CL-1002
Programming Fundamentals - Lab
Lab # 7

Objectives:

- Introduction to Visual Studio 2015.
- Basic Input/output
- Basic Arithmetic Operators
- Operators Precedence
- Conditional statements.
- Switch case
- Practice tasks

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

1. Use proper **font family** and **font size** of **heading**, **sub heading** and **normal text**.
2. First think about statement problem then write/draw your logic on copy.
3. Attach the screen shots of your code in word file with execution (cpp project).
4. File (Word) tittle should in proper format (**23F-1001-Lab2**)
5. You have to submit both (**word + Project zip**) files.
6. **Upload separate word file and archive of your project.**
7. Do not copy from any source otherwise you will be penalized with negative marks.
8. Complete your lab **within given Time Slot**.

Sample Codes:

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

int main()
{
	char a = 'A';
	int b = a;
	cout << "Representation of A in
ASCII is : "<< b << endl;
	system("pause");
	return 0;
    }
```

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

int main()
{
	int den, num;
	cout << "Enter two integers" <<
endl;
	cin >> num >> den;
	assert(den != 0);
	cout << "Moving forward" << endl;
	cout << "num / den = " << num / den
<< endl;
	system("pause");
	return 0;
}
```

```
int main() {
	int number;
	cout << "Enter a number in the range
0 - 7 : ";
	cin >> number;
	cout << "The number you entered is =
" << number << endl;
	switch (number) {
	case 0:
		cout << "Minday" << endl;
		break;
	case 1:
		cout << "Tuesday" << endl;
		break;
	case 2:
		cout << "Wednesday" << endl;
		break;
	case 3:
		cout << "Thursday" << endl;
		break;
	case 4:
		cout << "Friday" << endl;
		break;
	case 5:
		cout << "Saturday" << endl;
		break;
	case 6:
		cout << "Sunday" << endl;
		break;
	default:
		cout << "Invaid Entry" <<
endl;
	}
	system("pause");
	return 0;
}
```

Problem: Write C++ code for the following statements

1. **Write a C++ code that take an age from user and check whether candidate is eligible of voting or not. If age is greater than 18 then eligible otherwise not eligible** (using ternary operator). **(Marks 02)**

2. **Write a C++ code that takes an integer from user and check whether it is positive or negative. User can't enter zero (0). If user enters zero then stop execution and display proper error message using assert function.** **(Marks 02)**

3. **Write a C++ code that take a character from user and check whether it is vowel or consonant – apply switch case** **(Marks 03)**

4. **Write a program that prompts the user to input three characters. The program should then output the numbers in alphabetical order.** **(Marks 02)**

5. **In a right triangle, the square of the length of one side is equal to the sum of the squares of the lengths of the other two sides. Write a program that prompts the user to enter the lengths of three sides of a triangle and then outputs a message indicating whether the triangle is a right triangle.** **(Marks 02)**

6. **Suppose there is a cricket match between Pakistan and India. India played first and gave a target of 300 runs to Pakistan. Now write a program that obtains a cricket match score and remaining wickets from user. If the user is greater than 300 outputs a message indicating "Pakistan win the match by X wickets" while X are remaining wickets. Otherwise shows a message how many remaining runs required to win with X wickets in hand. Use single if-else statement. If score is 300 with 0 wickets in hand then display match is draw.**
   Note: Score and wickets are not less then zero. – (Credit Sir Ali Raza) **(Marks 03)**

7. **Write a C++ program that calculates a customer's bill for a local cable company. There are two types of customers: residential and business. There are two rates for calculating a cable bill: one for residential customers and one for business customers.** **(Marks 10)**

   For residential customers, the following rates apply:

   - **Bill processing fee: $4.50**
   - **Basic service fee: $20.50**
   - **Premium channels: $7.50 per channel**

   For business customers, the following rates apply:

   - **Bill processing fee: $15.00**
   - **Basic service fee: $75.00 for first 10 connections, $5.00 for each additional connection**
   - **Premium channels: $50.00 per channel for any number of connections**

   The program should ask the user for an account number (an integer) and a customer code. Assume that R or r stands for a residential customer, and B or b stands for a business customer

   Input The customer's account number, customer code, number of premium channels to which the user subscribes, and, in the case of business customers, number of basic service connections.

   Output Customer's account number and the billing amount.

8. **Write a C plus plus program to input electricity unit charge and calculate the total electricity bill according to the given condition:** **(Marks 05)**

   For first 50 units Rs. 30/unit

   For next 100 units Rs. 45/unit

   For next 100 units Rs. 100/unit

   For unit above 250 Rs. 200/unit

   An additional surcharge of 15% is added to the bill.

Best of Luck ☺

"A person who never made a mistake never tried anything new" – Albert Einstein