Task 3 Importing Python modules and packages in python programming

PROBLEM 1

You are given a date. Your task is to find what the day is on that date.
Input Format
A single line of input containing the space separated month, day and year, respectively, in ***MM DD YYYY*** format.
Constraints
2000 < year < 3000
Output Format
Output the correct day in capital letters.
Sample Input
08 05 2015
Sample Output
WEDNESDAY

PROGRAM

```
import datetime


# Input

input_date = input("Enter the date in MM DD YYYY format: ")

month, day, year = map(int, input_date.split())


# Check if the year is within the specified constraints

if 2000 < year < 3000:

    x = datetime.datetime(year, month, day)      # Convert to datetime object


    day_name = x.strftime("%A").upper()          # Get and print the day in capital letters

    print(day_name)

else:

    print("Year is not within the specified constraints.")
```

OUTPUT

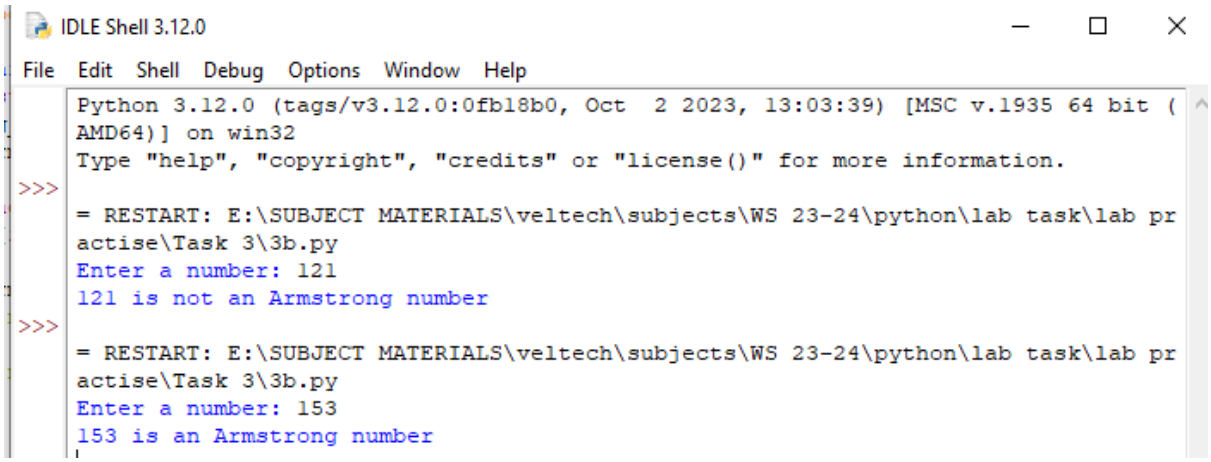
```
>>>
= RESTART: E:/SUBJECT MATERIALS/veltech/subjects/WS 23-24/python/lab task/lab pr
actise/Task 3/3a.py
Enter the date in MM DD YYYY format: 01 27 2024
SATURDAY
>>>
```

Problem 2:
Given a number x, determine whether the given number is Armstrong number or not. A positive integer of n digits is called an Armstrong number of order n (order is number of digits).
Example:
abcd… = pow(a,n) +pow(b,n) + pow(c,n) + pow(d,n) + …..
Input:
153
Output:
153 is an Armstrong number
1*1*1 + 5*5*5 + 3*3*3 = 153

PROGRAM

```
from math import pow

def compute_armstrong(x):
    n = len(str(x))                    # Converts the number x to a string. For example, if x is 153, str(x) becomes the string "153".
    armstrong_sum = sum(pow(int(i), n) for i in str(x))
    return armstrong_sum == x


number = int(input("Enter a number: "))


if compute_armstrong(number):
    print(f"{number} is an Armstrong number")
else:
    print(f"{number} is not an Armstrong number")
```

OUTPUT



PROBLEM 3

K means clustering algorithm uses Euclidian distance measure. Write a Python program to compute Euclidian distance for two given points X (x1,x2) and Y (y1, y2)
Input: X = (1,3) Y = (2,3)
Output:
1

PROGRAM:

euclidean_distance_module.py

```
import math


def edistance(x, y):
    distance = math.sqrt((y[0] - x[0])**2 + (y[1] - x[1])**2)
    return distance
```

