

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 MUHAJIMIN 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.**

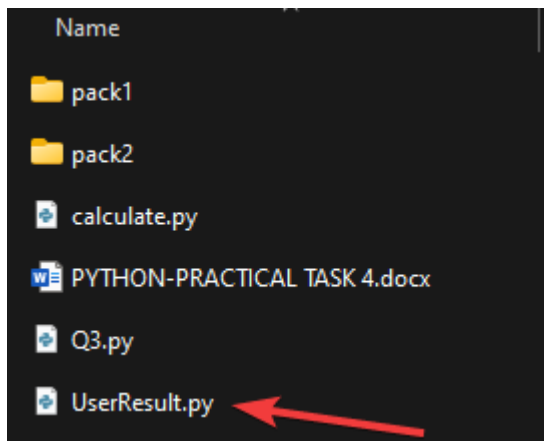
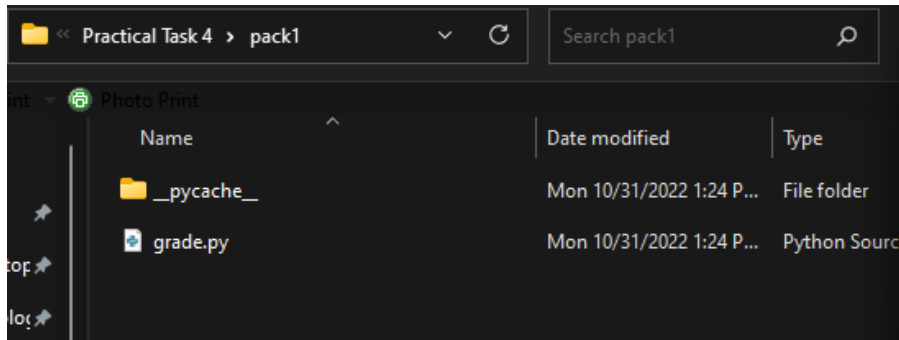
(Hint: For grade, refer Politeknik system grading).

(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 assessed according to the Rubric given.

SOURCE CODE & OUTPUT:

Folder structure



grade.py

```
#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

```
#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

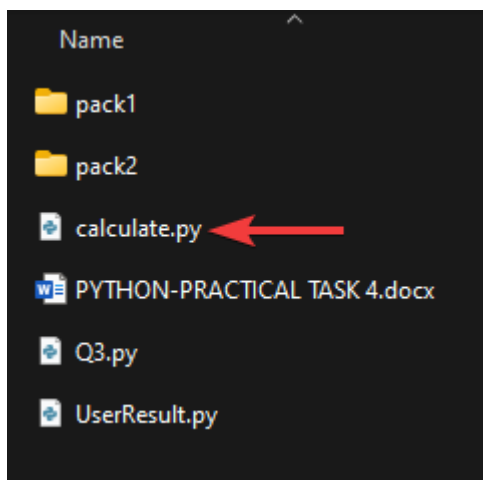
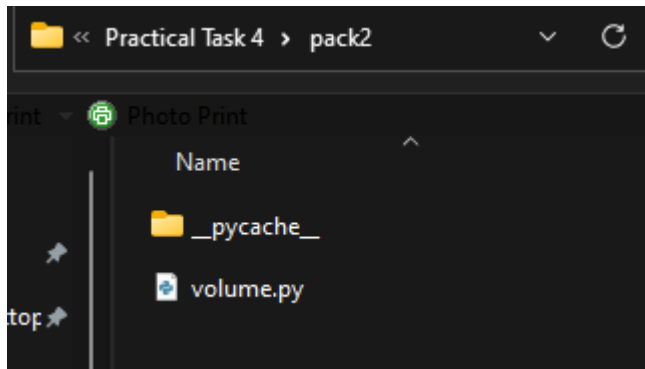
Construct a package and write modules to calculate volume of cylinder. Please refer to the following requirements:

- 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 ($\text{volumeOfCylinder} = \pi r^2 h$)
 - 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 X
Assignments > Practical Task 4 > pack2 > volume.py > calcVolume
1  #import math module for pi and pow
2  import math
3
4
5  #define function for calcVolume
6  def calcVolume(height, radius):
7      #formula for volume
8      vol = math.pi * math.pow(radius, 2) * height
9      #Format to 2 decimal points
10     twodecfloat = "{:.2f}".format(vol)
11     #Print cylinder volume with 2 decimal points
12     print("The volume of cylinder is", twodecfloat)
13
```

calculate.py U X

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

```
1  #import volume.py from pack2
2  from pack2 import volume
3
4  #Ask input from user for height and radius
5  cylHeight = int(input("Please enter the height of your cylinder:"))
6  cylRadius = int(input("Please enter the radius of your cylinder:"))
7  #call calcVolume and pass cylHeight and cylRadius and output the answer
8  volume.calcVolume(cylHeight, cylRadius)
9
```

```
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 to generate 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
```

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 through the code