

```

// Mickie Blair
// CIST 2361 - CRN 63227
// MidTerm Project - Project 1

#include <iostream>
#include <iomanip>

using namespace std;

double calcIncome(double, double);
double calcNetIncome(double);
double calcExpenses(double);
void calcSavingsBond(double);

int main()
{
    double payRate;           //variable for pay rate
    double hoursWorked;       //variable for hours worked
    double income;            //variable for income
    double netIncome;         //variable for income after taxes
    double incomeAfterExpenses; //variable for income after expenses

    //Display introduction
    cout << "The program will ask the user for the pay rate and hours worked. \n"
         << "The computer will then output the following: \n\n"
         << "- Income before and after taxes (14% of income)\n"
         << "- Money spent on clothes and other accessories (10% of income)\n"
         << "- Money spent on school supplies (1% of income)\n"
         << "- Money spent to buy savings bonds (25% of remaining income)\n"
         << "- Money parents spent on buying additional savings bonds ($0.50 for each $1.00)\n"
         << endl;

    //Get pay rate and hours worked from user
    cout << "Enter the hourly pay rate and hours worked below.\n" << endl;

    cout << setw(22) << left << "Hourly Pay Rate:";
    cout << setw(1) << " $ ";
    cin >> payRate;

    cout << setw(22) << left << "Hours Worked: ";
    cin >> hoursWorked;

    //display blank line
    cout << endl;

    //set precision
    cout << setprecision(2) << fixed;

    //call function to get income
    income = calcIncome(payRate, hoursWorked);

    //call function to calculate and display taxes then return net income
    netIncome = calcNetIncome(income);

    //display blank line
    cout << endl;

    //call function to calculate and display taxes then return net income
    incomeAfterExpenses = calcExpenses(netIncome);

    //display blank line
    cout << endl;
}

```

```

//call function to calculate savings bond contributions (user and parents)
calcSavingsBond(incomeAfterExpenses);

return 0;
}

//function to calculate, display and return income using pay rate and hours worked
double calcIncome(double pay, double hours)
{
    double income; //variable for income

    //calculate income
    income = pay * hours;

    //display income
    cout << setw(22) << left << "Income:";
    cout << setw(2) << " $";
    cout << setw(8) << right << income << endl;

    //return income
    return income;
}

//function to calculate, display and return net income
double calcNetIncome(double income)
{
    double netIncome; //variable for net income
    double tax; //variable for income
    const double TAX_PERCENT = .14; //constant for tax percent

    //calculate income
    tax = income * TAX_PERCENT;

    //display taxes
    cout << setw(22) << left << "Taxes:";
    cout << setw(2) << " $";
    cout << setw(8) << right << tax << endl;

    //calculate net income
    netIncome = income - tax;

    //display net income
    cout << setw(22) << left << "Net Income:";
    cout << setw(2) << " $";
    cout << setw(8) << right << netIncome << endl;

    //return netIncome
    return netIncome;
}

//function to calculate and display amount spent on clothes/accessories and school supplies.
