Text

Description automatically generated

**MS806 – Business Application Programming**

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**NUI Galway ID Number: 22225743**

**Assignment:** **3**

**Date of Submission:** **11/07/2022**

“In submitting this work, I confirm that it is entirely my own. I acknowledge that I may be invited to undertake an online interview if there is any concern in relation to the integrity of my submission.”

**/\* Student Name: Dilip Venkatesan Sankar**

**\* Student ID: 22225743**

**\* Date: 06/11/2022**

**\* Assignment: 3**

**\* Assignment: Create a well-designed application for Mad4Money Corp called**

**\* Mad4Road that allows Customers to borrow money**

**\*/**

**using** System**.**Windows**.**Forms**;**

**using** static System**.**Windows**.**Forms**.**VisualStyles**.**VisualStyleElement**;**

**using** System**.**Xml**.**Linq**;**

**using** System**.**Transactions**;**

**using** System**.**Reflection**.**Emit**;**

**using** System**.**Text**.**RegularExpressions**;**

**using** System**.**DirectoryServices**;**

**namespace** Assignment3\_mad4road

**{**

**public** **partial** class MainForm **:** Form

**{**

**public** MainForm**()**

**{**

InitializeComponent**();**

InvestementGroupBox**.**Visible **=** **false;**

ClientDetailsGroupBox**.**Visible **=** **false;**

SearchGroupBox**.**Visible **=** **false;**

SummaryGroupBox**.**Visible **=** **false;**

ProceedButton**.**Enabled **=** **false;**

LogoPictureBox1**.**Visible **=** **false;**

RoadSideAssitanceLabel**.**Visible **=** **false;**

**}**

//Initializing global variables

int InvestementAmount**,** TransactionNumberOutput**=**0**;**

int MaxLoginAttempts **=** 2**,** NumberOfLogins **=** 1**,** RemainingLogins **=** 2**;**

decimal MonthlyInterest1**,** TotalInterest1**,** TotalAmount1**,**

MonthlyInterest2**,** TotalInterest2**,** TotalAmount2**,**

MonthlyInterest3**,** TotalInterest3**,** TotalAmount3**,**

MonthlyInterest4**,** TotalInterest4**,** TotalAmount4**,**

MonthlyInterest5**,** TotalInterest5**,** TotalAmount5**,**

MonthlyInterest6**,** TotalInterest6**,** TotalAmount6**,**

MonthlyInterest7**,** TotalInterest7**,** TotalAmount7**,**

MonthlyInterest8**,** TotalInterest8**,** TotalAmount8**,**

MonthlyInterest9**,** TotalInterest9**,** TotalAmount9**,**

MonthlyInterest10**,** TotalInterest10**,** TotalAmount10**,**

MonthlyInterest11**,** TotalInterest11**,** TotalAmount11**,**

MonthlyInterest12**,** TotalInterest12**,** TotalAmount12**;**

const string LOANSTORAGE **=** "LoanDetails.txt"**;**

const string LOGINPASSWORD **=** "2Fast4U#"**;**

string HeaderDetails **=** "{0,-10}{1,-20}{2,-20:C2}{3,-20:C2}{4,-16:C2}"**;**

const string TERM1 **=** "1 Year"**,** TERM2 **=** "3 Years"**,** TERM3 **=** "5 Years"**,** TERM4 **=** "7 Years"**;**

const int INTERESTYEAR1 **=** 1**,** INTERESTYEAR2 **=** 3**,** INTERESTYEAR3 **=** 5**,** INTERESTYEAR4 **=** 7**;**

const int INTERESTMONTH1 **=** 12**,** INTERESTMONTH2 **=** 36**,** INTERESTMONTH3 **=** 60**,** INTERESTMONTH4 **=** 84**;**

const string INTEREST1A **=** "6.00%"**,** INTEREST2A **=** "6.50%"**,** INTEREST3A **=** "7.00%"**,** INTEREST4A **=** "7.50%"**;**

const string INTEREST1B **=** "8.00%"**,** INTEREST2B **=** "8.50%"**,** INTEREST3B **=** "9.00%"**,** INTEREST4B **=** "9.50%"**;**

const string INTEREST1C **=** "8.50%"**,** INTEREST2C **=** "8.75%"**,** INTEREST3C **=** "9.10%"**,** INTEREST4C **=** "9.25%"**;**

const decimal INTERESTRATE1 **=** 0.06m**,** INTERESTRATE2 **=** 0.065m**,** INTERESTRATE3 **=** 0.07m**,** INTERESTRATE4 **=** 0.075m**;**

decimal INTERESTRATE5 **=** 0.08m**,** INTERESTRATE6 **=** 0.085m**,** INTERESTRATE7 **=** 0.09m**,** INTERESTRATE8 **=** 0.095m**;**

