = True
    for i in range(2, int(num**0.5) + 1):
        if num % i == 0:
            is_prime = False
            break

if is_prime:
    print(f"{num} is prime.")
else:
    print(f"{num} is not prime.")
```

Output:

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter a positive integer: 8
8 is even.
8 is not prime.
```

Q5) Implement a python function to Reverse a given String and also check for palindrome or not.

CODE

```
input_str = input("Enter a string: ")

reversed_str = input_str[::-1]

is_palindrome = input_str == reversed_str

print(f"Reversed String: {reversed_str}")
```

print(f"Is Palindrome: {is_palindrome}")

Output:

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter a string: abcba
Reversed String: abcba
Is Palindrome: True
>>>
```

Q6) Write a python program to Generate Fibonacci Sequence.

CODE

```
# Get user input for the number of terms
num_terms = int(input("Enter the number of Fibonacci terms to generate: "))

if num_terms <= 0:
    print("Please enter a positive integer.")
else:
    fib_sequence = [0, 1]

    while len(fib_sequence) < num_terms:
        next_term = fib_sequence[-1] + fib_sequence[-2]
        fib_sequence.append(next_term)

    print(f"The Fibonacci sequence with {num_terms} terms is:")
    print(fib_sequence[:num_terms])
```

Output:

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter the number of Fibonacci terms to generate: 5
The Fibonacci sequence with 5 terms is:
[0, 1, 1, 2, 3]
>>>
```

Q7) Write a python program to calculate the area and perimeter of different geometric shapes (circle, rectangle, triangle, etc.).

CODE:

```
import math

shape = input("Enter the shape (circle/rectangle/triangle): ")

if shape == "circle":
    # Circle
    radius = float(input("Enter the radius of the circle: "))
    a= math.pi * (radius ** 2)
    p= 2 * math.pi * radius
    area=round(a,2)
    perimeter=round(p,2)

    print(f"Area of the circle: {area}")
    print(f"Circumference of the circle: {perimeter}")

elif shape == "rectangle":
    # Rectangle
    length = float(input("Enter the length of the rectangle: "))
    width = float(input("Enter the width of the rectangle: "))
    a= length * width
    p= 2 * (length + width)
    area=round(a,2)
```

```
    perimeter=round(p,2)

    print(f"Area of the rectangle: {area}")
    print(f"Perimeter of the rectangle: {perimeter}")

elif shape == "triangle":
    # Triangle
    base = float(input("Enter the base length of the triangle: "))
    height = float(input("Enter the height of the triangle: "))
    side1 = float(input("Enter the length of side 1: "))
    side2 = float(input("Enter the length of side 2: "))
    a = 0.5 * base * height
    p = base + side1 + side2
    area=round(a,2)
    perimeter=round(p,2)
    print(f"Area of the triangle: {area}")
    print(f"Perimeter of the triangle: {perimeter}")

else:
    print("Invalid shape. Please enter 'circle', 'rectangle', or 'triangle'.")
```


Output:

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assignment 9.py
Enter the shape (circle/rectangle/triangle):
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assignment 9.py
Enter the shape (circle/rectangle/triangle): circle
Enter the radius of the circle: 5
Area of the circle: 78.54
Circumference of the circle: 31.42
>>>
```

Q8) Implement a python function to Convert Celsius to Fahrenheit and Fahrenheit to Celsius.

CODE:

Celsius to Fahrenheit

```
celsius = float(input("Enter temperature in Celsius: "))
fahrenheit = (celsius * 9/5) + 32
print(f"{celsius}°C is equivalent to {fahrenheit}°F.")
```

Fahrenheit to Celsius

```
fahrenheit = float(input("Enter temperature in Fahrenheit: "))
celsius = (fahrenheit - 32) * 5/9
print(f"{fahrenheit}°F is equivalent to {celsius}°C.")
```

Output:

```
>>>
    = RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
    gnment 9.py
    Enter temperature in Celsius: 50
    50.0°C is equivalent to 122.0°F.
    Enter temperature in Fahrenheit: 122
    122.0°F is equivalent to 50.0°C.
>>>
```

Q9) Write a Python program that accepts a string and counts the number of upper and lower case letters.

CODE:

```
input_str = input("Enter a string: ")

upper_count = 0
lower_count = 0
```

```
for char in input_str:
    if char.isupper():
        upper_count += 1
    elif char.islower():
        lower_count += 1
print(f"Number of uppercase letters: {upper_count}")
print(f"Number of lowercase letters: {lower_count}")
```

Output:

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter a string: Hello everyone This is Python
Number of uppercase letters: 3
Number of lowercase letters: 22
>>>
```

Q10) Write a python program to perform Arithmetic operations on Complex Numbers.

CODE:

```
real1 = float(input("Enter the real part of the first complex number: "))
imaginary1 = float(input("Enter the imaginary part of the first complex number: "))
real2 = float(input("Enter the real part of the second complex number: "))
imaginary2 = float(input("Enter the imaginary part of the second complex number: "))
complex1 = complex(real1, imaginary1)
complex2 = complex(real2, imaginary2)
addition = complex1 + complex2
subtraction = complex1 - complex2
multiplication = complex1 * complex2
if (complex2==0):
    division="not possible"

else:
```

```
    division = complex1 / complex2
print("\n")
print(f"Addition: {addition}")
print(f"Subtraction: {subtraction}")
print(f"Multiplication: {multiplication}")
print(f"Division: {division}")
```

Output:

```
= RESTART: D:/SRM/SEMESTERS/3rd SEM/Advance Programming/python/assi
gnment 9.py
Enter the real part of the first complex number: 2
Enter the imaginary part of the first complex number: 3
Enter the real part of the second complex number: 6
Enter the imaginary part of the second complex number: 4


Addition: (8+7j)
Subtraction: (-4-1j)
Multiplication: 26j
Division: (0.46153846153846156+0.19230769230769232j)
>>>
```