LAB ACTIVITY 5(ii):
Python Modules and Exception Handling

Learning Outcomes:

By the end of this laboratory session, you should be able to:

1. **Build Python simple program using Python package**
2. **Manipulate the implementation of Exception handling in Python coding**

Hardware/Software: Computer, Phyton 3.5 or above.

Activity 5J

Activity Outcome**:** Creating a package.

Procedure:

Step 1: Create a new folder named MyApp.
Step 2: Inside MyApp, **create a subfolder** with the name 'mypackage'.
Step 3: Create an empty _init_.py file in the mypackage folder.
Step 4: Open Code editor and type the code based on the following code :

```
def SayHello(name):
    print("Hello ", name)
```

Step 5: Save this code in a file named **greet.py**.
Step 6: Open a new python file and type the code based on the following code :

```
def sum(x,y):
    return x+y

def average(x,y):
    return (x+y)/2

def power(x,y):
    return x**y
```

Step 7: Save this code in a file named **functions.py**.
Step 8: Open a new python file and type the code based on the following code :

```
import mypackage.functions

print(mypackage.functions.sum(3,2))
print(mypackage.functions.average(3,2))
print(mypackage.functions.power(3,2))
```

Step 9: Save, compile and run the program. Save the program as `Act5j1.py`. Display the output in the area below.

Output:

```
5
2.5
9
```

Step 10: Change the way of importing package by open a new python file and type the code based on the following code:

```
from mypackage import functions

print(functions.sum(10,20))
print(functions.average(10,20))
print(functions.power(10,20))
```

Step 11: Save, compile and run the program. Save the program as `Act5j2.py`. Display the output in the area below.

Output:

```
30
15.0
100000000000000000000
```

Step 12: Change the way of importing package by open a new python file and type the code based on the following code:

```
from mypackage.greet import SayHello

nama=input("Masukkan nama: ")
SayHello(nama)
```

Step 13: Save, compile and run the program. Save the program as `Act5j3.py`. Display the output in the area below.

Output:

```
Masukkan nama:Afiq
Hello  Afiq
```

Activity 5K

Activity Outcome: Creating a simple exception handling.

Procedure:
Step 1: Open Code editor and type the code based on the following code :

```
try:
    print(x)
except:
    print("An exception occurred")
```

Step 2: Save, compile and run the program. Save the program as `Act5k.py`. Display the output in the area below.

Output:

```
An exception occured
```

Activity 5L

Activity Outcome: Creating a multiple exception handling.

Procedure:
Step 1: Open Code editor and type the code based on the following code :

```
try:
    print(x)
except NameError:
    print("Variable x is not defined")
except:
  print("Something else went wrong")
```

Step 2: Save, compile and run the program. Save the program as `Act5l.py`. Display the output in the area below.

Output:

```
Variable x is not defined
```

Activity 5M

Activity Outcome: Use a tuple of values to specify multiple exceptions in an except clause

Procedure:

Step 1: Open Code editor and type the code based on the following code :

```
keep_asking = True

while keep_asking:
    try:
        x = int(input("Please enter a number: "))
        print("Dividing 50 by", x,"will give you :", 50/x)
    except (ZeroDivisionError, ValueError, TypeError):
        print("Something has gone wrong..")
        # code to deal with the exception
    except:
        print("Other than ZeroDivisionError, ValueError, TypeError ")
```

Step 2: Save, compile and run the program. Save the program as `Act5m.py`. Display the output in the area below.

Output:

```
Please enter a number:10
Dividing 50 by 10 will give you : 5.0
Please enter a number:0
Something has gone wrong..
Please enter a number:
```

Activity 5N

Activity Outcome : Creating a simple exception handling (‘else’ keyword).

Procedures:
Step 1: Open code editor and type the following code:

```
keep_asking = True

while keep_asking:
    try:
        x = int(input("Please enter a number: "))
    except ValueError:
        print("The input was not a valid integer. Please try again...")
    else:
        print("Dividing 30 by", x,"will give you :", 30/x)
```

Step 2: Save, compile and run the program. Save the program as `Act5n.py`. Display the output in the area below.

