**Lab Task 10**

**Fundamentals of Programming**

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**Code 1:**

#include <bits/stdc++.h>

using namespace std;

//Task 1

int main()

{

    vector <int> vec;

    vector <int> :: iterator ite = vec.begin();

    vec.push\_back(3);

    vec.push\_back(4);

    vec.push\_back(5);

    vec.push\_back(6);

    vec.push\_back(7);

    vec.push\_back(8);

    vec.push\_back(9);

    vec.push\_back(10);

    vec.push\_back(11);

    vec.push\_back(12);

    for(ite=vec.begin();ite<vec.end();ite++)

    {

        cout<<\*ite<<" ";

    }

    cout<<endl;

    vec.pop\_back();

    vec.push\_back(5);

    for(ite=vec.begin();ite<vec.end();ite++)

    {

        cout<<\*ite<<" ";

    }

    return 0;

}

**Output 1:**

**A screenshot of a computer

Description automatically generated**

**Code 2:**

int main()

{

    vector<int> marks;

    vector<string> names;

    int size;

    cout<<"Enter the number of students"<<endl;

    cin>>size;

    int b;

    string str;

    for (int i = 0; i < size; i++)

    {

        cout<<"Enter the name of student and his/her marks"<<endl;

        cin>>str>>b;

        names.push\_back(str);

        marks.push\_back(b);

    }

    vector<int>unsorted\_marks=marks;

    int sum=0;

    for (int i = 0; i < size; i++)

    {

        sum+=marks[i];

    }

    cout<<"The mean mark is "<<float(sum)/size<<endl;

    if(marks.size()%2!=0)

    {

        sort\_vector(marks);

        cout<<"The Median mark is "<<marks[marks.size()/2]<<endl;

    }

    else

    {

        sort\_vector(marks);

        cout<<"The Median mark is "<<((marks[marks.size()/2]+marks[(marks.size()/2)-1])/2)<<endl;

    }

    cout<<"The Mode mark is "<<mode(marks)<<endl;

    cout<<endl;

    cout<<"Students with modal marks"<<endl;

    for (int i = 0; i < size; i++)

    {

        if(unsorted\_marks[i]==mode(marks))

        {

            cout<<names[i]<<" Marks: "<<unsorted\_marks[i];

        }

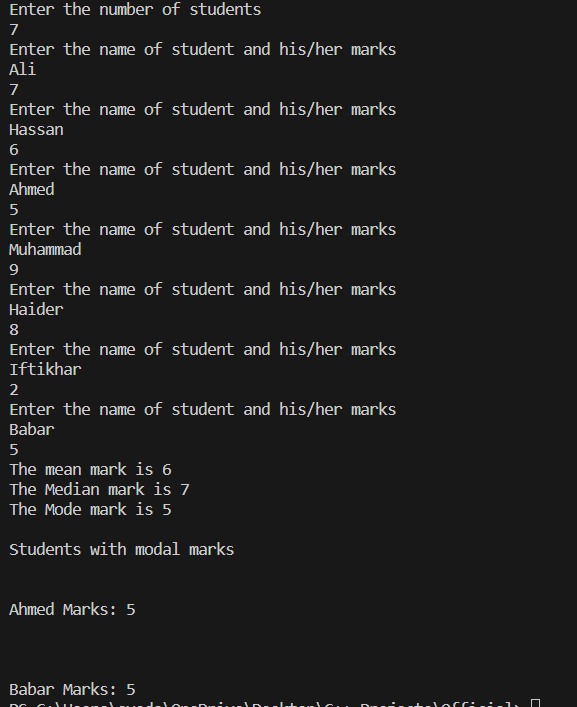
        cout<<endl;

    }

    return 0;

}

**Output 2:**

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