decimal INTERESTRATE9 **=** 0.085m**,** INTERESTRATE10 **=** 0.0875m**,** INTERESTRATE11 **=** 0.091m**,** INTERESTRATE12 **=** 0.0925m**;**

string TermFinal **=** ""**,** InterestRateFinal **=** ""**;**

decimal MonthlyInterestFinal**,** TotalInterestFinal**,** TotalAmountFinal**,** NumberOfLoginBookings**,**AvgDurationOfLoansLB**;**

decimal SummaryPrincipalAmount **=** 0**,** SummaryTotalInterestValue **=** 0**;**

decimal TotalPrincipalAmountLB**,** TotalInterestValueLB**,** AvgAmountLB**;**

int SelectionIndex **=** 0**,** AvgDuration**,** SummaryMonth**;**

string SummaryYear **=** ""**,** SearchTransacition **=** ""**,** SearchEmail **=** ""**,** SearchName **=** ""**,** SearchCode **=** ""**,** SearchPhone **=** ""**,** SearchAmount **=** ""**,** SearchYear **=** ""**,** SearchInterest **=** ""**,**

SearchMonthlyAmount **=** ""**,** SearchTotalInterest **=** ""**,** SearchTotalAmount **=** ""**,** EmptyLine**=**""**;**

bool CheckStatus**;**

//Event handler to validate password and login

**private** void LoginButton\_Click**(object** sender**,** EventArgs e**)**

**{**

**if** **(**PasswordTB**.**Text**==**LOGINPASSWORD**)** //condition to check if password matched

**{**

InvestementGroupBox**.**Visible **=** **true;**

PasswordTB**.**Clear**();**

LoginGroupBox**.**Visible **=** **false;**

SummaryGroupBox**.**Visible **=** **true;**

SearchGroupBox**.**Visible **=** **true;**

LogoPictureBox**.**Visible **=** **false;**

LogoPictureBox1**.**Visible **=** **true;**

ClientDetailsGroupBox**.**Visible **=** **true;**

**}**

**else**

**{**

**if** **(**NumberOfLogins **==** MaxLoginAttempts**)** //condition to exit if login attempt exceeded

**{**

MessageBox**.**Show**(**"Maximum retries exhausted"**,**"Error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Error**);**

**this.**Close**();**

**}**

**else** //condition to increment attempt and provide a re-login

**{**

NumberOfLogins**++;**

MessageBox**.**Show**(**"Incorrect Password" **+** "\n" **+**"Number of attempts left:" **+** **--**RemainingLogins**,** "Error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Error**);**

PasswordTB**.**Clear**();**

**}**

**}**

**}**

//Method1 to calculate total repayment and return value

**private** decimal TotalRepaymentCalculation**(**decimal InvestmentAmount**,** decimal interest **,**decimal years**)**

**{**

**for** **(**int count **=** 0**;** count **<** years**;** count**++)**

**{**

InvestmentAmount **+=** **(**interest **\*** InvestmentAmount**);**

**}**

**return** Math**.**Round**(**InvestmentAmount**,**2**);** //return output to variable

**}**

//Method2 to calculate total interest and return value

**private** decimal TotalInterestCalcualtion**(**decimal InvestmentAmount**,** decimal TotalAmount**)**

**{**

**return** Math**.**Round**(**TotalAmount **-** InvestmentAmount**,** 2**);** //return output to variable

**}**

//Method3 to calculate monthly interest and return value

**private** decimal MonthlyInterest**(**decimal TotalAmount**,** int months**)**

**{**

**return** Math**.**Round**(**TotalAmount **/** months**,**2**);** //return output to variable

**}**

//Method4 to generate random ID and return value

**private** string RandomNumberGeneration**()**

**{**

Random RandomTN **=** **new** Random**();**

int NewTransactionNumber **=** RandomTN**.**Next**(**10000**,** 99999**);**

TransactionNumberOutput **=** NewTransactionNumber**;** //storing in varible to diplay in message box

**return** NewTransactionNumber**.**ToString**();** //return output to variable

**}**

//Event handler to display loan options

**private** void DisplayButton\_Click**(object** sender**,** EventArgs e**)**

**{**

//Condtion to check text box is empty and only numerical data is present

**if(**InvestementAmountTB**.**Text **==** "" **||** Regex**.**IsMatch**(**InvestementAmountTB**.**Text**,** @"^[a-zA-Z]+$"**))**

**{**

MessageBox**.**Show**(**"Please enter Loan amount in Numbers"**,** "Error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Error**);**

**}**

**else**

**{**

InvestementAmount **=** int**.**Parse**(**InvestementAmountTB**.**Text**);**

**if** **(**InvestementAmount **<** 10000**)** //condition to check if amount is less than 10000

**{**

MessageBox**.**Show**(**"Please enter an amount above 10000"**,** "Information"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Information**);**

