CL-1002
Programming Fundamentals
Lab # 5

Objectives:

1. Practice and understanding on basic c++ programs
2. Control Structure
3. If statement
4. If else statement
5. If else-if else statement
6. Nested if

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 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.

Problem 1-5: (Basic Concepts)

1. **Write a computer that print the following pattern using single cout statement.**

   \" Happy Learning \n, 'stay blessed' and stay safe.

2. **Write a computer that print the following pattern setw manipulator function.**

   ```
    *
    **
    ***
    ****
   ```

3. **Write a computer that print the following pattern setw manipulator function.**

   ```
   1

   33

   123
   ```

33

4. Revised the task 8 and fill the blank spaces with * symbol.
5. Write a computer program that take one integer from the user and check if number is greater than 10 then increment number using postfix increment operator, and if number is less than 10 then decrement number by one using prefix decrement operator. Display the suitable string message also in both scenarios.

Problem: 6 (If- else)

Write a program that obtains marks in entry test. If obtained marks are greater than 80 then display "You can get admission is Fast" otherwise "Sorry you did not get admission. Please try next time"

Note: Use if else without curly brackets.

Problem: 7 (if-else if-else)

Write a program that input a marks out of 100 from the user and displays his/her grades.
1. If marks are greater than 80 display "You got A grade"

2. If marks are greater than 50 display "You got B grade"

3. If marks are greater than 40 display "You got C grade"

4. If marks are below than 40 display "You got F grade"

Note: Number must be 1 to 100 otherwise display invalid number.

Problem: 8 (If- else if- else)

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

Problem: 9 (If- else if -else)

Write a computer program that charges income tax to different employees of organization named "SpaceX". If employee is in faculty, he/she is **charged 4%** of his salary as income tax. If employee is in management staff, he/she is **charged 3%** of his salary as income tax. If employee is an attendant/guard he/she is **charged 2%** of his salary as income tax.

You need to get salary from the user and then need to calculate the income tax and display the both net salary with income tax of user according to his department.

Note: Use 'F' for faculty, 'M' for Management Staff and 'A' for attendant/guards.

Problem: 10 (nested if-else)

Write a program to calculate the salary as per the following table:

Gender	Years of Service	Qualifications	Salary
Male	>= 10	Post-Graduate	15000
	>= 10	Graduate	10000
	< 10	Post-Graduate	10000
	< 10	Graduate	7000
Female	>= 10	Post-Graduate	12000
	>= 10	Graduate	9000
	< 10	Post-Graduate	10000
	< 10	Graduate	6000

Note: Need to use Character for Gender ('F', 'M') & Qualification 'P' for Post-Graduate and 'G' for Graduate.

Problem: 11 (if with logical operators)

A program uses a char variable named membership and an int variable named age. The membership variable contains one of the following letters (entered in either uppercase or lowercase): M or N. The letter M stands for *member*, and the letter N stands for *non- member*. The program should display the appropriate seminar fee, which is based on a person's membership status and age. The fee schedule is shown in Figure. Write the C++ code to display the fee. (Use if-else and nested if-else to solve the problem)

$10	Club member less than 65 years old
$5	Club member at least 65 years old
$20	Non-member