CODE / COURSE	**DFN40323- PROGRAMMING ESSENTIALS IN PYTHON**	**PRACTICAL TASK**	**4**
PROGRAM / CLASS	**DDT4**	**DURATION**	**3 HOURS**
STUDENT'S NAME	**1) TARINI A/P ASOKUMAR 2) MUHAMMAD AFIQ MUHAIMIN BIN MOHD ZAINI**	**CLO 1**	**P3**
REG. NO.	**1) 32DDT20F2006 2) 32DDT20F2029**	**TOTAL MARKS**	**/75**
LECTURER'S NAME	**SHARIZAN BINTI ABDUL JAMIL**		

Learning Outcome:

By the end of this practical, student will be able to:

Construct a software application using the Python programming language (CLO1, P3, PLO3).

Instructions:

Question 1

Construct a package and write modules to calculate student's grade. Please refer to the following requirements:

i. **Create a package called** pack1.
ii. **Create** grade.py **module and keep it in** pack1.
    a) **In this module (grade.py), create a function** result () **to calculate and display the grade and the user's name.**
    b) **Your function must receive an arguments name and marks from the user.**
iii. **Create a** UserResult.py **module (outside of pack1 package)**
    a) **This module (UserResult.py) will get an input name and marks from a user. It will also call the result () function in grade module.**

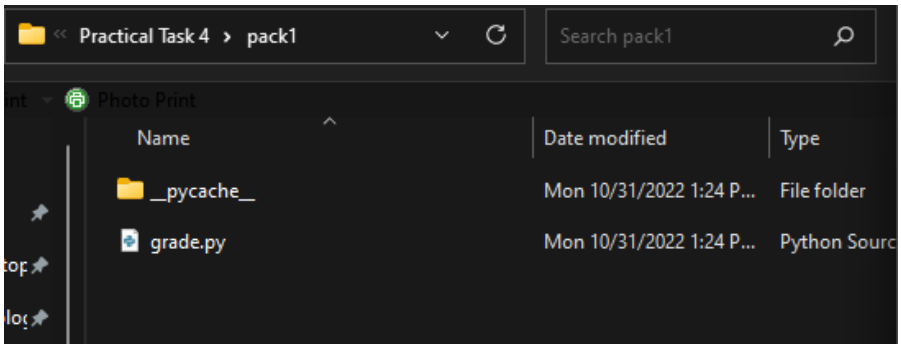
(Hint: For grade, refer Politeknik system grading).

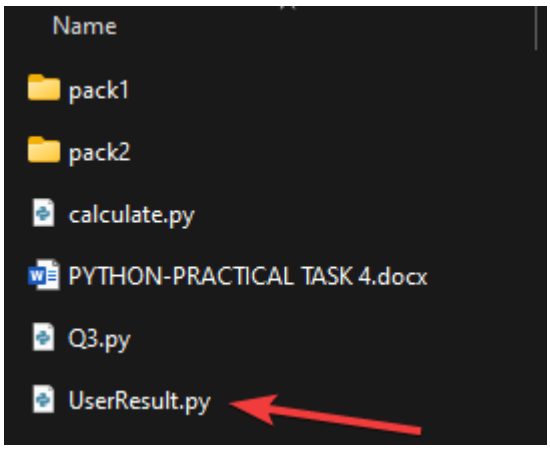
(25 marks)

Answer all the questions given. Students need to discuss in groups of two (2) and upload the findings of the discussion in report and .py file through CIDOS. Students will be accessed according to the Rubric given.

SOURCE CODE & OUTPUT:

Folder structure





grade.py

```python
#Declare function named result and pass 2 args (name,marks)
def result(name, marks):
    #if else statement for marks
    if marks >= 90 and marks <= 100:
        print("Your Grade is A+")
    elif marks >= 80 and marks <= 89:
        print("Your Grade is A")
    elif marks >= 75 and marks <= 79:
        print("Your Grade is A-")
    elif marks >= 70 and marks <= 74:
        print("Your Grade is B+")
    elif marks >= 65 and marks <= 69:
        print("Your Grade is B")
    elif marks >= 60 and marks <= 64:
        print("Your Grade is B-")
    elif marks >= 55 and marks <= 59:
        print("Your Grade is C+")
    elif marks >= 50 and marks <= 54:
        print("Your Grade is C")
    elif marks >= 47 and marks <= 49:
        print("Your Grade is C-")
    elif marks >= 44 and marks <= 46:
        print("Your Grade is D+")
    elif marks >= 40 and marks <= 43:
        print("Your Grade is D")
    elif marks >= 30 and marks <= 39:
        print("Your Grade is E")
    elif marks >= 20 and marks <= 29:
        print("Your Grade is E-")
    elif marks >= 0 and marks <= 19:
        print("Your Grade is F")
    else:
        print("Invalid Input!")
    print("\n")
    print("**************************")
    print("Your Name is", name)
    print("Your Mark is", marks)
```

UserResult.py

```python
#import pack1 and call grade.py
from pack1 import grade
#Ask for name and grade from user
Name = input("Enter Your Name: ")
Grade = int(input("Enter Your grade: "))
#Call the function to print out name and grade
grade.result(Name, Grade)
```

Output

```
Enter Your Name: Afiq
Enter Your grade: 89
Your Grade is A


**************************
Your Name is Afiq
Your Mark is 89
```