**}**

**else** **if** **(**InvestementAmount **>** 100000**)** //condition to check if amount is greater than 100000

**{**

MessageBox**.**Show**(**"Please enter an amount below 100000"**,** "Information"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Information**);**

**}**

**else**

**{**

**try**

**{**

**if** **(**InvestementAmount **>=** 10000 **&&** InvestementAmount **<** 40000**)** //If condition when principal in less than 40000

**{**

//Calculation for monthly interest, total interest and total amount for 1 Year

TotalAmount1 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE1**,** INTERESTYEAR1**);**

TotalInterest1 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount1**);**

MonthlyInterest1 **=** MonthlyInterest**(**TotalAmount1**,** INTERESTMONTH1**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM1**,**

INTEREST1A**,** MonthlyInterest1**,** TotalInterest1**,** TotalAmount1**));**

//Calculation for monthly interest, total interest and total amount for 3 Year

TotalAmount2 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE2**,** INTERESTYEAR2**);**

TotalInterest2 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount2**);**

MonthlyInterest2 **=** MonthlyInterest**(**TotalAmount2**,** INTERESTMONTH2**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM2**,**

INTEREST2A**,** MonthlyInterest2**,** TotalInterest2**,** TotalAmount2**));**

//Calculation for monthly interest, total interest and total amount for 5 Year

TotalAmount3 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE3**,** INTERESTYEAR3**);**

TotalInterest3 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount3**);**

MonthlyInterest3 **=** MonthlyInterest**(**TotalAmount3**,** INTERESTMONTH3**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM3**,**

INTEREST3A**,** MonthlyInterest3**,** TotalInterest3**,** TotalAmount3**));**

//Calculation for monthly interest, total interest and total amount for 7 Year

TotalAmount4 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE4**,** INTERESTYEAR4**);**

TotalInterest4 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount4**);**

MonthlyInterest4 **=** MonthlyInterest**(**TotalAmount4**,** INTERESTMONTH4**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM4**,**

INTEREST4A**,** MonthlyInterest4**,** TotalInterest4**,** TotalAmount4**));**

**}**

//condition if amount is greater than or equal to 4000 and less than 80000

**else** **if** **((**InvestementAmount **>=** 40000**)** **&&** **(**InvestementAmount **<** 80000**))**

**{**

//Calculation for monthly interest, total interest and total amount for 1 Year

TotalAmount5 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE5**,** INTERESTYEAR1**);**

TotalInterest5 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount5**);**

MonthlyInterest5 **=** MonthlyInterest**(**TotalAmount5**,** INTERESTMONTH1**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM1**,**

INTEREST1B**,** MonthlyInterest5**,** TotalInterest5**,** TotalAmount5**));**

//Calculation for monthly interest, total interest and total amount for 3 Year

TotalAmount6 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE6**,** INTERESTYEAR2**);**

TotalInterest6 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount6**);**

MonthlyInterest6 **=** MonthlyInterest**(**TotalAmount6**,** INTERESTMONTH2**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM2**,**

INTEREST2B**,** MonthlyInterest6**,** TotalInterest6**,** TotalAmount6**));**

//Calculation for monthly interest, total interest and total amount for 5 Year

TotalAmount7 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE7**,** INTERESTYEAR3**);**

TotalInterest7 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount7**);**

MonthlyInterest7 **=** MonthlyInterest**(**TotalAmount7**,** INTERESTMONTH3**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM3**,**

INTEREST3B**,** MonthlyInterest7**,** TotalInterest7**,** TotalAmount7**));**

//Calculation for monthly interest, total interest and total amount for 7 Year

TotalAmount8 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE8**,** INTERESTYEAR4**);**

TotalInterest8 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount8**);**

MonthlyInterest8 **=** MonthlyInterest**(**TotalAmount8**,** INTERESTMONTH4**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM3**,**

INTEREST4B**,** MonthlyInterest8**,** TotalInterest8**,** TotalAmount8**));**

**}**

//condition if amount is greater than or equal to 80000 and less than 100000

**else** **if** **((**InvestementAmount **>=** 80000**)** **&&** **(**InvestementAmount **<=** 100000**))**

**{**

//Calculation for monthly interest, total interest and total amount for 1 Year

TotalAmount9 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE9**,** INTERESTYEAR1**);**

TotalInterest9 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount9**);**

MonthlyInterest9 **=** MonthlyInterest**(**TotalAmount9**,** INTERESTMONTH1**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM1**,**

INTEREST1C**,** MonthlyInterest9**,** TotalInterest9**,** TotalAmount9**));**

//Calculation for monthly interest, total interest and total amount for 3 Year

TotalAmount10 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE10**,** INTERESTYEAR2**);**

TotalInterest10 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount10**);**

