National University of Computer and Emerging Sciences

Programming Fundamentals CS188
Laboratory Manual

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Section	BDS-1A1 & A2
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	Lab No 3			
	Course Name:	Programming Fundamentals	**Course Code:**	CS 188
	Program:	BS(DS)	**Semester:**	**Fall 2021**
	Duration:	**2.5 hours**	**Total Points:**	10+ 50 + 20 + 20
	Lab Date:	**Friday, October 8, 2021**	**Weight**	4%
	Section:	**BDS-1A**	**Page(s):**	

Instruction/Notes:	**Cheating during the lab will result in negative marks**

Topics Covered: REVIEW LAB

Use the simple IDE available at https://www.onlinegdb.com/ to write the programs

Submission Instructions:

1. Save all .cpp files according to the following naming convention
   {ROLLNO}_{ACTIVITYNO}_{TASKNO}.cpp **FOR EXAMPLE**. 21L-XXXX_A01_P01.cpp, 21L-XXXX_A01_P02.cpp, 21L-XXXX_A02_P01.cpp

2. Now create a new folder according to the following naming convention
   {ROLLNO}_{LABNO} e.g. 21L-XXXX_L02

3. Move all of your .cpp files to this newly created directory and compress it into a single file.

4. Submit this compressed file on Google Classroom.

5. You will get 10 Bonus point if you will follow these instructions correctly

Activity No 1

Write C++ programs for solving each of the following problems

i)   Compute Area and circumference of a circle using its radius. Formula for calculating area of a circle is **πr^2** and that of circumference is **$2\ \pi r$**

ii) Calculate Area of a rectangle using the width W and Breadth B where **Area = W*B**

iii) Calculate the total amount present in an ATM machine using the count of 5000, 1000 and 500 rupee note available in the machine

iv) Read three numbers and print the numbers in descending order.

v)   Compute total area of all walls and the roof of a cuboid shaped room. The inputs will be length, breadth and height of room

Activity No 2.

Problem No 1:
The following C++ program reads 10 numbers from the user and print the sum of these numbers on the output device.

Program 1A
| ```
#include <iostream>

using namespace std;

int main()
{
   int Counter = 0;
   double Number, Sum;

   while (Counter < 10){
      cout<<"Please Enter a Number ";
      cin>> Number;
      Sum+= Number;
      Counter++;
   }
   cout<<endl<<"Sum of the 10 numbers is "<<Sum<<endl<<"The End";
   return 0;
}
``` |

Modify the program so that it reads **n** numbers and print the sum as well as **AVERAGE** of the numbers and the largest number on screen. The value of **n** will be specified by the user

Problem No 2:

The following C++ program is very similar to program 1A but it only prints the sum of given numbers. Try to figure out its purpose and modify it so that it also prints the average of numbers entered by the user and the smallest positive number entered by the user.

Program 1B
| ```cpp
#include <iostream>

using namespace std;

int main()
{
   double Number, Sum=0;

   cout<<"Please Enter Your Numbers and a non-positive number to terminate";
   cin>> Number;

   while (Number > 0){
     Sum+= Number;
     cout<<"Please Enter a Number ";
     cin>> Number;
   }
   cout<<endl<<"Sum of the numbers you entered is "<<Sum<<endl<<"The End";
   return 0;
}
``` |