

**Department of Electrical and Computer Engineering Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Pakistan**

**COMP112L Time: 1.5 hrs. Marks: 10**

**Instructor: Engr. Usama Manzoor Dated:15 Oct, 2021**

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**Lab # 01**

**Task # 01:**

Health department wants to know the exact amount of rainfall in each month. Implement a c++ program to store the rainfall information for the department for the desired months (i-e take input from the user for the number of months for which you want to store rain information). Show the rain information for each month and the average rainfall for the mentioned months.

Note: use array to save rainfall information. Your output should be like this:

Text

Description automatically generated

**Solution:**

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| **Code**  **#include<iostream>**  **using namespace std;**  **int main()**  **{**  **int a;**  **int months[a];**  **int average, totalsum=0;**  **cout<<"Enter the months for which you want to take data : ";**  **cin>>a;**  **if(a<=12)**  **{**  **for(int i=0; i<a; i++)**  **{**  **cout<<"Enter the rain amount in "<<i+1<<" month : ";**  **cin>>months[i];**  **}**  **for(int j=0; j<a; j++)**  **{**  **cout<<"Rain for the month "<<j+1<<" is : "<<months[j]<<endl;**  **totalsum += months[j];**  **}**  **average = totalsum/a;**  **cout<<"Average amount of rain for the months are :"<<average;**  **}**  **else**  **{**  **cout<<"Input Error";**  **}**  **return 0;**  **}**  **OUTPUT** |

**Task # 02:**

Implement a C++ program to find a minimum and maximum from a user defined 2D array. Implement functions with the name of **Min** and **Max** to find the desired output.

Note: Take the size of the array from the user.

**Solution:**

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| **Code**  **#include <iostream>**  **using namespace std;**  **int Min(int\*\* arr, int row, int column);**  **int Max(int\*\* arr, int row, int column);**  **int main()**  **{**  **int row, column;**  **cout<<"Enter the row size of array : ";**  **cin>>row;**  **cout<<"Enter the column size of array : ";**  **cin>>column;**  **int\*\* arr;**  **arr = new int\*[row];**  **for (int i=0; i<row; i++)**  **arr[i] = new int[column];**  **for(int a=0; a<row; a++)**  **{**  **for(int b=0; b<column; b++)**  **{**  **cout<<"Enter any number in arr["<<a<<"]["<<b<<"] : ";**  **cin>>arr[a][b];**    **}**  **}**  **for(int a=0; a<row; a++)**  **{**  **for(int b=0; b<column; b++)**  **{**  **cout<<"Number in arr["<<a<<"]["<<b<<"] is : "<<arr[a][b]<<endl;**  **}**  **}**  **cout<<"Minimum value in array is : "<< Min(arr, row, column)<<endl;**  **cout<<"Maximum value in array is : "<< Max(arr, row, column)<<endl;**  **return 0;**  **}**  **int Min(int\*\* arr, int row, int column)**  **{**  **int min=arr[0][0];**  **for (int i = 0; i<row; i++)**  **{**  **for (int j = 0; j <column; j++)**  **{**  **if (arr[i][j] < min)**  **{**  **min = arr[i][j];**  **}**  **}**  **}**  **return min;**  **}**  **int Max(int\*\* arr, int row, int column)**  **{**  **int max=arr[0][0];**  **for (int i = 0; i <row; i++)**  **{**  **for (int j = 0; j <column; j++)**  **{**  **if (arr[i][j]>max)**  **{**  **max = arr[i][j];**  **}**  **}**  **}**  **return max;**  **}**  **Output** |