CL-1002
Programming Fundamentals
Lab # 9

Objectives:

- Practice and understanding on basic C++ programs
- 1-D Arrays
- Loops with arrays
- Debugger

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. First think about statement problems and then write your program.
2. Write Program in C/C++ compiler/IDE and save source file **for each program.**
3. Do not copy from any source otherwise you will be penalized with negative marks.
4. Complete your lab **within given Time Slot**.
5. Add your source code in this word document + Make one ZIP file of your all source codes.
6. Please submit your **Both files** with this naming convention ROLLNO_SECTION_LABNO.
7. Submit your lab on Google Classroom.

1. Write a C++ program to find the largest element of a given array of integers.

2. Write a C++ program that take 20 integer inputs from user and print the following:

Total count of positive numbers with values
Total count of negative numbers with values
Total count of number of odd numbers with values
Total count of number of even numbers with values

3. Write a program to print sum, average of all numbers, smallest and largest element of an array.

4. Write a C++ program to reverse the element of an integer 1-D array.

5. Write a C++ program to find the most frequent element in 1D array of integers. Total numbers in array should be between 1-10.

6. Write a C++ Program to insert of an element in an array at a specific position.

7. Write a C++ program that take 10 integers input from the user and store them in an array. Now copy all the elements in another array but in reverse order.

8. Write a C++ program to update every array element by multiplication of the next and previous values of a given array of integers.

Debugging is the process of finding logic errors in your program. A logic error is an error that the compiler will not find (an error that the compiler will find is a syntax error). Use the debugger to debug the following programs. **Add the screenshots of each step.**

9. Here is the program that supposed to print all the elements present in the array. Use the debugger to debug the following program. Add the screenshots of each step.

```
#include <iostream>
using namespace std;

int main() {
  int numbers[5] = {7, 5, 6, 12, 35};

  cout << "\nThe numbers are: ";
  for (int i = 0; i < 5; ++i) {
    cout << numbers[2] << "  ";
  }

  return 0;
}
```

10. This program is supposed to take the size of array from user and then store the values in an array after that it should print the first and last element of array. Use the debugger to debug the following program. Add the screenshots of each step.

```
#include <iostream>
using namespace std;

int main()
{

   int i,a[50],size;
   cout<<"Enter array size( Max:50 ) :: ";
   cin>>size;
      cout<<"\nEnter array elements :: \n";

      for(i=0; i<size; i++)
      {
         cout<<"\nEnter arr["<<i<<"] Element :: ";
            cin>>a[0];
        size=2;
      }
   cout<<"\nFirst number in the Array :: "<<a[0]<<endl;

   cout<<"\nLast number in the Array :: "<<a[size]<<endl;
   return 0;
}
```

11. This program is supposed to show that either given number is a palindrome or not. Use the debugger to debug the following program. Add the screenshots of each step.

```
#include<iostream>
```

```
using namespace std;
int main()
{
	int num,r,sum=0,t;
	cout<<"enter number"<<endl;
	cin>>num;
	t=0;
	do
	{
		r=num%10;
		sum=sum*10+r;
		num=num/10;
	}
	while(num=0);
	if(t==sum)
	{
		cout<<"The number is a palindrome:";
	}
	else
	cout<<"Number is not palidrome:";
}
```