PAK-AUSTRIA FACHHOCHSCHULE:
INSTITUTE OF APPLIED SCIENCES AND TECHNOLOGY

## Department of IT & CS

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

**Semester:** Fall 2023

# COMP-201L

# Lab 01: C++ Review

| | | 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:

```cpp
#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:

```cpp
#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:**

```cpp
#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;
}
```