**Assignment-30 Solution Name: Om Pant**

**Exception Handling**

1. Write a C++ program to demonstrate the use of try, catch block with the argument as an integer and string using multiple catch blocks.

Ans-

// 1.   Write a C++ program to demonstrate the use of try, catch block with the argument as an integer and string using multiple catch blocks.

#include<iostream>

using namespace std;

void try\_test(int num){

    string s = "String handling";

    try{

        if(num>0 && num<10)

            throw num;

        else{

            cout<<"It's Not a single digit number"<<endl;

        }

        throw s;

    }catch(int n){

        cout<<"You entered a single digit number "<<num;

    }

    catch(string s){

        cout<<s;

    }

}

int main(){

    int x;

    cout<<"Enter a number"<<endl;

    cin>>x;

    try\_test(x);

    return 0;

}

1. Write a C++ program to demonstrate try, throw and catch statements.

Ans-

// 2. Write a C++ program to demonstrate try, throw and catch statements.

#include<iostream>

using namespace std;

int main(){

    float x,y,z;

    z = 0;

    cout<<"Enter Two Values"<<endl;

    cin>>x>>y;

    try{

        if(y == 0)

            throw y;

        z = x/y;

    }catch(float e){

        cout<<"Can't Divide With "<<e<<endl;

    }

    catch(...){

        cout<<"Other Exceptions";

    }

    cout<<"Result of "<<x<<"/"<<y<<" is: "<<z<<endl;

    return 0;

}

1. Write a C++ program to perform arithmetic operations on two numbers and throw an exception if the dividend is zero or does not contain an operator.

Ans-

// 3. Write a C++ program to perform arithmetic operations on two numbers and throw an exception if the dividend is zero or does not contain an operator.

#include<iostream>

using namespace std;

int main(){

    int a,b,c,t=0;

    int ch;

    while(1){

        cout<<"Enter Your Choice "<<endl<<"1. Addition"<<endl<<"2. Substraction"<<endl<<"3. Multiplication"<<endl<<"4. Division"<<endl<<"5. Exit"<<endl;

        cin>>ch;

        switch(ch){

            case 1:

                cout<<"Enter Two Numbers to add"<<endl;

                cin>>a>>b;

                c = a + b;

                cout<<"Addition: "<<c<<endl;

                break;

            case 2:

                cout<<"Enter Two Numbers to subtract"<<endl;

                cin>>a>>b;

                c = a - b;

                cout<<"Substraction: "<<c<<endl;

                break;

            case 3:

                cout<<"Enter Two Numbers to multiply"<<endl;

                cin>>a>>b;

                c = a \* b;

                cout<<"Multiplication: "<<c<<endl;

                break;

            case 4:

                cout<<"Enter Two Numbers to Divide"<<endl;

                cin>>a>>b;

                try{

                    if(b == 0)

                        throw b;

                    c = a/b;

                }catch(int e){

                    cout<<"Can't Divide With "<<e<<endl;

                }

                if(b!= 0){

                c = a/b;

                cout<<"Divison: "<<c<<endl;

                }

                break;

            case 5:

                t = 1;

                break;

            default:

             t = 1;

                break;

        }

        if(t){

            break;

        }

    }

    return 0;

}

1. Write a C++ program to accept an email address and throw an exception if it does not contain @ symbol.

Ans-

// 4. Write a C++ program to accept an email address and throw an exception if it does not  contain @ symbol.

#include<iostream>

using namespace std;

int main(){

    string s;

    cout<<"Enter Email: ";

    cin>>s;

    int length = s.length();

    int flag = 0;

    for(int i = 0; i<length;i++){

        if(s[i] == '@')

            flag = 1;

    }

    try{

        if(flag!=1)

            throw "Not a valid Email..";

        else

            cout<<"Email Accepted"<<endl;

    }catch(char const \* s){

        cout<<s<<endl;

    }

    return 0;

}

1. Write a C++ program to accept a mobile number and throw an exception if it does not contain 10 digits.

Ans-

// 5. Write a C++ program to accept a mobile number and throw an exception if it does not contain 10 digits.

#include<iostream>

using namespace std;

bool isValidPhone(string phoneNo){

    int len= 0;

    for(int i=0;phoneNo[i] != '\0';i++){

        len++;

    }

    if(len == 10)

        return true;

    else

        return false;

}

int main(){

    string phoneNo;

    cout<<"Enter a Phone Number : ";

    cin>>phoneNo;

    try{

        if(isValidPhone(phoneNo))

            cout<<"Number Accepted"<<endl;

        else

            throw "Not a Valid Phone number..";

    }catch(const char \*s){

        cout<<s<<endl;

    }

    return 0;

}

1. Write a C++ program to accept area pincode and throw an exception if it does not contain 6 digits.

Ans-

// 6. Write a C++ program to accept area pincode and throw an exception if it does not  contain 6 digits.

#include<iostream>

using namespace std;

bool isValidPin(string pin){

    int len= 0;

    for(int i=0; pin[i] != '\0';i++){

        len++;

    }

    if(len == 6)

        return true;

    else

        return false;

}

int main(){

    string pinCode;

    cout<<"Enter a Pin Code : ";

    cin>>pinCode;

    try{

        if(isValidPin(pinCode))

            cout<<"Pin Code Accepted"<<endl;

        else

            throw "Not a Valid PIN Code..";

    }catch(const char \*s){

        cout<<s<<endl;

    }

    return 0;

}

1. Write a C++ program to accept a username if the username has less than 6 characters or does contain any digit or special symbol.

