Programming Laboratory-I

Assignment No-4

(Exception handling)

2020BTECS00005

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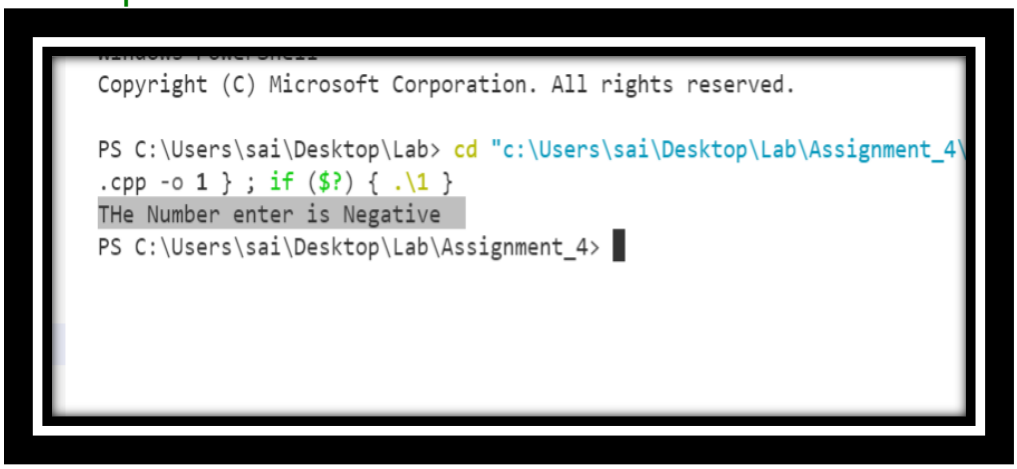
1. Write a program containing a possible exception. Use a try block to throw it and a catch block to handle it properly.

```
# include <bits/stdc++.h>
using namespace std;

  int main(){
      int a=-34;
      try{
          if(a<0){
              throw a;}
      }
      catch(int c){
          cout<<"THe Number enter is Negative\n";
      }
      return 0;}
  Output :
```



2. Write a program that illustrates the application of multiple catch statements.

```
 # include <bits/stdc++.h>
using namespace std;

int main(){
    int a=23,b=0,c;
    try{
        if(b==0){
            cout<<"\n\nCant divide by 0\n\n";
        }
        else{
            c=a/b*(a+b);
        }
    }
    catch(int x){
        cout<<"The nuber is divided and succesfully
answered\n";
    }
    catch(float y){
        cout<<"The number is divided as a float
datatype\n";
    }
    return 0;
}
```

Output :

3. Write a program which uses catch(...) handler.

```
 # include <bits/stdc++.h>
using namespace std;

int main(){
    int a;
    cout<<"\n\nEnter Your Roll no.\n";
    cin>>a;
    try{
        if(a<25){
            cout<<"You are Among Lukiest
Person\n\n\n";
        }
        else{
            throw a;
        }
    }
    catch(...){
        cout<<"You are Not as Luckiest as That of
roll no from 1 to 25\n";
    }
    return 0;
}
```

Output :

4. Write a program to demonstrate the concept of rethrowing an exception.

```
 # include <bits/stdc++.h>
using namespace std;

int main(){
    int a=12,b=2,x=0;
    try{
        int c;
        if(b==0){
            cout<<"Cant divide by 0\n";
        }
        else{
        c=a/b;
        cout<<"\n\nFirst Division Executed\n";
       try{

           if(x==0){
               throw x;
           }
```

```
            else{
              cout<<"\n\nFirst Division Executed\n";
            }
        }
        catch(int i){
            cout<<"The error Occured due to division
by "<<i<<endl<<endl<<endl;
        }
         }
    }
    catch(...){
        cout<<"Error has Occured during initial
execution\n";
    }
    return 0;
}
```

Output :

5. Write a program with the following:

   (a) A function to read two double type numbers from keyboard

   (b) A function to calculate the division of these two numbers

   (c) A try block to throw an exception when a wrong type of data is keyed in

(d) A try block to detect and throw an exception if the condition "divide-by-zero" occurs

(e) Appropriate catch block to handle the exceptions thrown.

```
 # include <bits/stdc++.h>
using namespace std;

class calci{
    double a,b;
    public:
    void get(){
        cout<<"\nEnter the 1st Double \n";
        cin>>a;
        cout<<"Enter the 2nd Double \n";
        cin>>b;
    }

   void divide(){
        try{
            if(cin.fail()){
                throw "Wrong Input..!\n";
            }
            if(b==0){
                throw 0;
            }
            cout<<"Division is :"<<a/b<<endl<<endl;
        }
        catch(int n){
            cout<<"Division by "<<n<<" :Sorry"<<endl;
        }
        catch(const char *s){
            cout<<s<<endl;
        }
    }
```

```
};

int main(){
    calci s;
    s.get();
    s.divide();
    return 0;
}
```