//Return income after expenses
double calcExpenses(double netIncome)
{
    const double CLOTHES_PERCENT = .10; //constant - percent spent on clothes
    const double SCHOOL_PERCENT = .01; //constant - percent spent on school supplies

    double clothesAmt; //amount spent on cloths
    double schoolAmt; //amount spent on school supplies
    double incomeAfterExpenses; //amount of remaining income

```

```

//calculate amount spent on clothes and other expense
clothesAmt = netIncome * CLOTHES_PERCENT;

//display money spent on clothes
cout << setw(22) << left << "Clothes/Accessories:";
cout << setw(2) << " $";
cout << setw(8) << right << clothesAmt << endl;

//calculate amount spent on school supplies
schoolAmt = netIncome * SCHOOL_PERCENT;

//display money spent on school supplies
cout << setw(22) << left << "School Supplies:";
cout << setw(2) << " $";
cout << setw(8) << right << schoolAmt << endl;

//calculate the amount of remaining money
incomeAfterExpenses = netIncome - clothesAmt - schoolAmt;

//return netIncome
return incomeAfterExpenses;
}

//function to calculate and display amount used on savings and parental savings contribution
void calcSavingsBond(double incomeAfterExpenses)
{
    const double SAVINGS_PERCENT = .25;           //constant - percent used on savings bond
    const double PARENT_SAVINGS = .50;           //constant - parental contribution $0.50 per dollar

    double savingsAmt;                             //amount used for savings bond
    double parentAmt;                             //amount of parental savings contribution

    //calculate amount used for savings bond
    savingsAmt = incomeAfterExpenses * SAVINGS_PERCENT;

    //display money used for savings bond
    cout << setw(22) << left << "Savings Bonds:";
    cout << setw(2) << " $";
    cout << setw(8) << right << savingsAmt << endl;

    //calculate amount of parental savings contribution
    parentAmt = savingsAmt * PARENT_SAVINGS;

    //display amount of parental savings contribution
    cout << setw(22) << left << "Savings Bonds/Parents:";
    cout << setw(2) << " $";
    cout << setw(8) << right << parentAmt << endl;
}

```

```
File Edit View Project Build Debug Test Analyze Tools Extensions Window Help Search Visual Studio (Ctrl+Q) MidTermProject1
Debug x86 Local Windows Debugger
MidTermProject1.cpp
MidTermProject1 (Global Scope) calcSavingsBond(double incomeAfterExpenses)

4
5 #include <iostream>
6 #include <iomanip>
7
8 using namespace std;
9
10 double calcIncome(double, double);
11 double calcNetIncome(double);
12 double calcExpenses(double);
13 void calcSavingsBond(double);
14
15 int main()
16 {
17     double payRate;           //variable for
18     double hoursWorked;       //variable for h
19     double income;            //variable for i
20     double netIncome;         //variable for n
21     double incomeAfterExpenses; //variable for i
22
23     //Display introduction
24     cout << "The program will ask the user for the pay rate and hours worked.\n";
25     cout << "The computer will then output the following:\n";
26     cout << "- Income before and after taxes (14% of income)\n";
27     cout << "- Money spent on clothes and other accessories (10% of income)\n";
28     cout << "- Money spent on school supplies (1% of income)\n";
29     cout << "- Money spent to buy savings bonds (25% of remaining income)\n";
30     cout << "- Money parents spent on buying additional savings bonds ($0.50 for each $1.00)\n";
31
32     //Enter the hourly pay rate and hours worked below.
33     cout << "Enter the hourly pay rate and hours worked below.\n";
34     cout << "Hourly Pay Rate: $ ";
35     cin >> payRate;
36     cout << "Hours Worked: ";
37     cin >> hoursWorked;
38
39     //Calculate income
40     double income = calcIncome(payRate, hoursWorked);
41     cout << "Income: $ " << income << "\n";
42
43     //Calculate taxes
44     double taxes = calcExpenses(income);
45     cout << "Taxes: $ " << taxes << "\n";
46
47     //Calculate net income
48     double netIncome = calcNetIncome(income, taxes);
49     cout << "Net Income: $ " << netIncome << "\n";
50
51     //Calculate money spent on clothes and other accessories
52     double clothes = calcExpenses(netIncome);
53     cout << "Clothes/Accessories: $ " << clothes << "\n";
54
55     //Calculate money spent on school supplies
56     double schoolSupplies = calcExpenses(netIncome);
57     cout << "School Supplies: $ " << schoolSupplies << "\n";
58
59     //Calculate money spent to buy savings bonds
60     double savingsBonds = calcSavingsBond(netIncome);
61     cout << "Savings Bonds: $ " << savingsBonds << "\n";
62
63     //Calculate money parents spent on buying additional savings bonds
64     double savingsBondsParents = calcSavingsBond(savingsBonds);
65     cout << "Savings Bonds/Parents: $ " << savingsBondsParents << "\n";
66
67     //Exit the program
68     cout << "Press any key to close this window . . .\n";
69     cin.get();
70 }
```

```
Microsoft Visual Studio Debug Console
The computer will then output the following:
- Income before and after taxes (14% of income)
- Money spent on clothes and other accessories (10% of income)
- Money spent on school supplies (1% of income)
- Money spent to buy savings bonds (25% of remaining income)
- Money parents spent on buying additional savings bonds ($0.50 for each $1.00)

Enter the hourly pay rate and hours worked below.