MonthlyInterest10 **=** MonthlyInterest**(**TotalAmount10**,** INTERESTMONTH2**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM2**,**

INTEREST2C**,** MonthlyInterest10**,** TotalInterest10**,** TotalAmount10**));**

//Calculation for monthly interest, total interest and total amount for 5 Year

TotalAmount11 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE11**,** INTERESTYEAR3**);**

TotalInterest11 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount11**);**

MonthlyInterest11 **=** MonthlyInterest**(**TotalAmount11**,** INTERESTMONTH3**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM3**,**

INTEREST3C**,** MonthlyInterest11**,** TotalInterest11**,** TotalAmount11**));**

//Calculation for monthly interest, total interest and total amount for 7 Year

TotalAmount12 **=** TotalRepaymentCalculation**(**InvestementAmount**,** INTERESTRATE12**,** INTERESTYEAR4**);**

TotalInterest12 **=** TotalInterestCalcualtion**(**InvestementAmount**,** TotalAmount12**);**

MonthlyInterest12 **=** MonthlyInterest**(**TotalAmount12**,** INTERESTMONTH4**);**

CalculationListBox**.**Items**.**Add**(**string**.**Format**(**HeaderDetails**,** TERM4**,**

INTEREST4C**,** MonthlyInterest12**,** TotalInterest12**,** TotalAmount12**));**

**}**

ProceedButton**.**Enabled **=** **true;**

DisplayButton**.**Enabled **=** **false;**

**}**

**catch** **(**Exception CalcIssue**)**//Exception for calculation issue

**{**

MessageBox**.**Show**(**CalcIssue**.**Message**);**

**}**

**}**

**}**

**}**

//Event handler to proceed with the selected loan term

**private** void ProceedButton\_Click**(object** sender**,** EventArgs e**)**

**{**

**if** **(**CalculationListBox**.**SelectedIndex **!=** **-**1**)** //switch case statement index selection from the list box

**{**

//Execute If block when amount is less than 40000 and assign variables based on selected option

**if** **(**InvestementAmount **>=** 10000 **&&** InvestementAmount **<** 40000**)**

**{**

SelectionIndex **=** CalculationListBox**.**SelectedIndex**;**

**switch** **(**SelectionIndex**)**

**{**

**case** 0**:**

TermFinal **=** TERM1**;** InterestRateFinal **=** INTEREST1A**;**

MonthlyInterestFinal **=** MonthlyInterest1**;** TotalInterestFinal **=** TotalInterest1**;**

TotalAmountFinal **=** TotalAmount1**;** **break;**

**case** 1**:**

TermFinal **=** TERM2**;** InterestRateFinal **=** INTEREST2A**;**

MonthlyInterestFinal **=** MonthlyInterest2**;** TotalInterestFinal **=** TotalInterest2**;**

TotalAmountFinal **=** TotalAmount2**;** **break;**

**case** 2**:**

TermFinal **=** TERM3**;** InterestRateFinal **=** INTEREST3A**;**

MonthlyInterestFinal **=** MonthlyInterest3**;** TotalInterestFinal **=** TotalInterest3**;**

TotalAmountFinal **=** TotalAmount3**;** **break;**

**case** 3**:**

TermFinal **=** TERM4**;** InterestRateFinal **=** INTEREST4A**;**

MonthlyInterestFinal **=** MonthlyInterest4**;** TotalInterestFinal **=** TotalInterest4**;**

TotalAmountFinal **=** TotalAmount4**;** **break;**

**}**

**}**

//Execute else if block if amount is >=40000 and <80000 and assign variables based on selected option

**else** **if** **((**InvestementAmount **>=** 40000**)** **&&** **(**InvestementAmount **<** 80000**))**

**{**

SelectionIndex **=** CalculationListBox**.**SelectedIndex**;**

**switch** **(**SelectionIndex**)**

**{**

**case** 0**:**

TermFinal **=** TERM1**;** InterestRateFinal **=** INTEREST1B**;**

MonthlyInterestFinal **=** MonthlyInterest5**;** TotalInterestFinal **=** TotalInterest5**;**

TotalAmountFinal **=** TotalAmount5**;** **break;**

**case** 1**:**

TermFinal **=** TERM2**;** InterestRateFinal **=** INTEREST2B**;**

MonthlyInterestFinal **=** MonthlyInterest6**;** TotalInterestFinal **=** TotalInterest6**;**

TotalAmountFinal **=** TotalAmount6**;** **break;**

**case** 2**:**

TermFinal **=** TERM3**;** InterestRateFinal **=** INTEREST3B**;**

MonthlyInterestFinal **=** MonthlyInterest7**;** TotalInterestFinal **=** TotalInterest7**;**

TotalAmountFinal **=** TotalAmount7**;** **break;**

**case** 3**:**

TermFinal **=** TERM4**;** InterestRateFinal **=** INTEREST4B**;**

MonthlyInterestFinal **=** MonthlyInterest8**;** TotalInterestFinal **=** TotalInterest8**;**