Question 2

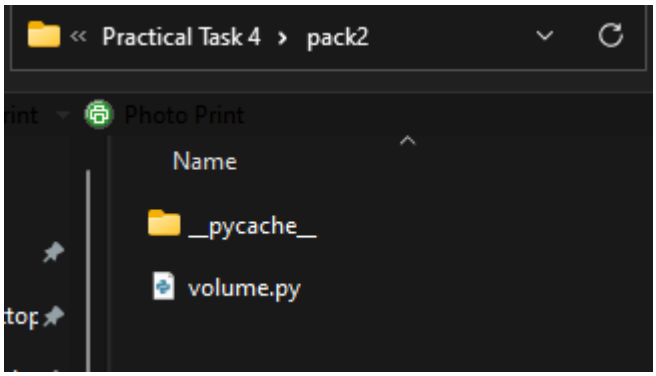
Construct a package and write modules to calculate volume of cylinder. Please refer to the following requirements:

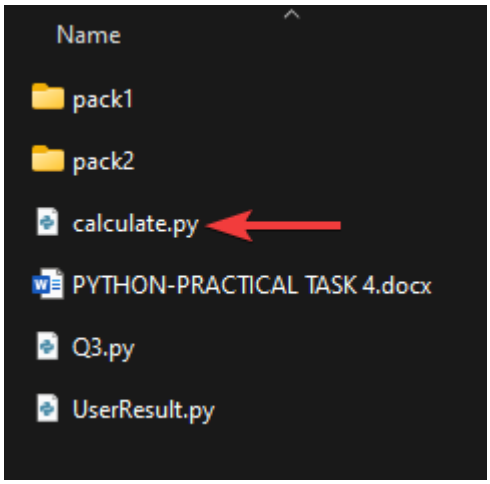
i. **Create a package called** pack2.
ii. **Create** volume.py **module and keep it in** pack2.
    a. **In this module (volume.py), create a function** calcVolume () **to calculate and display the volume of cylinder. Use the formula (volumeOfCylinder =** $\pi r^2 h$**)**
    b. **You also need to** built-in module **in Python for** constant π.
    c. **Your function must receive an arguments height and radius from the user.**
iii. **Create a** calculate.py **module (outside of pack2 package)**
    a. **This module will get an input height and radius from a user. It will also called the calcVolume() function in the volume module.**

(25 marks)

SOURCE CODE & OUTPUT:

Folder Structure





volume.py U

Assignments > Practical Task 4 > pack2 > volume.py > calcVolume

```python
#import math module for pi and pow
import math


#define function for calcVolume
def calcVolume(height, radius):
    #formula for volume
    vol = math.pi * math.pow(radius, 2) * height
    #Format to 2 decimal points
    twodecfloat = "{:.2f}".format(vol)
    #Print cylinder volume with 2 decimal points
    print("The volume of cylinder is", twodecfloat)

```

calculate.py U

Assignments > Practical Task 4 > calculate.py > ...

```python
#import volume.py from pack2
from pack2 import volume

#Ask input from user for height and radius
cylHeight = int(input("Please enter the height of your cylinder:"))
cylRadius = int(input("Please enter the radius of your cylinder:"))
#call calcVolume and pass cylHeight and cylRadius and output the answer
volume.calcVolume(cylHeight, cylRadius)

```

```
Please enter the height of your cylinder:10
Please enter the radius of your cylinder:2
The volume of cylinder is 125.66
```

Question 3

Construct a module t o generates a random number between 1 and 6 (including 1 and 6) for computer player. Ask the user player to choose the number between 1 and 6 , then identify if the computer wins, it gets 1 point while player wins, it gets 1 point. The game will repeat in three (3) times and when the game ends, it will display the score of each player.

The coding also must have the exception handling:

a. **Display a message "You input other than integer" if the user input other than integer.**

b. **Display the message "Thank You for Playing" regardless if it raises an error or not.**

Sample output for correct input:

```
Insert any number between 1 to 6: 4

Computer rolled:  2
Player rolled:  4
Player wins.
Insert any number between 1 to 6: 5

Computer rolled:  2
Player rolled:  5
Player wins.
Insert any number between 1 to 6: 3

Computer rolled:  2
Player rolled:  3
Player wins.

Thank you for Playing

### Game Over ###
Computer score: 0
Player score: 3

***Repl Closed***
```

Sample output for wrong input:

```
Insert any number between 1 to 6: satu
You input other than integer

Thank you for Playing

### Game Over ###
Computer score: 0
Player score: 0

***Repl Closed***
```

(25 marks)

SOURCE CODE & OUTPUT:

```
import random

no = [1, 2, 3, 4, 5, 6]
x = 0
p = 0  #p is player
c = 0  #c is computer variable
pScore = 0
cScore = 0
try:
    while x < 3:

        number = int(input("Insert any number between 1 to 6:"))
        no1 = int(random.choice(no))
        print("Computer rolled:", no1)
        print("Player rolled:", number)
        if number > no1:
            print("Player wins")
            p += 1

        elif no1 > number:
            print("Computer wins")
            c += 1

        else:
            print("The match was draw")  #no point for both
        x += 1

    pScore = p
    cScore = c
except:
    print("You input other than integer")

finally:
    print("Thank you for playing")
    print("\n### Game Over ###\n")
    print("Computer scored:", cScore)
    print("Player scored:", pScore)
```

```
Insert any number between 1 to 6:3
Computer rolled: 3
Player rolled: 3
The match was draw
Insert any number between 1 to 6:6
Computer rolled: 1
Player rolled: 6
Player wins
Insert any number between 1 to 6:2
Computer rolled: 6
Player rolled: 2
Computer wins
Thank you for playing

### Game Over ###

Computer scored: 1
Player scored: 1
```

Wrong Input

```
Insert any number between 1 to 6:satu
You input other than integer
Thank you for playing

### Game Over ###

Computer scored: 0
Player scored: 0
```

CONCLUSION:

In conclusion, for the first and second question we learned on how to utilize package to make our code usable in any code and clean up our code and utilize python's built in method which is math.pi() for our pi number and math.pow().

In the third question we learned on how to use exception handling and random module to make random guesses throught the code