

## 11 - EXCEPTION HANDLING

Ex. No. : 11.1

Date: 02.06.24

Register No.: 231801091

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## EXCEPTION HANDLING

*To find whether a digit lies in the specified range(1-100). Handling exceptions for invalid inputs and out-of-range numbers.*

*Input Format:*

*User inputs a number. Output*

*Format:*

*Confirm the input or print an error message if it's invalid or out of range.*

For example:

Input	Result
1	Valid input.
101	Error: Number out of allowed range
rec	Error: invalid literal for int()

Program:

try:

```
a=input()
```

```
if(int(a)>0 and int(a)<101):
```

```
    print("Valid input.")
```

```
else:
```

```
    print("Error: Number out of allowed range")
```

except:

```
    print("Error: invalid literal for int()")
```

	Input	Expected	Got	
✓	1	Valid input.	Valid input.	✓
✓	100	Valid input.	Valid input.	✓
✓	101	Error: Number out of allowed range	Error: Number out of allowed range	✓

Ex. No. : 11.2

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## EXCEPTION HANDLING

*Write a Python program that performs division and modulo operations on two numbers provided by the user. Handle division by zero and non-numeric inputs.*

*Input Format:*

*Two lines of input, each containing a number.*

*Output Format:*

*Print the result of division and modulo operation, or an error message if an exception occurs.*

For example:

Input	Result
10 2	Division result: 5.0 Modulo result: 0
7 3	Division result: 2.3333333333333335 Modulo result: 1
8 0	Error: Cannot divide or modulo by zero.

Program:

try:

```
a=input()
```

```
b=input()
```

```
c=int(a)/int(b)
```

```
d=int(a)%int(b)
```

except ZeroDivisionError:

```
print("Error: Cannot divide or modulo by zero.")
```

except:

```
print("Error: Non-numeric input provided.")
```

else:

```
print("Division result:",c)
```

```
print("Modulo result:",d)
```

	Input	Expected	Got
✓	10 2	Division result: 5.0 Modulo result: 0	Division result: 5.0 Modulo result: 0
✓	7 3	Division result: 2.3333333333333335 Modulo result: 1	Division result: 2.3333333333333335 Modulo result: 1
✓	8 0	Error: Cannot divide or modulo by zero.	Error: Cannot divide or modulo by zero.
✓	abc 5	Error: Non-numeric input provided.	Error: Non-numeric input provided.

Ex. No. : 11.3

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## EXCEPTION HANDLING

*Write a Python program that asks the user for their age and prints a message based on the age. Ensure that the program handles cases where the input is not a valid integer.*

*Input Format: A single line input representing the user's age.*

*Output Format: Print a message based on the age or an error if the input is invalid.*

For example:

Input	Result
<i>twenty</i>	<i>Error: Please enter a valid age.</i>
<i>25</i>	<i>You are 25 years old.</i>
<i>-1</i>	<i>Error: Please enter a valid age.</i>

Program:

try:

```
a=input()
```

```
if int(a)>=0:
```

```
    print("You are",a,"years old.")
```

```
else:
```

```
    print("Error: Please enter a valid age.")
```

```
except:
```

```
    print("Error: Please enter a valid age.")
```

	Input	Expected	Got	
✓	twenty	Error: Please enter a valid age.	Error: Please enter a valid age.	✓
✓	25	You are 25 years old.	You are 25 years old.	✓
✓	-1	Error: Please enter a valid age.	Error: Please enter a valid age.	✓
✓	150	You are 150 years old.	You are 150 years old.	✓
✓		Error: Please enter a valid age.	Error: Please enter a valid age.	✓

Ex. No. : 11.4

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### EXCEPTION HANDLING

*Develop a Python program that safely calculates the square root of a number provided by the user. Handle exceptions for negative inputs and non-numeric inputs.*

*Input Format:*

*User inputs a number. Output*

*Format:*

*Print the square root of the number or an error message if an exception occurs.*

For example:

Input	Result
16	The square root of 16.0 is 4.00
-4	Error: Cannot calculate the square root of a negative number.
rec	Error: could not convert string to float

Program:

```
import math
```

```
try:
```

```
    n=input()
```

```
    n=float(n)
```

```
    if n < 0:
```

```
        print("Error: Cannot calculate the square root of a negative number.")
```

```
    else:
```

```
        r= math.sqrt(n)
```



```
print("The square root of {} is {:.2f}".format(n, r))
```

```
except ValueError:
```

```
print("Error: could not convert string to float")
```

	Input	Expected	Got	
✓	16	The square root of 16.0 is 4.00	The square root of 16.0 is 4.00	✓
✓	0	The square root of 0.0 is 0.00	The square root of 0.0 is 0.00	✓
✓	-4	Error: Cannot calculate the square root of a negative number.	Error: Cannot calculate the square root of a negative number.	✓

Ex. No. : 11.5

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### EXCEPTION HANDLING

*Develop a Python program that safely performs division between two numbers provided by the user. Handle exceptions like division by zero and non-numeric inputs.*

*Input Format: Two lines of input, each containing a number.*

*Output Format: Print the result of the division or an error message if an exception occurs.*

For example:

Input	Result
10 2	5.0
10 0	Error: Cannot divide or modulo by zero.
ten 5	Error: Non-numeric input provided.

Program:

try:

a=input()

b=input()

c=float(a)/float(b)

except ZeroDivisionError:

```
print("Error: Cannot divide or modulo by zero.")
```

```
except:
```

```
print("Error: Non-numeric input provided.")
```

```
else:
```

```
print(c)
```

	Input	Expected	Got	
✓	10 2	5.0	5.0	✓
✓	10 0	Error: Cannot divide or modulo by zero.	Error: Cannot divide or modulo by zero.	✓
✓	ten 5	Error: Non-numeric input provided.	Error: Non-numeric input provided.	✓