Python Programming - Lab - 10

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Python Programming - 2301CS404

Lab - 10

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1 Exception Handling

1.0.1 01) WAP to handle following exceptions:

1. ZeroDivisionError
2. ValueError
3. TypeError #### Note: handle them using separate except blocks and also using single except block too.

```python
try:
    print(1/0)
except ZeroDivisionError:
    raise ZeroDivisionError
except ValueError:
    raise ValueError
except TypeError:
    raise TypeError
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
d:\om\python\Python Programming - Lab - 10.ipynb Cell 4 line 2
      <a href='vscode-notebook-cell:/d%3A/om/python/
 ↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=0'>1</a>
 ↪try:
----> <a href='vscode-notebook-cell:/d%3A/om/python/
 ↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=1'>2</a>
 ↪ print(1/0)
      <a href='vscode-notebook-cell:/d%3A/om/python/
 ↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=2'>3</a>
 ↪except ZeroDivisionError:

ZeroDivisionError: division by zero
```

During handling of the above exception, another exception occurred:

```
ZeroDivisionError                         Traceback (most recent call last)
d:\om\python\Python Programming - Lab - 10.ipynb Cell 4 line 4
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=1'>2</a>
↪ print(1/0)
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=2'>3</a>
↪except ZeroDivisionError:
----> <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=3'>4</a>
↪ raise ZeroDivisionError
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=4'>5</a>
↪except ValueError:
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#W3sZmlsZQ%3D%3D?line=5'>6</a>
↪ raise ValueError

ZeroDivisionError:
```

```python
[4]: try:
         print(1/0)
     except Exception:
         raise Exception
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
d:\om\python\Python Programming - Lab - 10.ipynb Cell 5 line 2
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#X31sZmlsZQ%3D%3D?line=0'>1</a>
↪try:
----> <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#X31sZmlsZQ%3D%3D?line=1'>2</a>
↪  print(1/0)
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#X31sZmlsZQ%3D%3D?line=2'>3</a>
↪except Exception:

ZeroDivisionError: division by zero

During handling of the above exception, another exception occurred:

Exception                                 Traceback (most recent call last)
```

```
d:\om\python\Python Programming - Lab - 10.ipynb Cell 5 line 4
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#X31sZmlsZQ%3D%3D?line=1'>2</a>  ␣
↪  print(1/0)
      <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#X31sZmlsZQ%3D%3D?line=2'>3</a>␣
↪except Exception:
----> <a href='vscode-notebook-cell:/d%3A/om/python/
↪Python%20Programming%20-%20Lab%20-%2010.ipynb#X31sZmlsZQ%3D%3D?line=3'>4</a>  ␣
↪  raise Exception

Exception:
```

1.0.2 02) WAP to handle following exceptions:

1. IndexError
2. KeyError

```python
[6]: try:
         d1 = {"jay":1}
         d1["tata"]
     except IndexError:
         print("wrong index")
     except KeyError:
         print("wrong key")
```

```
wrong key
```

1.0.3 03) WAP to handle following exceptions:

1. FileNotFoundError
2. ModuleNotFoundError

```python
[9]: try:
         import abcd
         # f1 = open("abc.txt")
     except (FileNotFoundError,ModuleNotFoundError) as e:
         print(e)
```

```
No module named 'abcd'
```

1.0.4 04) WAP that catches all type of exceptions in a single except block.

```python
[10]: try:
          print("hello")
      except Exception as e:
          print(e)
```

```
hello
```

1.0.5 05) WAP to demonstrate else and finally block.

```python
[18]: try:
          print("1/0")
      except Exception as e:
          print(e)
      else:
          print("from else")
      finally:
          print("from finally")
```

```
1/0
from else
from finally
```

1.0.6 06) Create a short program that prompts the user for a list of grades separated by commas.

1.0.7 Split the string into individual grades and use a list comprehension to convert each string to an integer.

1.0.8 You should use a try statement to inform the user when the values they entered cannot be converted.

```python
[22]: def getList(s1: str):
          try:
              l1 = s1.split()
              ans = [int(i) for i in l1]
              return ans
          except ValueError:
              print("enter only integers")
      s1 = input("enter : ")
      print(getList(s1))
```

```
enter only integers
None
```

1.0.9 07) WAP to create an udf divide(a,b) that handles ZeroDivisionError.

```python
[24]: def divide(a,b):
          try:
              print(a/b)
          except ZeroDivisionError as ze:
              print(ze)
      divide(1,0)
```

```
division by zero
```

1.0.10 08) WAP that gets an age of a person form the user and raises ValueError with error message: "Enter Valid Age" :

If the age is less than 18.

otherwise print the age.

```
[28]: try:
          age = int(input("enter age"))
          if age<18:
              raise ValueError("Enter Valid Age")
      except ValueError as ve:
          print(ve)
```

Enter Valid Age

1.0.11 09) WAP to raise your custom Exception named InvalidUsernameError with the error message : "Username must be between 5 and 15 characters long":

if the given name is having characters less than 5 or greater than 15.

otherwise print the given username.

```
[35]: class InvalidUsernameError(Exception):
          print

      try:
          userName = input("enter user name")
          if len(userName) <=5 or len(userName) >= 15:
              raise InvalidUsernameError("username must between 5 and 15")
          print(userName)
      except InvalidUsernameError as iue:
          print(iue)
```

username must between 5 and 15

1.0.12 10) WAP to raise your custom Exception named NegativeNumberError with the error message : "Cannot calculate the square root of a negative number" :

if the given number is negative.

otherwise print the square root of the given number.

```
[38]: class NegativeNumberError(Exception):
          print('Cannot calculate the square root of a negative number')

      try:
          n = 14
          if n<0:
              raise NegativeNumberError
      except NegativeNumberError as ne:
```

```
    print(ne)
```

Cannot calculate the square root of a negative number