Output:

```
Please Enter a number: 30
Dividing 30 by 30 will give you: 1.0
Please Enter a number: a
The input was not a valid integer. Please try again...
Please Enter a number:
```

Activity 5O

Activity Outcome : Creating a simple exception handling (’finally’ keyword)

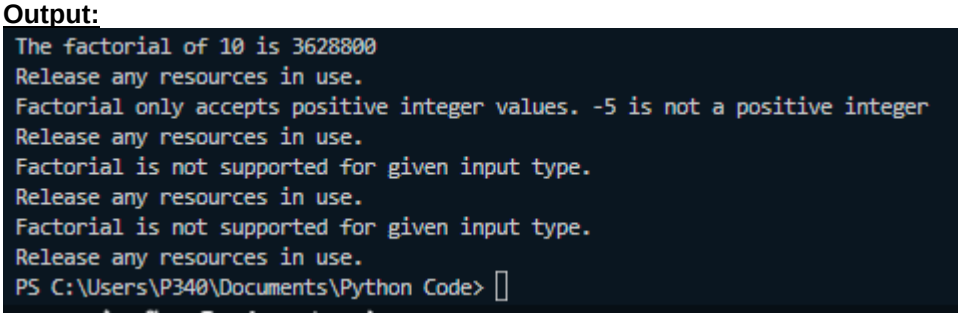
Procedures:

Step 1: Open code editor and type the following code:

```
‘’’ The following code checks for two exceptions, TypeError and ValueError. The else block is
used to print the factorial.
‘’’

import math

number_list = [10,-5,1.2,'apple']

for number in number_list:

    try:
        number_factorial = math.factorial(number)

    except TypeError:
        print("Factorial is not supported for given input type.")

    except ValueError:
        print("Factorial only accepts positive integer values.", number," is not a positive integer.")

    else:
        print("The factorial of",number,"is", number_factorial)

    finally:
        print("Release any resources in use.")
```

Step 2: Save, compile and run the program. Save the program as `Act5o.py`. Display the output in the area below.

Output:



Activity 5P

Activity Outcome : Creating a simple exception handling (’finally’ keyword)

Procedures:
Step 1: Open code editor and type the following code:

```
#This can be useful to close objects and clean up resources
try:
    f = open("file.txt")
    f.write("Politeknik METrO Tasek Gelugor")

except:
    print("Something went wrong when writing to the file")

finally:
    f.close()
```

Step 2: Save, compile and run the program. Save the program as `Act5p.py`. Display the output in the area below.

Output:

```
Something went wrong when writing to the file
Exception has occurred: NameError ×
name 'f' is not defined
  File "C:\Users\P340\Documents\Python Code\Assignments\Lab Activity 5 (ii)\Act5p.py", line 10, in <module>
    f.close()
```

Step 3: Modify the code the statement

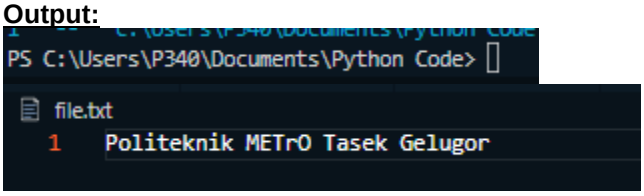
f = open("file.txt")

to

f = open("file.txt",**'a'**)

Step 4: Save, compile and run the program. Display the output in the area below.

Output:



Activity 5Q

Activity Outcome : Creating a simple exception handling (**Raise an exception**)

Procedures:
Step 1: Open code editor and type the following code:

```
x = -1

if x < 0:
  raise Exception("Sorry, no numbers below zero")
```

Step 2: Save, compile and run the program. Save the program as `Act5q.py`. Display the output in the area below.

Output:

```
Exception has occurred: Exception ×
Sorry, no numbers below zero
  File "C:\Users\P340\Documents\Python Code\Assignments\Lab Activity 5 (ii)\Act5q.py", line
4, in <module>
    raise Exception("Sorry, no numbers below zero")
```