Principles of Programming

CT4029

Workbook – Session 2

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This week, we covered conditional and continuation concepts in python. The examples discussed were based on the basic loops and conditions along with the additional statements that support the execution of loops and conditions. Following questions in this section are based on the same concepts and require problem solving skills. Go through the questions and try to breakdown the problem in smaller tasks before you write the code. The worksheet is comprised of an example followed by exercises, try to understand the example before you try to solve the given problems.

Note: It is always a good idea to make a flowchart before writing the code.

1. Section A

Following are the learning outcomes of this section

- **Loops and Repetitions**
- **Conditions**

1.1. Example 1: Print integers from 1 to 10 using for loop

```
for x in range (1, 11):
    print (x)
```

Output:

1
2
3
4
5
6
7
8
9
10

1.2. Exercise 1: Print the even numbers from 100 to 2 using for loop

1.3. Exercise 2: Write code that takes the length of three sides of a triangle and prints whether the triangle is equilateral, isosceles or scalene.

Hint: An equilateral triangle is a triangle in which all three sides are equal.
A scalene triangle is a triangle that has three unequal sides.
An isosceles triangle is a triangle with (at least) two equal sides

1.4. Exercise 3: Write a Python program to display the factors of a number

1.5. Exercise 4: Write a Python program to display astrological sign for given date of birth

1.6. Exercise 5: Write a Python program to print prime numbers between 1000 to 1 but skips the prime numbers between 600 to 500 and stops when it reaches 23

1.7. Exercise 6: Write a Python program to calculate a dog's age in dog's years.

Note: For the first two years, a dog year is equal to 10.5 human years. After that, each dog year equals 4 human years.

Example Output:

Input a dog's age in human years: 15

The dog's age in dogs' years is 73