TotalAmountFinal **=** TotalAmount8**;** **break;**

**}**

**}**

//Execute else block when amount is greater than 80000and assign variables based on selected option

**else** **if** **((**InvestementAmount **>=** 80000**)** **&&** **(**InvestementAmount **<=** 100000**))**

**{**

SelectionIndex **=** CalculationListBox**.**SelectedIndex**;**

**switch** **(**SelectionIndex**)**

**{**

**case** 0**:**

TermFinal **=** TERM1**;** InterestRateFinal **=** INTEREST1C**;**

MonthlyInterestFinal **=** MonthlyInterest9**;** TotalInterestFinal **=** TotalInterest9**;**

TotalAmountFinal **=** TotalAmount9**;** **break;**

**case** 1**:**

TermFinal **=** TERM2**;** InterestRateFinal **=** INTEREST2C**;**

MonthlyInterestFinal **=** MonthlyInterest10**;** TotalInterestFinal **=** TotalInterest10**;**

TotalAmountFinal **=** TotalAmount10**;** **break;**

**case** 2**:**

TermFinal **=** TERM3**;** InterestRateFinal **=** INTEREST3C**;**

MonthlyInterestFinal **=** MonthlyInterest11**;** TotalInterestFinal **=** TotalInterest11**;**

TotalAmountFinal **=** TotalAmount11**;** **break;**

**case** 3**:**

TermFinal **=** TERM4**;** InterestRateFinal **=** INTEREST4C**;**

MonthlyInterestFinal **=** MonthlyInterest12**;** TotalInterestFinal **=** TotalInterest12**;**

TotalAmountFinal **=** TotalAmount12**;** **break;**

**}**

**}**

//Call below method to generate random transaction ID

TransactionNumberLabelOP**.**Text **=**RandomNumberGeneration**();**

//ops to perform after proceed button is clicked

InvestementGroupBox**.**Enabled **=** **false;**

ClientDetailsGroupBox**.**Visible **=** **true;**

**}**

**else** //else block is executed when no option is selected

**{**

MessageBox**.**Show**(**"Please Select an an option to Proceed"**,**

"Error"**,**

MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Error**);**

**}**

**}**

//Event handler to enter client details and store detials in text file

**private** void SubmitButton\_Click**(object** sender**,** EventArgs e**)**

**{**

//condition to check if all the client dtails has been entered

**if** **(**TransactionNumberLabelOP**.**Text **!=** ""**)**

**{**

**if** **(**ClientNameTB**.**Text **!=** "" **||** PostalCodeTB**.**Text **!=** "" **||** PhoneNumberTB**.**Text **!=** "" **||** EmailTB**.**Text **!=** ""**)**

**{**

**if** **(**ClientNameTB**.**Text **!=** ""**)**

**{**

**if** **(**PostalCodeTB**.**Text **!=** "" **&&** PostalCodeTB**.**Text**.**Length **==** 8**)**

**{**

**if** **(**PhoneNumberTB**.**Text **!=** "" **&&** PhoneNumberTB**.**Text**.**Length **==** 9**)**

**{**

**if** **(**EmailTB**.**Text **!=** "" **&&** EmailTB**.**Text**.**Contains**(**"@"**)** **&&** EmailTB**.**Text**.**Contains**(**"."**))**

**{**

//Obtaining user confirmation before storing vaules in text file

DialogResult ProceedResult **=** MessageBox**.**Show**(**"\n" **+** "Do you wish to confirm your details? " **+**

"\n" **+** "Client's Name: " **+** ClientNameTB**.**Text **+**

"\n" **+** "Postal Code: " **+** PostalCodeTB**.**Text **+**

"\n" **+** "Phone No: " **+** PhoneNumberTB**.**Text **+**

"\n" **+** "E-mail ID: " **+** EmailTB**.**Text **+**

"\n" **+** "Transaction No: " **+** TransactionNumberOutput**.**ToString**()** **+**

"\n" **+** "Principal Amount: " **+** InvestementAmount**.**ToString**()** **+**

"\n" **+** "Loan Term: " **+** TermFinal**.**ToString**()** **+**

"\n" **+** "Interest Rate: " **+** InterestRateFinal**.**ToString**()** **+**

"\n" **+** "Monthly Repayment: " **+** MonthlyInterestFinal**.**ToString**()** **+**

"\n" **+** "Total Interest: " **+** TotalInterestFinal**.**ToString**()** **+**

"\n" **+** "Total Amount: " **+** TotalAmountFinal**.**ToString**(),** "Confirmation"**,** MessageBoxButtons**.**OKCancel**,** MessageBoxIcon**.**Information**);**

