



Submitted By: Zeeshan Ali(24p-3035) and Wahid Ahmed Khan(24p-3008)

Submitted To: Prof Umar Haroon

Section BSE-3A

Assignment Introduction to Software Engineering ==02

Project Overview:

This assignment involved refactoring and modernizing a legacy of c++ loan calculator program. The original project was a simple command line loan calculation. Some of the majors problem faced are as under:

- **No input validation**
- **Hardcoded Values**
- **Overflow**
- **Bad code organization**
- **Less documentation**

The aim is that we have to upgrade this legacy program using different tools and techniques:

Some of them were done here in our assignment.

- **Bug fixing**
- **Code refactoring**
- **Configuration**
- **Testing**
- **Documentation using Doxygen**

Some of the screenshot we have taken during our project are as under below:

The screen shot having bugs and we have to fix it later.

```
#include<iostream>
#include<fstream>
#include<string>
#include "Loan.h"
using namespace std;
int main(){

long double loan_amount=0;
long double interest_rate=0;
int year=0;

ifstream config("config.txt");
if(config.is_open()){
    string k;
    char eq;
    while(config>>k>>eq){
        if(k=="default_amount")config>>loan_amount;
        else if(k=="default_interest")config>>interest_rate;
        else if (k=="default_year")config>>year;
    }
    config.close();
}
cout<<"enter loan amount("<<loan_amount<<"):"<<endl;
long double input;
cin>>input;
if(input>0) loan_amount=input;
cout<<"enter interest rate("<<interest_rate<<"):"<<endl;
cin>>input;
if(input>0) interest_rate=input;
cout<<"enter the year("<<year<<"):"<<endl;
cin>>input;
if(input>0) year=input;
//input validation
if(loan_amount<=0 || interest_rate<=0 || year<=0){
    cout<<"All must be greater than zero(0)"<<endl;
    return 1;
}
```

::::::As under we have the done te testing process::::::

```
[shan] Principal Amount: 10,000
[shan] Annual Interest: 10%
[shan] Loan Term:       6 years
[shan] -----
[shan] Total Interest: 6,000
```

We can remove the bug using the config.txt . Before using config.txt the code show the error so at last we put the config file with the hard code so we can not find any error.