Netaji Subhash Engineering College

Department of Computer Science & Engineering

B. Tech CSE 2nd Year 3rd Semester

2023-2024

Name of the Course: IT Workshop (Python)

Course Code: PCC-CS393

Name of the Student: ARITTRA BAG

Class Roll No.: 103

University Roll No.: 10900122105

Date of Experiment: 13/10/2023

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Assignment No.: A9_01

Problem Statement:

Write a program to read a number from the user. If the number is positive or zero, print it, otherwise raise an exception.

Python Code:

```
try:
    number = float(input("Enter a number: "))
    if number >= 0:
        print("You entered a positive or zero number:", number)
    else:
        raise ValueError("You entered a negative number.")
except ValueError as e:
    print("Error:", e)
```

Sample Output(s):

```
Enter a number: -1
Error: You entered a negative number.
```

Assignment No.: A9_02

Problem Statement:

Write a program to read two numbers from the user and perform basic mathematical operations (addition, multiplication, subtraction, division) by handling all possible exceptions.

Python Code:

```
try:
    num1 = float(input("Enter the 1st Number: "))
    num2 = float(input("Enter the 2nd Number: "))
    sum_r = num1 + num2
    diff_r = num1 - num2
    pro_r = num1 * num2
    if num2 == 0:
        raise ZeroDivisionError("Division by zero is not allowed.")
    div_r = num1 / num2
    print(f"Addition result: {sum_r}")
    print(f"Subtraction result: {diff_r}")
    print(f"Multiplication result: {pro_r}")
    print(f"Division result: {div_r}")
except ValueError as e:
    print(f"ValueError: {e}. Please enter valid numeric input.")
except ZeroDivisionError as e:
    print(f"ZeroDivisionError: {e}")
except Exception as e:
    print(f"An error occurred: {e}")
```

Sample Output(s):

Enter the 1st Number: 10
Enter the 2nd Number: 0
ZeroDivisionError: Division by zero is not allowed.

Assignment No.: A9_03

Problem Statement:

Write a program to read a number from the user and print its square. Generate KeyboardIntrrupt exception if Ctrl + C is pressed instead of a number.

Python Code:

```
try:
    num = float(input("Enter a number: "))
    sq = num * num
    print(f"The square of {num} is {sq}")
except KeyboardInterrupt:
    print("Ctrl + C was pressed. Program terminated.")
except ValueError:
    print("Invalid input. Please enter a valid number.")
```

Sample Output(s):

Output-1:

Enter a number: 3

The square of 3.0 is 9.0

Output-2:

Enter a number: Ctrl + C was pressed. Program terminated.

Assignment No.: A9_04

Problem Statement:

Write a program to print random numbers infinitely. Raise the StopIteration exception after displaying 10 numbers to exit from the program.

Python Code:

```
import random
try:
    for i in range(1, 11):
        print(random.randint(1, 100))
    raise StopIteration
except StopIteration:
    print("StopIteration exception raised. Exiting the program.")
```

Sample Output(s):

73

67

60

10

89

52

28

88

39

50

StopIteration exception raised. Exiting the program.

Assignment No.: A9_05

Problem Statement:

Write a program to generate a random number. Raise a user-defined exception if the number is below 0.5.

Python Code:

```
import random
try:
   num=random.uniform(-100,100)
   if num<0.5:
      raise ValueError("ValueError: The number generated is below '0.5'")
   else:
      print(f"The number generated is: {num:.2f}")
except ValueError as e:
   print(e)
```

Sample Output(s):

Output-1:

The number generated is: 78.45

Output-2:

ValueError: The number generated is below '0.5'

Output-3:

The number generated is: 57.20

Assignment No.: A9_06

Problem Statement:

Write a program to read the age of a person and raise exceptions if age is negative.

Python Code:

```
try:
   age=int(input("Enter your age: "))
   if age<0:
      raise ValueError("ValueError: Age cannot be negative.")
   else:
      print(f"Your age is {age}.")
except ValueError as e:
   print(e)
```

Sample Output(s):

```
Enter your age: -1
ValueError: Age cannot be negative.
```