//if condition block execute when OK option is selected

**if** **(**ProceedResult **==** DialogResult**.**OK**)**

**{**

**try**

**{**

//Open file and append details to text file

StreamWriter TransactionFile**;**

TransactionFile **=** File**.**AppendText**(**LOANSTORAGE**);**

TransactionFile**.**WriteLine**(**TransactionNumberLabelOP**.**Text**);**

TransactionFile**.**WriteLine**(**EmailTB**.**Text**);**

TransactionFile**.**WriteLine**(**ClientNameTB**.**Text**);**

TransactionFile**.**WriteLine**(**PostalCodeTB**.**Text**);**

TransactionFile**.**WriteLine**(**PhoneNumberTB**.**Text**);**

TransactionFile**.**WriteLine**(**InvestementAmount**.**ToString**());**

TransactionFile**.**WriteLine**(**TermFinal**.**ToString**());**

TransactionFile**.**WriteLine**(**InterestRateFinal**.**ToString**());**

TransactionFile**.**WriteLine**(**MonthlyInterestFinal**.**ToString**());**

TransactionFile**.**WriteLine**(**TotalInterestFinal**.**ToString**());**

TransactionFile**.**WriteLine**(**TotalAmountFinal**.**ToString**());** **;**

TransactionFile**.**Write**(**"\n"**);** //empty line for differentiation

TransactionFile**.**Close**();**

//Ops to perform after OK button is pressed

TransactionNumberLabelOP**.**Text **=** ""**;**

ClientNameTB**.**Text **=** ""**;**

PostalCodeTB**.**Text **=** ""**;**

PhoneNumberTB**.**Text **=** ""**;**

EmailTB**.**Text **=** ""**;**

InvestementAmountTB**.**Text **=** ""**;**

CalculationListBox**.**Items**.**Clear**();**

ProceedButton**.**Enabled **=** **false;**

DisplayButton**.**Enabled **=** **true;**

InvestementGroupBox**.**Enabled **=** **true;**

TransactionNumberLabelOP**.**Text **=** ""**;**

ClientNameTB**.**Text **=** ""**;**

PostalCodeTB**.**Text **=** ""**;**

PhoneNumberTB**.**Text **=** ""**;**

EmailTB**.**Text **=** ""**;**

SummaryGroupBox**.**Visible **=** **true;**

SearchGroupBox**.**Visible **=** **true;**

**}**

//catch block execute when issue with file opening and writing

**catch** **(**Exception e1**)**

**{**

MessageBox**.**Show**(**e1**.**Message**);**

**}**

**}**

**else** //Execute else block when user selects cancel option and dealing with objection if users wants to modify selection

**{**

MessageBox**.**Show**(**"Your transaction has been cancelled"**,** "Cancelled"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Information**);**

TransactionNumberLabelOP**.**Text **=** ""**;**

CalculationListBox**.**Items**.**Clear**();**

InvestementGroupBox**.**Enabled **=** **true;**

ProceedButton**.**Enabled **=** **false;**

DisplayButton**.**Enabled **=** **true;**

SummaryGroupBox**.**Visible **=** **true;**

SearchGroupBox**.**Visible **=** **true;**

**}**

**}**

**else** //Execute else block when email address does not have "." or "@"

**{**

DialogResult EmailResult **=** MessageBox**.**Show**(**"Please enter a Valid Email address"**,** "error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Warning**);**

**}**

**}**

**else** //Execute else block when not a valid phone number

**{**

DialogResult PhoneNumberResult **=** MessageBox**.**Show**(**"Please enter a Valid Phone number"**,** "error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Warning**);**

**}**

**}**

**else** //Execute else block when not a valid postal code

**{**

DialogResult PostalCodeResult **=** MessageBox**.**Show**(**"Please enter a Valid Postal Code!"**,** "error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Warning**);**

**}**

**}**

**else** //Execute else block when no client name is entered

**{**

DialogResult ClientNameResule **=** MessageBox**.**Show**(**"Please enter a Valid Client name"**,** "error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Warning**);**

**}**

**}**

**else** //Execute else block when no details are entered

**{**

DialogResult AllDetailsResult **=** MessageBox**.**Show**(**"Please enter the client details"**,** "error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Warning**);**

**}**

**}**

**else** //Execute else block when dealing with objection

**{**

DialogResult AllDetailsResult **=** MessageBox**.**Show**(**"Cannot proceed without Transaction ID"**,** "error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Warning**);**

**}**

**}**

//Event handler to check total company details and transaction

**private** void SummaryButton\_Click**(object** sender**,** EventArgs e**)**

**{**

**if** **(!**File**.**Exists**(**LOANSTORAGE**))** //If block to check when LoanDetails file does not exists

**{**

MessageBox**.**Show**(**"Transaction file does not exist"**,** "Error"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Error**);**

