Hawassa University – IoT

Faculty of Informatics

Department of Information System

Fundamentals of Programming in C++

Lab Exercise 5 – Function

1. Write a C++ program to add two integers. Make a function **add()** to add integers and display sum in main() function. This function will return the result back to the main() function.

2. Write a C++ program to print all even numbers between two numbers (entered by the user) by making a user-defined function. Display the answer in main() function.

3. The following program skeleton, when completed, will ask the user to enter 10 integers which are stored in an array. The function **avgArray**, which you must write, is to calculate and return the average of the numbers entered.

   ```cpp
   #include <iostream>
   //Write your function prototype here
   int main()
   {
       const int SIZE = 10;
       int userNums[SIZE];
       cout << "Enter 10 numbers: ";
       for (int count = 0; count < SIZE; count++){
       cout << "#" « (count + 1) << " ";
       cin >> userNums[count];
   }
   cout << "The average of those numbers is ";
   cout << avgArray(userNUms, SIZE) << endl;
   return 0;
   }
   //Write the function avgArray here.
   ```

4. Write a program that has two overloaded functions that return the average of an array with the following headers:

> int average(int array[], int size)
> double average(int array[], int size)

Use {1,2,3,4,5,6} and {6.0,4.4,1.9,2.9,3.4,3.5} to test the functions.

5. Write a C++ program for calculating grades of students.

int main():

- prompt user for the number of subjects for which he/she wants to calculate the grade 2 or 3.
- prompt for marks with respect to their early selection
- call **calgrades()** according to their selection.
  - For example calgrades(s1,s2) // **for two subjects.**
  - calgrades(s1,s2,s3) // **for three subjects.**

Calgrades():

- Function(s) must be overloaded accordingly
- These functions determine the grade of student on following criteria:
  - **A.** grade: 87 - 100
  - **B.** grade: 75 –86
  - **C.** grade: 65 –74
  - **D.** grade: 50 –64
  - **E.** grade: < 50

6. Write a C++ program that performs following task:

int main():

- ask user to enter a positive number, store it in variable N.
- You have to calculate 1+2+3+4+……+N with function int sum().
- Print the result.

int sum():

- this function calculate the sum of series from 1 to N.
- this function must be recursion function.

#Sample Output

Enter a Positive number :8
Sum of Positive N(8) is : 36

7. Write C++ program that includes a function named **multiplyNumbers()** that multiplies two int values to find their product. Three ints should be passed to the **multiplyNumbers()** function, the two numbers to be multiplied (num1,num2) should be passed by value, and another int(product) to hold the product of the two numbers should be passed by reference, enabling the **multiplyNumbers()** function to change its value.