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