**}**

**if** **(new** FileInfo**(**LOANSTORAGE**).**Length **!=** 0**)** //Execute if block when LoanDetails file exists with entries

**{**

StreamReader ReadData**;**

**try**

**{**

ReadData **=** File**.**OpenText**(**"LoanDetails.txt"**);** //Open text file and read data

**while** **(!**ReadData**.**EndOfStream**)**

**{**

NumberOfLoginBookings**++;**

**for** **(**int SummarytIncr**=**0**;** SummarytIncr **<** 5**;** SummarytIncr**++)**

**{**

ReadData**.**ReadLine**();** //Iterate to read first five lines

**}**

SummaryPrincipalAmount **=** decimal**.**Parse**(**ReadData**.**ReadLine**());** //Reading Principal amount

SummaryYear **=** ReadData**.**ReadLine**();** //Reading Months

**if** **(**SummaryYear **==** TERM1**)**

**{**

SummaryMonth **=** INTERESTMONTH1**;** //12 months

**}**

**else** **if** **(**SummaryYear **==** TERM2**)**

**{**

SummaryMonth **=** INTERESTMONTH2**;** //36 months

**}**

**else** **if** **(**SummaryYear **==** TERM3**)**

**{**

SummaryMonth **=** INTERESTMONTH3**;** //60 months

**}**

**else** **if** **(**SummaryYear **==** TERM4**)**

**{**

SummaryMonth **=** INTERESTMONTH4**;** //84 months

**}**

ReadData**.**ReadLine**();** //Reading Interest rate

ReadData**.**ReadLine**();** //Reading Monthly repayment

SummaryTotalInterestValue **=** decimal**.**Parse**(**ReadData**.**ReadLine**());** //Reading Total interest

ReadData**.**ReadLine**();** //Reading Total amount

ReadData**.**ReadLine**();** //Reading empty line

//Calculation and Increment values when new entries append to text file

TotalPrincipalAmountLB **+=** SummaryPrincipalAmount**;**

TotalInterestValueLB **+=** SummaryTotalInterestValue**;**

AvgDuration **+=** SummaryMonth**;**

AvgAmountLB **=** TotalPrincipalAmountLB **/** NumberOfLoginBookings**;**

AvgDurationOfLoansLB **=** AvgDuration **/** NumberOfLoginBookings**;**

**}**

ReadData**.**Close**();** //close file after reading

//displaying the values in labels after calculation when summary button is pressed

TotalAmountBorrowedLabel**.**Text **=** TotalPrincipalAmountLB**.**ToString**(**"C2"**);**

TotalInterestOccuring**.**Text **=** TotalInterestValueLB**.**ToString**(**"C2"**);**

AverageAmount**.**Text **=** AvgAmountLB**.**ToString**(**"C2"**);**

AverageDuration**.**Text **=** AvgDurationOfLoansLB**.**ToString**();**

SummaryButton**.**Enabled **=** **false;**

**}**

**catch** **(**Exception SummaryExpection**)** //Execute catch block when not able to open file to read contents

**{**

MessageBox**.**Show**(**SummaryExpection**.**Message**);**

**}**

**}**

**else** **if** **(new** FileInfo**(**LOANSTORAGE**).**Length **==** 0**)** //Execute else if block when LoanDetails file is empty

**{**

MessageBox**.**Show**(**"No New transacions"**,** "Summary Info"**,** MessageBoxButtons**.**OK**,** MessageBoxIcon**.**Information**);**

**}**

**}**

//event handler to search old transactions based on transaction number and email ID

**private** void SearchButton\_Click**(object** sender**,** EventArgs e**)**

**{**

**if** **(**SearchTextBox**.**Text **==** ""**)** //Execute if condition when textbox is empty

**{**

MessageBox**.**Show**(**"Please enter email ID or transaction number"**,** "Details"**,** MessageBoxButtons**.**OK**,**

MessageBoxIcon**.**Error**);**

**}**

**else**

**{**

StreamReader SearchData**;**

**try**

**{**

SearchData **=** File**.**OpenText**(**"LoanDetails.txt"**);** //Open text file and read data

**while** **(!**SearchData**.**EndOfStream**)** //read all the lines in the file till enf od file

**{**

SearchTransacition **=** SearchData**.**ReadLine**();** //Reading transaction number

SearchEmail **=** SearchData**.**ReadLine**();** //Reading email id

SearchName **=** SearchData**.**ReadLine**();** //Reading name

SearchCode **=** SearchData**.**ReadLine**();** //Reading code

SearchPhone **=** SearchData**.**ReadLine**();** //Reading phone

SearchAmount **=** SearchData**.**ReadLine**();** //Reading amount

SearchYear **=** SearchData**.**ReadLine**();** //Reading year

SearchInterest **=** SearchData**.**ReadLine**();** //Reading interest

SearchMonthlyAmount **=** SearchData**.**ReadLine**();** //Reading monthly repayment