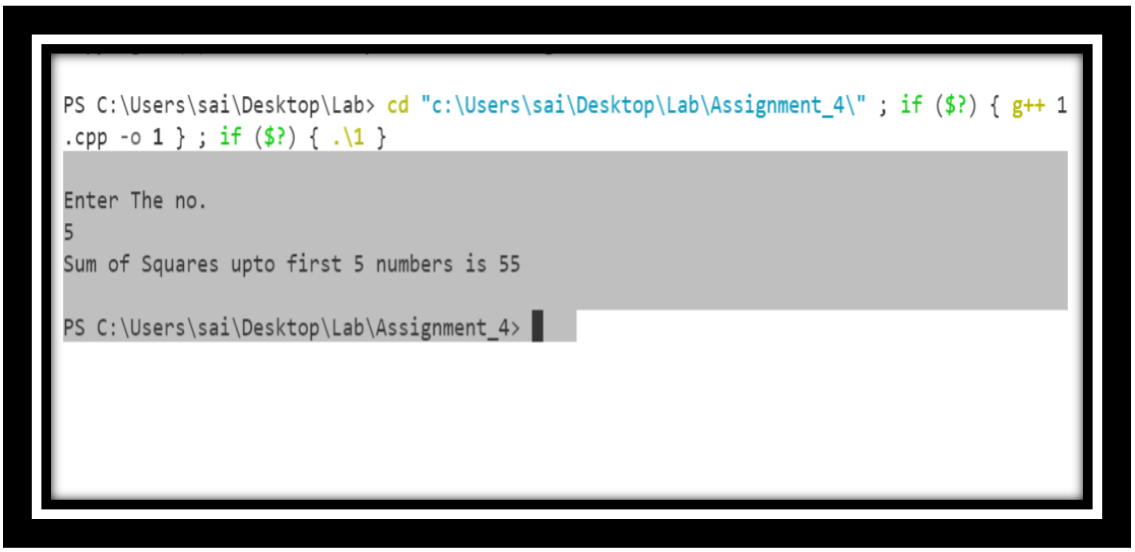
Output :

6. Write a main program that calls a deeply nested function containing an exception. Incorporate necessary exception handling mechanism.

```
 # include <bits/stdc++.h>
using namespace std;

int sum(int a){
    int s=0;
for(int i=1;i<=a;i++){
    s+=(i*i);
}
return s;
```

```
}

int main(){
    int a;
    cout<<"\nEnter The no.\n";
    cin>>a;
    try{
        if(a<0){
           throw a;
        }
        else{
            cout<<"Sum of Squares upto first "<<a<<"
numbers is "<<sum(a)<<endl<<endl;
        }
    }
    catch(int c){
        cout<<"Number was below 0\n";
    }
    return 0;
}
```

Output :



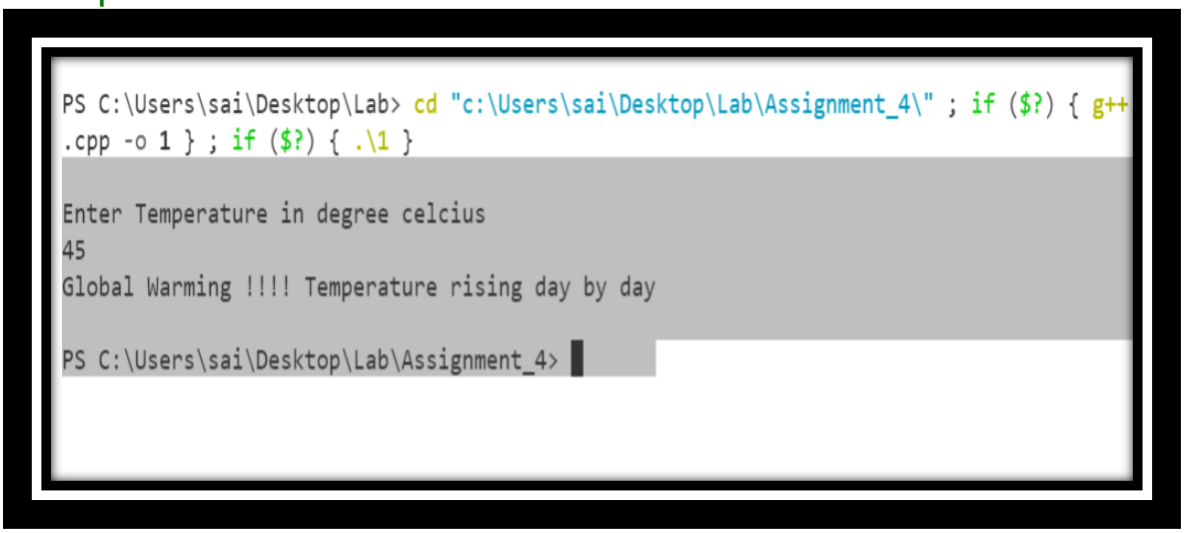
7. Write a program for user defined exception for

(a) Checking Temperature (if temp reaches certain threshold throw exception)

```
# include <bits/stdc++.h>
using namespace std;

class Ex:public exception{
    public:
    const char *what() const throw(){
        return "Global Warming !!!! Temperature
rising day by day\n";
    }
} ;

int main(){
    float f;
    cout<<"\nEnter Temperature in degree celcius\n";
    cin>>f;

    try{
        if(f>27){
            Ex temp;
            throw temp;
        }
        else{
            cout<<"Normal Temperature\n";
        }
    }
    catch(exception &s){
        cout<<s.what()<<endl;
    }

    return 0;
```

```
}
```

Output :



(b) Validate age (if age is greater than some value)

```
# include <bits/stdc++.h>
using namespace std;
class Ex:public exception{
    public:
    const char *what() const throw(){
        return "\nYour age is below the elligible
Criteria\n";
    }
} ;

int main(){
    int age;
    cout<<"\nEnter Your Age\n";
    cin>>age;
    try{
        if(age<=18){
            Ex temp;
            throw temp;}
        else{
```

```
            cout<<"You are Elligible You can Enroll
in..\n";
         }}
     catch(exception &s){
         cout<<s.what()<<endl;
     }
     return 0;
}
```

Output :