Programing Fundamental

Assignment # 03

In case of cheating whole assignment will be marked zero

This assignment contains highest weightage i-e 10

Total marks of assignment: 40

1. **Marks(5)**
   Write a python function that takes month name and it displays the number of days in a given month
   a. You should ask user to enter month(outside the function and pass its value to function)
   b. Function should return no of days in a entered month

   Expected Output :

```
List of months: January, February, March, April, May, June,
July, August
, September, October, November, December

Input the name of Month: February

No. of days: 28/29 days
```

2. **Marks(2)**
   Write a program to verify a string represent an integer or not

   Expected Output:

```
Input a string: Python
The string is not an integer.
```

3. **Marks(3)**
   Write a program to enter a sentence and determine the number of upper case letters and lower case letters. (DONOT use built-in function , use lists)

   Expected Output:

```
Hello world!
UPPER CASE 1
LOWER CASE 9
```

4. Marks(5)

Write a program to ask a user to enter the date of birth and on the basis of input it display astrological sign associate with it.

♈	Aries, head . . . . . **ARI**	*Mar. 21–Apr. 20*
♉	Taurus, neck. . . . . **TAU**	*Apr. 21–May 20*
♊	Gemini, arms . . . **GEM**	*May 21–June 20*
♋	Cancer, breast. . . . **CAN**	*June 21–July 22*
♌	Leo, heart . . . . . **LEO**	*July 23–Aug. 22*
♍	Virgo, belly . . . . . **VIR**	*Aug. 23–Sept. 22*
♎	Libra, reins. . . . . **LIB**	*Sept. 23–Oct. 22*
♏	Scorpio, secrets. . . **SCO**	*Oct. 23–Nov. 22*
♐	Sagittarius, thighs . **SAG**	*Nov. 23–Dec. 21*
♑	Capricorn, knees . **CAP**	*Dec. 22–Jan. 19*
♒	Aquarius, legs . . **AQU**	*Jan. 20–Feb. 19*
♓	Pisces, feet . . . . . **PSC**	*Feb. 20–Mar. 20*

Expected Output:

```
Input birthday: 15
Input month of birth (e.g. march, july etc): may
Your Astrological sign is : Taurus
```

5. Marks(6)

The quadratic equations $AX^2 + BX + C = 0$ plays an important role in mathematics. It has a well-known solution:

Equation: 2

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

If the discriminant:

Equation: 3

$$D = b^2 - 4ac,$$

Is positive, the equation has two real roots. If it is zero, it has one real root. If it is negative, it has two complex roots.

Your task is ask the user for the values of A, B, C that is present in the quadratic equation and calculate the discriminant using equation: 3. If the discriminant is positive print the two real solutions using equation: 2, if the discriminant is zero print the one real solution using equation: 2and if the discriminant is negative just print a message that the roots are complex.

6. **Marks(4)**

The following table contains earthquake magnitude ranges on the Richter scale and their descriptors:

Magnitude	Descriptor
Less than 2.0	Micro
2.0 to less than 3.0	Very minor
3.0 to less than 4.0	Minor
4.0 to less than 5.0	Light
5.0 to less than 6.0	Moderate
6.0 to less than 7.0	Strong
7.0 to less than 8.0	Major
8.0 to less than 10.0	Great
10.0 or more	Meteoric

Write a program that reads a magnitude from the user and displays the appropriate descriptor as part of a meaningful message. For example, if the

user enters 5.5 then your program should indicate that a magnitude 5.5 earthquake is considered to be a moderate earthquake.

7. **Marks(5)**

   Input 10 numbers from the user and append it to list

   find:

```
1. Mean
2. Median
3. Mode
4. Standard deviation
5. Variance
```

8. **Marks(10)**

   Write a Python program to assign grades to students at the end of the year. The program must do the following:

   a) Ask for a student number (Roll no)

   b) Ask for the student's lab task marks (it's a lists of marks)

   c) Ask for the student's Quiz marks

   d) Calculate whether the student's average so far is high enough for the student to be permitted to write the examination. If the average (mean) of the tutorial and test marks is lower than 40%, the student should automatically get an F grade, and the program should print the grade and exit without performing the following steps.

   e) Ask for the student's examination mark.

   f) Calculate the student's final mark. The tutorial and test marks should count for 50% of the final mark each, and the final examination should count for the remaining 50%.

   g) Calculate and print the student's grade, according to the following table:

Weighted final score	Final grade
80 <= mark <= 100	A

70 <= mark < 80	B
60 <= mark < 70	C
50 <= mark < 60	D
mark < 50	E

Note: Name of the file should start with your Roll number followed by your Name and at the end assignment number

e.g P180000NAMEAssign03

Assignment will not be accepted if you don't follow the above mentioned format.