Assignment

PW SKILLS

Q1. Explain why we have to use the Exception class while creating a Custom Exception.

Note: Here Exception class refers to the base class for all the exceptions.

Answer.

Built-in exceptions offer information about Python-related problems, and custom exceptions will add information about project-related problems. That way, you can design your code (and traceback, if an exception is raised) in a way that combines Python code with the language of the project.

Q2. Write a python program to print Python Exception Hierarchy.

Answer:

```
import inspect as ipt
def tree_class(cls, ind = 0):
    print ('-' * ind, cls.__name__)
    for K in cls.__subclasses__():
        tree_class(K, ind + 3)
print ("Inbuilt exceptions is: ")
ipt.getclasstree(ipt.getmro(BaseException))
 tree_class(BaseException)
```

Q3. What errors are defined in the ArithmeticError class? Explain any two with an example.

Answer:

The arithmetic error occurs when an error is encountered during numeric calculations in Python. This includes Zerodivision Error and OverFlow error.

Example: Zerodivision Error

```
try:

    a=10

    a/0

except ZeroDivisionError as e:

    print (e)

division by zero
```

OverFlow error

```
try:

    import math

    print(math.exp(1000))

except OverflowError as e:

    print ("OverFlow error:",e)
```

Q4. Why LookupError class is used? Explain with an example KeyError and IndexError.

Answer:

The LookupError exception in Python forms the base class for all exceptions that are raised when an index or a key is not found for a sequence or dictionary respectively.

KeyError: The key error is used in case of dictionaries when the key is not found.

Example:

```
try:

    d={1:[2,3,4,5,6,7], "Key":"Ashish"}

    d["Key13"]

except KeyError as e:

    print(e)
```

IndexError: The Key error is used in case of Lists when the mentioned Index is not found.

Example:

```
try:

    lists=[1,2,3,4,5,6,7,8,9,0]

    lists[2000]

except IndexError as e:

    print(e)
```

Q5. Explain ImportError. What is ModuleNotFoundError?

Answer: ImportError indicates that you tried to import a module that Python doesn't find.

Example:

```
try:
    import ashish
except ImportError as e:
    print(e)
```

ModuleNotFoundError: this error occurs when you're trying to access or use a module that cannot be found.

Example:

```
try:

    import NumPy as np

except ModuleNotFoundError as e:

    print(e)
```

Q6. List down some best practices for exception handling in python.

Answer:

⋆ use always a specific exception

```
try :
    10/0
except ZeroDivisionError as e :
    print(e)
```

* Always print a valid message.

```
try :
    10/0
except ZeroDivisionError as e :
    print("this is my zero division error I am handling " , e)
```

* Always try to log

```
import logging
logging.basicConfig(filename = "error.log" , level = logging.ERROR)
try :
    10/0
except ZeroDivisionError as e :
    logging.error("this is my zero dedision error i am handling {} ".format( e))
```

* A lways avoid writing a multiple exception handling

```
try :
    10/0
except FileNotFoundError as e :
    logging.error("this is my file not found  {} ".format( e))
except AttributeError as e :
    logging.error("this is my attribute erro  {} ".format( e))
except ZeroDivisionError as e :
    logging.error("this is my zero dedision error i am handling {} ".format( e))
```

* Cleanup all the resources

```
try :

    with open("test.txt" , "w" ) as f :

        f.write("thsi is my msg to file " )

except FileNotFoundError as e :

     logging.error("this is my file not found  {} ".format( e))

finally :

    f.close()
```