**Department of IT & CS**

**Course Instructor:** Dr. Rizwan **Lab Engineer:** Usama **Dated:** 18/10/2023

**Semester:** Fall 2023

**COMP-201L**

**Lab 01: C++ Review**

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| --- | --- | --- | --- | --- | --- |
|  |  | **CLO1** | **CLO2** | **CLO3** |  |
| **Name** | **Reg. No.** | **Lab Tasks Marks**  **20** | **Report**  **Marks**  **5** | **Viva**  **Marks**  **5** | **Total**  **Marks**  **30** |
| **Abuzar Khan** | **B22F1053SE023** |  |  |  |  |
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**Lab Task 1**

**You’re given with marks of 10 students in Mathematics, write a program to determine the grade of each student.**

80, 72, 93, 87, 90, 55, 66, 74, 69, 56

Assume:

Grade is A if score is equal and greater than 90

Grade is B+ if score is less than 90 and greater than 81

Grade is B if score is less than 82 and greater than 71

Grade is C if score is less than 72 and greater than 66

Grade is D if score is less than 66 and greater than 59

Grade is F if score is less than 60.

**Lab Task 2**

**Write a program to ask user to enter 5 floating numbers and find the maximum and minimum of all by calling min() and max() functions.**

**Lab Task 3**

**Write a program to print half pyramid pattern.**

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**Lab Task 4**

**Initialize a 2D array with 4 rows and 2 columns and print the array.**

**Program For Task 01:**

#include <iostream>

using namespace std;

char getGrade(int score)

{

    if (score >= 90)

    {

        return 'A';

    }

     else if (score > 81)

    {

        return 'B';

    }

     else if (score > 71)

    {

        return 'C';

    }

     else if (score > 66)

    {

        return 'D';

    }

     else if (score > 59)

    {

        return 'E';

    }

     else

    {

        return 'F';

    }

}

int main()

{

    int marks[] = {80, 72, 93, 87, 90, 55, 66, 74, 69, 56};

    cout << "Grades for the students:\n";

    for (int i = 0; i < 10; i++)

    {

        char grade = getGrade(marks[i]);

        cout<<"Student "<<i + 1<< ": Marks = "<<marks[i]<<", Grade = "<<grade <<endl;

    }

    return 0;

}

**Program For Task 02:**

#include <iostream>

using namespace std;

float Max(float numbers[], int size)

{

    float max\_num = numbers[0];

    for (int i = 1; i < size; i++)

    {

        if (numbers[i] > max\_num)

        {

            max\_num = numbers[i];

        }

    }

    return max\_num;

}

int main() {

    float numbers[5];

    cout << "Enter 5 floating numbers:\n";

    for (int i = 0; i < 5; i++)

    {

        cout << "Enter number " << i + 1 << ": ";

        cin >> numbers[i];

    }

    float max\_num = Max(numbers, 5);

    cout << "Maximum value: " << max\_num << endl;

    return 0;

**Program For Task 03:**

#include <iostream>

using namespace std;

int main()

{

    int rows;

    cout << "Enter the number of rows for the half pyramid: ";

    cin >> rows;

    for (int i = 1; i <= rows; ++i)

    {

        for (int j = 1; j <= i; ++j)

        {

            cout << "\* ";

        }

        cout << endl;

    }

    return 0;

}

**Program For Task 04:**

#include <iostream>

using namespace std;

int main()

{

    int rows = 4;

    int columns = 2;

    int array[4][2] = { {1, 2},{3, 4},{5, 6},{7, 8} };

    for (int i = 0; i < rows; i++)

    {

        for (int j = 0; j < columns; j++)

        {

            cout << array[i][j] << " ";

        }

        cout << endl;

    }

    return 0;

}