CSE5APG
Week 2: Lab02

OBJECTIVES

- Implement Input, Process and Output steps.
- Learn how to use variables
- Learn how to various data types
- Learn how to write basic Python programs

1- Write a Python program to calculate the volume of a can of soft drink. Ask the user for the diameter and height. Then, display the volume using formatted print (e.g., the volume of diameter and height is ???)

   - volume = area * height
   - area = 1/4 * 3.14 * diameter^2

2- Write a Python program to calculate the body mass index (BMI) value. The program reads weight in kilograms and height in centimetres. The program then calculates the body mass index (BMI) value using the following formula:

   - BMI= *weight in kilograms /* (height in meters)^2

   Display the volume using formatted print.

3- Write a Python program to read time in minutes from user and then convert them into days, hours and minutes. Display the days, hours and minutes using formatted print. Use the following formulas for time conversion (note % is the modulus operator):

   - MINUTES_IN_DAY = 24 * 60
   - days = time / MINUTES_IN_DAY
   - time_Left = time % MINUTES_IN_DAY
   - hours = time_Left / 60
   - minutes = time_Left % 60

   For example, if we key in **173420** minutes, we will get **days: 120, hours: 10, minutes: 20**.

4- You run 10 kilometres in 40 minutes 30 seconds. Write a Python program to find out how many miles you can run in an hour. A mile is 1.61 kilometres.
    - time = minutes * 60 + seconds
    - Number of kms run in 1 hour = kilometres / time * 3600
    - number of miles run in 1 hour= Number of kms run in 1 hour / 1.609

    For this example, the speed (in miles per hour): 9.173491362011196

5- Write a Python program to calculate the minimum number of tables required for a group of diners. Assume that each table has 8 seats (one size only). Ask the user for the size of the table and the group. A sample execution of the program is

    - Enter the table size: 8
    - Enter the number of diners: 15
    - Number of tables to book: 2

6- In a computer lab, we have 35 computers. To secure a computer, we need a cable of 30 cm in length. A roll of cable (that we can buy) is 5 m long. How many rolls do we need? Use the input function to read all values from users. A sample execution of the program is
    - number of computers = 35
    - cable length= 30
    - roll length in metres = 5
    - Number of rolls needed: 3

7- Pete at Pete's Petting Zoo wants a program to work out what to charge groups of visitors to his children's zoo. An adult's ticket costs $10, a child's ticket cost $5, and a family ticket (for 2 adults and 2 children) costs $26. Write a Python program that asks the user to enter the number of adults and the number of children in the group and displays to screen the cheapest selection of tickets and the total cost. A sample execution of the program is

    - Number of adults: 1
    - Number of children: 2
    - Number of family tickets: 0
    - Number of adult tickets: 1
    - Number of child tickets: 2
    - Total cost: $20