Ans-// 7. Write a C++ program to accept a username if the username has less than 6 characters  or does contain any digit or special symbol.

#include<iostream>

using namespace std;

bool isValidUserName(string Uname){

    int len= 0;

    bool isDigit , isChar ;

    for(int i=0; Uname[i] != '\0';i++){

        len++;

        if((Uname[i] >=32 && Uname[i] <=47) ||(Uname[i] >=58 && Uname[i] <=64) || (Uname[i] >=91 && Uname[i] <=96) || Uname[i] >=123 && Uname[i] <=126 ){

            isChar = true;

        }

        if(Uname[i] >=48 && Uname[i] <=57)

            isDigit = true;

    }

    if(len == 6 && isDigit && isChar){

        return true;

    }

    else{

        return false;

    }

}

int main(){

    string username;

    cout<<"Enter Username: ";

    cin>>username;

    try{

        if(isValidUserName(username))

            cout<<"username accepted"<<endl;

        else

            throw 0;

    }catch(int n){

        cout<<"Invalid Username..."<<endl;

    }

    return 0;

}

1. Write a C++ program to accept a password and throw an exception if the password has less than 6 characters or does not contain a digit or does not contain any special character or does not contain any capital letter.

Ans-

// 8. Write a C++ program to accept a password and throw an exception if the password has  less than 6 characters or does not contain a digit or does not contain any special  character or does not contain any capital letter.

#include<iostream>

using namespace std;

bool isValidPassword(string password){

    int len= 0;

    bool isDigit , isChar , isCap;

    for(int i=0; password[i] != '\0';i++){

        len++;

        if((password[i] >=32 && password[i] <=47) ||(password[i] >=58 && password[i] <=64) || (password[i] >=91 && password[i] <=96) || password[i] >=123 && password[i] <=126 ){

            isChar = true;

        }

        if(password[i] >=48 && password[i] <=57)

            isDigit = true;

        if(password[i] >=65 && password[i] <=90)

            isCap = true;

    }

    if(len > 6 && isDigit && isChar && isCap){

        return true;

    }

    else{

        return false;

    }

}

int main(){

    string password;

    cout<<"Enter Password: "<<endl;

    cin>>password;

    try{

        if(isValidPassword(password))

            cout<<"Password Accepted"<<endl;

        else{

            throw 0;

        }

    }catch(int e)

    {

        cout<<"invalid Password"<<endl;

    }

    return 0;

}

1. Write a C++ program to accept gmail id only and throw an exception if the id does not contain @ and gmail.com.

Ans-

// 9. Write a C++ program to accept gmail id only and throw an exception if the id does not  contain @ and gmail.com.

#include<iostream>

#include<cstring>

using namespace std;

bool isContaingmail(string gmail){

    int pos = gmail.length() - 9;

    string s = gmail.substr(pos,9);

    string r = "gmail.com";

    if(s == r)

        return true;

    else

        return false;

}

bool isValidGmail(string gmail){

    bool isat, isgmail;

    for(int i=0; gmail[i] != '\0';i++){

        if(gmail[i] == '@')

            isat = true;

    }

    isgmail = isContaingmail(gmail);

    if(isat && isgmail){

        return true;

    }

    else

        return false;

}

int main(){

    string gmail;

    cout<<"Enter your Gmail ID: ";

    cin>>gmail;

    try{

        if(isValidGmail(gmail)){

            cout<<"Gmail Accepted "<<endl;

        }

        else

            throw "Invalid Gmail Enterd..";

    }

    catch(const char \*p){

        cout<<p<<endl;

    }

    return 0;

}

1. Write a C++ program to accept Nickname and throw an exception if it has greater than 8 characters or does contain a digit or special symbol or space.

Ans-

// 10. Write a C++ program to accept Nickname and throw an exception if it has greater than 8  characters or does contain a digit or special symbol or space.

#include<iostream>

using namespace std;

bool isValidNickName(string NickName){

    int len= 0;

    bool isDigit , isChar,isSpace;

    for(int i=0; NickName[i] != '\0';i++){

        len++;

        if((NickName[i] >=32 && NickName[i] <=47) ||(NickName[i] >=58 && NickName[i] <=64) || (NickName[i] >=91 && NickName[i] <=96) || NickName[i] >=123 && NickName[i] <=126){

            isChar = true;

        }

        if(NickName[i] >=48 && NickName[i] <=57)

            isDigit = true;

        if(NickName[i] == 32)

            isSpace = true;

    }

    if(len > 8 || isDigit || isChar || isSpace){

        return false;

    }

    else{

        return true;

    }

}

int main(){

    string nickname;

    cout<<"Enter Nickname: ";

    getline(cin , nickname);

    try{

        if(isValidNickName(nickname))

            cout<<"nickname accepted"<<endl;

        else

            throw 0;

    }catch(int n){

        cout<<"Invalid Username..."<<endl;

    }

    return 0;

}