SearchTotalInterest **=** SearchData**.**ReadLine**();** //Reading total interest

SearchTotalAmount **=** SearchData**.**ReadLine**();** //Reading total amount

EmptyLine **=** SearchData**.**ReadLine**();**

**if** **((**EmailRadioButton**.**Checked**)** **&&** **(**SearchTextBox**.**Text **==** SearchEmail**)** **&&** **(**SearchTextBox**.**Text**.**Contains**(**"."**))** **&&** **(**SearchTextBox**.**Text**.**Contains**(**"@"**)))**

**{**

CheckStatus **=** **true;** // return true when entered and file email address matchs for search condition

**}**

**else** **if** **((**TransactionRadioButton**.**Checked**)** **&&** **(**SearchTextBox**.**Text **==** SearchTransacition**))**

**{**

CheckStatus **=** **true;** //return true when entered and file transaction number match for search condition

**}**

**if** **(**CheckStatus **==** **true)** //read lines from file and display in list box

**{**

SearchResultsListBox**.**Items**.**Add**(**"Trasaction #: "**+**SearchTransacition**);** //transaction number

SearchResultsListBox**.**Items**.**Add**(**"Email ID : "**+**SearchEmail**);** //email id

SearchResultsListBox**.**Items**.**Add**(**"Name: "**+**SearchName**);** //name

SearchResultsListBox**.**Items**.**Add**(**"EIR Code: "**+** SearchCode**);** //code

SearchResultsListBox**.**Items**.**Add**(**"Phone #: "**+** SearchPhone**);** //phone

SearchResultsListBox**.**Items**.**Add**(**"Principal Amount: "**+** SearchAmount**);** //amount

SearchResultsListBox**.**Items**.**Add**(**"Tenure: "**+** SearchYear**);** //year

SearchResultsListBox**.**Items**.**Add**(**"Interest Rate: "**+** SearchInterest**);** //interest

SearchResultsListBox**.**Items**.**Add**(**"Monthly Interest: "**+** SearchMonthlyAmount**);** //monthly repayment

SearchResultsListBox**.**Items**.**Add**(**"Total Interest: "**+** SearchTotalInterest**);** //total interest

SearchResultsListBox**.**Items**.**Add**(**"Final Amount: "**+** SearchTotalAmount**);** //total amount

SearchResultsListBox**.**Items**.**Add**(**EmptyLine**);** //empty line

CheckStatus **=** **false;**

**}**

**}**

SearchButton**.**Enabled **=** **false;**

SearchData**.**Close**();**

//if condition executes to check if no match condition and list box is empty

**if** **(**SearchResultsListBox**.**Items**.**Count **==** 0**)**

**{**

MessageBox**.**Show**(**"No records found"**,** "No records"**,** MessageBoxButtons**.**OK**,**

MessageBoxIcon**.**Information**);**

SearchButton**.**Enabled **=** **true;**

**}**

**}**

**catch** **(**Exception SearchError**)** //execute catch box when not able to open file to read contents

**{**

MessageBox**.**Show**(**SearchError**.**Message**);**

**}**

**}**

**}**

//Event handler for Road side assistance and diplays label

**private** void CalculationListBox\_SelectedIndexChanged**(object** sender**,** EventArgs e**)**

**{**

**if** **(**CalculationListBox**.**SelectedIndex **>=** 2**)**

**{**

RoadSideAssitanceLabel**.**Visible **=** **true;**

**}**

**else**

**{**

RoadSideAssitanceLabel**.**Visible **=** **false;**

**}**

**}**

//Event hander to clear search history

**private** void SearchClearButton\_Click**(object** sender**,** EventArgs e**)**

**{**

SearchTextBox**.**Clear**();**

SearchResultsListBox**.**Items**.**Clear**();**

SearchButton**.**Enabled **=** **true;**

**}**

//Event handler to clear all contents from the CalculationListBox

**private** void ClearButton\_Click**(object** sender**,** EventArgs e**)**

**{**

InvestementAmountTB**.**Clear**();**

CalculationListBox**.**ClearSelected**();**

CalculationListBox**.**Items**.**Clear**();**

ProceedButton**.**Enabled **=** **false;**

DisplayButton**.**Enabled **=** **true;**

**}**

//Event handler to exit the application

**private** void ExitButton\_Click**(object** sender**,** EventArgs e**)**

**{**

DialogResult iExit**;**

iExit **=** MessageBox**.**Show**(**"Confirm if you want to exit the system"**,**

"Ordering system"**,** MessageBoxButtons**.**YesNo**,** MessageBoxIcon**.**Question**);**

**if** **(**iExit **==** DialogResult**.**Yes**)**

**{**

Application**.**Exit**();**

**}**

**}**

**}**

**}**