

University of Mauritius
Faculty of Engineering
Department of Computer Science & Engg.

CSE 1002Y – Programming Methodology
2015/2016- Semester 1

Labsheet 5- Loops (Part 1)

1. Write a program that displays all multiples of 5 between 0 and 100 inclusive.
2. Write a program that displays the sum of all multiples of 5 between 0 and 100 inclusive.
3. Write a program that allows the input of an integer value n and displays all multiples of 3 which are less than or equal to n , as well as the sum of the square of these values.
4. Write a program that allows you to input an integer value n . If n is greater than 100, it displays the message 'Wrong Input', otherwise it displays all factors of n .
5. Write a program to input a set of numbers and print out their average. The program will start by prompting the user for the number of numbers to be input and will then prompt for the individual numbers.
6. Modify the previous program to print out the largest and smallest number read in as well as the average. Also change the prompt to show the number of values still to be entered.
7. Write a program to prompt the user for an integer and calculate the sum of all the integers up to and including the input value. The program should also display the result.
8. Modify the previous program to add up the reciprocals of all the integers up to and including the input value.
9. To calculate x to power n , (where n is a positive integer), we can use a loop that multiplies x by itself n times. Thus the code can be as follows:

```
p=1
i=1
while (i<=n):
    p= p*x;
```

Include the code in a program that allows for the input of values for x and n and calculates and displays x^n .

10. The factorial of a positive integer n is defined as $1*2*3*...n$.

Write a program that allows for the input of a value n and calculates and displays the factorial of n .

11. A person currently has an amount P of money, in a bank, which pays an annual interest rate of $r\%$.

Write a program that allows the input of values for P , r as well as n , where n represents the number of years for which the money has remained in the bank. The program must calculate and display the total amount in the person's account at the end of each year for the n years. Display the results in an appropriate format.

Note that this problem involves the calculation of compound interest.

12. Write a program that uses a while loop to determine how long it takes for an investment to double at a given interest rate. The input will be an annualized interest rate, and the output is the number of years it takes an investment to double.

Note: the amount of the initial investment does not matter; you can use MUR 100.

13. Write a program that uses an interactive loop and allows the input a number of positive values and displays the number of even values input as well as the sum of the even values.