3d.py

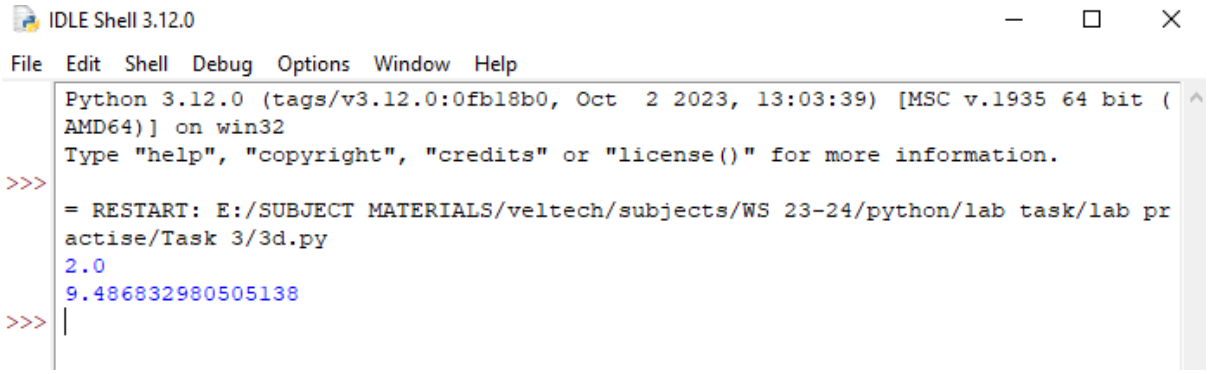
```
from euclidean_distance_module import edistance

X = (1, 3)                          #Tuple
Y = (2, 3)

result = edistance(X, Y)
print("Euclidean distance between X and Y:", result)
```

****

This calculates the Euclidean distance between two points in a one-dimensional space. The distance formula is $\sqrt{(q[0] - p[0])^2}$, which results in $\sqrt{(1-3)^2} = \sqrt{4} = 2.0$. Therefore, the output of this part will be `2.0`.

This calculates the Euclidean distance between two points in a two-dimensional space. The distance formula is $\sqrt{(q[0] - p[0])^2 + (q[1] - p[1])^2}$, which results in $\sqrt{(6-3)^2 + (12-3)^2} = \sqrt{3^2 + 9^2} = \sqrt{9 + 81} = \sqrt{90}$. Therefore, the output of this part will be the square root of 90.

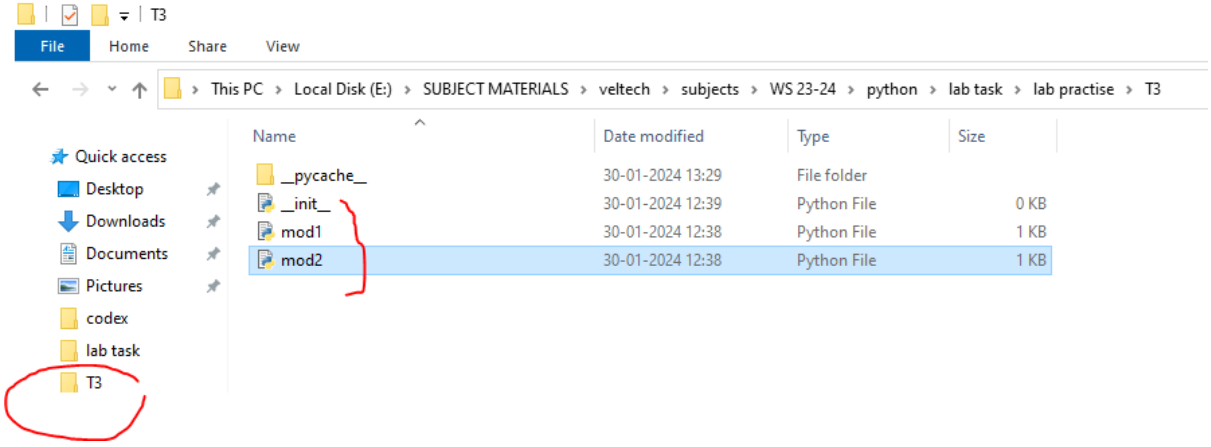
OUTPUT :



PROBLEM 4:

You are working on a project where you need to create a Python package named "Greetings." This package should consist of **two modules**: one to display a welcome message, and another to perform addition.

SOLUTION :



PUT ALL THE BELOW FILES IN ONE FOLDER(PACKAGE) GIVE ANY FOLDER NAME..I Gave T3

__init__.py

//IT SHOULD BE AN EMPTY FILE

Mod1.py

```
def display():
        print("Hello World")
```

Mod2.py

```
def sum(a, b):
        return a+b
```

sample_task3.py

```
from T3 import mod1
from T3 import mod2
```

```
mod1.display()

res = mod2.sum(1, 2)

print(res)
```

OUTPUT