National University of Computer and Emerging Sciences

Lab Manual # 5

Programming Fundamentals

(Section BSCS-1G)

Course Instructor	Mr. Raziuddin
Lab Instructor(s)	Mr. Naveed Ms. Sonia Anum
Section	BSCS-1G
Semester	Fall 2021

Department of Computer Science

FAST-NU, Lahore, Pakistan

Lab Manual

Objectives

The objectives of this lab are to cover the following:

- while loop (page 249 of textbook)
- for loop (page 273 of textbook)

Exercise 1 (while loop):

Write a C++ program that keep taking input numbers from user and terminate the program when user enters -1. Your task is to add all those numbers before -1.

Sample Run

Enter your numbers:

2
5
7
1
5
-1

Output

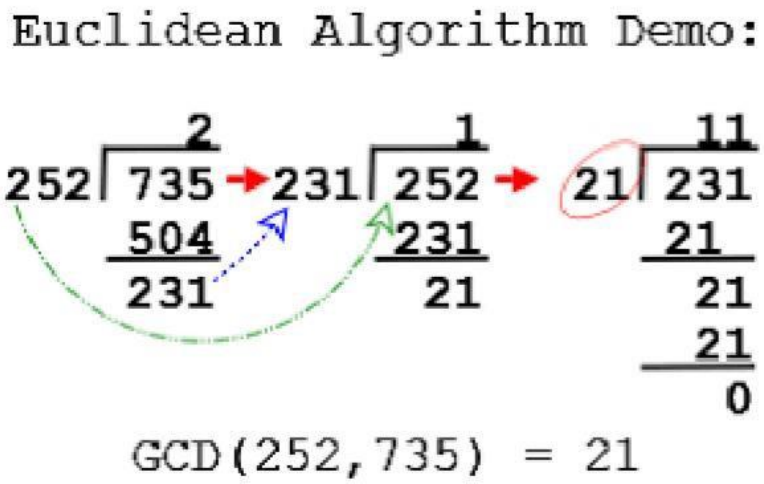
Sum is 20

- - - ----------

Exercise 2 (While):

The greatest common divisor (GCD) of two integers is the largest integer that evenly divides each of the numbers. Write a C++ program that gives the greatest common divisor of two positive integers. Take these two numbers from the user.

Remember that the GCD of two numbers can be computed using Euclidean Algorithm as follows



Sample Run:
Input num1: 252
Input num2: 735

Output
GCD: 21

Exercise 3 (for loop):

Write a program in C++ that will ask to user how many digits number you will enter then display the input number in reverse order

Sample Output:

Input a number: 12345
The number in reverse order is: 54321

Exercise 4:

Write a program that calculates the occupancy rate for a hotel. The program should start by asking the user how many floors the hotel has. A loop should then iterate once for each floor. In each iteration, the loop should ask the user for the number of rooms on the floor and how many of them are occupied. After all the iterations, the program should display how many rooms the hotel has, how many of them are occupied, how many are unoccupied, and the percentage of rooms that are occupied. The percentage may be calculated by dividing the number of rooms occupied by the number of rooms.

NOTE: It is traditional that most hotels do not have a thirteenth floor. The loop in this program should skip the entire thirteenth iteration.