C++ - LAB-12

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Q-31 Write a C++ program to use try-catch-through exceptions.

Ans: Source Code:

#include <bits/stdc++.h>

using namespace std;

// use of try-catch block for exception handling

int main()

{

    int age;

    cout << "Enter Your Age: ";

    cin >> age;

    try

    {

        if(age >= 18)

        cout << "Acceess Granted - you are old enough\n";

        else

        throw(age);

    }

    catch(int age1)

    {

        cout << "Access Denied You are not old enough\n";

        cout << "Your Age: " << age1 << "\n";

    }

    return 0;

}

Output:

Enter Your Age: 12

Access Denied You are not old enough

Your Age: 12

Q-32: Implement a class template to represent a generic vector to deal with integer and real numbersand use exception cases for unsupportedinputs. Include the member functions to perform the following tasks:To create the vector.To modify the value of a given element.To multiply the vector by a scalar value.To display the vector in the form (10, 20, 30,.....)

Ans: Source Code:

#include <iostream>

using namespace std;

template <class T>

class vector1

{

    T \*v;

    int size;

    public:

    void create\_vec(int m)  // creates null vector

    {

        size = m;

        v = new int[size];

        for(int i=0; i<size; i++)

        v[i] = 0;

    }

    void create\_array(T \*a)  // creates a vector from array

    {

        for(int i=0; i<size; i++)

        v[i] = a[i];

    }

    void modify\_val(T \*arr)

    {

    char ch;

    cout << "Do You Want to Modify any values ? (Y/N) :";

    cin >> ch;

        if(ch == 'Y')

        {

            int val, loc;

            cout << "Enter the location to modify and new value :";

            cin >> loc >> val;

            arr[loc] = val;

            display();

        }

        else{}

    }

    T operator\*(vector1 &y)   // sclar product

    {

        T sum=0;

        for(int i=0; i<size; i++)

        {

            sum += this->v[i] \* y.v[i];

        }

        return (sum);

    }

    void display(void)

    {

        for(int i=0; i<size; i++)

         cout << v[i] << ", ";

        cout << "\n";

    }

};

int main()

{

    int size, i;

    cout << "Enter Size Of Vector:";

    try

    {

        cin >> size;

        if(size % 1 == 0)

        {cout << "Input Condion passed\n";}

        else

        {

            throw(size);

        }

    }

    catch(...)

    {

        cout << "Input Condition Not satisfied\n";

    }

    int x[size], y[size];

    cout << "Enter Elements in vector-1:\n";

    for(i=0; i<size; i++)

    {

        cout << "V1[" << i << "] = ";

        cin >> x[i];

    }

    cout << "\n";

    cout << "Enter Elements in vector-2:\n";

    for(i=0; i<size; i++)

    {

        cout << "V2[" << i << "] = ";

        cin >> y[i];

    }

    vector1 <int> v1;

    vector1 <int> v2;

    v1.create\_vec(size);

    v2.create\_vec(size);

    v1.create\_array(x);

    v2.create\_array(y);

    cout << "Modify For Vector-1\n";

    v1.modify\_val(x);

    cout << "Modify For Vector-1\n";

    v2.modify\_val(y);

    cout << "V1 = ";

    v1.display();

    cout << "V2 = ";

    v2.display();

    int r = v1.operator\*(v2);

    cout << "Result of Sclar Multiplication = " << r;

    return 0;

}

Output:

Enter Size Of Vector:3

Input Condion passed

Enter Elements in vector-1:

V1[0] = 1

V1[1] = 2

V1[2] = 3

Enter Elements in vector-2:

V2[0] = 2

V2[1] = 3

V2[2] = 4

Do You Want to Modify any values ? (Y/N) :N

Do You Want to Modify any values ? (Y/N) :N

V1 = 1, 2, 3,

V2 = 2, 3, 4,

Result of Sclar Multiplication = 20