Hourly Pay Rate: $ 15.50
Hours Worked: 40

Income: $ 620.00
Taxes: $ 86.80
Net Income: $ 533.20
Clothes/Accessories: $ 53.32
School Supplies: $ 5.33
Savings Bonds: $ 118.64
Savings Bonds/Parents: $ 59.32

C:\Users\blair\source\repos\MidTermProject1\Debug\MidTermProject1.exe (process 1444) exited with code 0.
Press any key to close this window . . .
```

```

// Mickie Blair
// CIST 2361 - CRN 63227
// MidTerm Project - Project 2

#include <iostream>
#include <iomanip>

using namespace std;

double calcIncome(double, double);
double calcNetIncome(double);
double calcExpenses(double);
void getSavingsContribution(double, double);
void calcSavingsZero(double);
void calcSavingsLess25(double, double, double);
void calcSavingsGreater25(double, double, double);

int main()
{
    double payRate;           //variable for pay rate
    double hoursWorked;       //variable for hours worked
    double income;            //variable for income
    double netIncome;         //variable for income after taxes
    double incomeAfterExpenses; //variable for income after expenses

    //Display introduction
    cout << "The program will ask the user for the pay rate and hours worked. \n"
         << "The computer will then output the following: \n\n"
         << "- Income before and after taxes (14% of income)\n"
         << "- Money spent on clothes and other accessories (10% of income)\n"
         << "- Money spent on school supplies (1% of income)\n"
         << "- Money spent to buy savings bonds (Amount varies- 0%, <25%, >25%)\n"
         << "- Money parents spent on buying additional savings bonds\n"
         << "  (depends on user amount)\n"
         << endl;

    //Get pay rate and hours worked from user
    cout << "Enter the hourly pay rate and hours worked below.\n" << endl;

    cout << setw(22) << left << "Hourly Pay Rate:";
    cout << setw(1) << " $ ";
    cin >> payRate;

    cout << setw(22) << left << "Hours Worked: ";
    cin >> hoursWorked;

    //display blank line
    cout << endl;

    //set precision
    cout << setprecision(2) << fixed;

    //call function to get income
    income = calcIncome(payRate, hoursWorked);

    //call function to calculate and display taxes then return net income
    netIncome = calcNetIncome(income);

    //display blank line
    cout << endl;
}

```

```

//call function to calculate and display taxes then return net income
incomeAfterExpenses = calcExpenses(netIncome);

//display blank line
cout << endl;

//get savings bonds contribution
getSavingsContribution(incomeAfterExpenses, netIncome);

//call function to calculate savings bond contributions (user and parents)
//calcSavingsBond(incomeAfterExpenses);

return 0;
}

//function to calculate, display and return income using pay rate and hours worked
double calcIncome(double pay, double hours)
{
    double income;                //variable for income

    //calculate income
    income = pay * hours;

    //display income
    cout << setw(22) << left << "Income:";
    cout << setw(2) << " $";
    cout << setw(8) << right << income << endl;

    //return income
    return income;
}

//function to calculate, display and return net income
double calcNetIncome(double income)
{
    double netIncome;              //variable for net income
    double tax;                    //variable for income
    const double TAX_PERCENT = .14; //constant for tax percent

    //calculate income
    tax = income * TAX_PERCENT;

    //display taxes
    cout << setw(22) << left << "Taxes:";
    cout << setw(2) << " $";
    cout << setw(8) << right << tax << endl;

    //calculate net income
    netIncome = income - tax;

    //display net income
    cout << setw(22) << left << "Net Income:";
    cout << setw(2) << " $";
    cout << setw(8) << right << netIncome << endl;

    //return netIncome
    return netIncome;
}

//function to calculate and display amount spent on clothes/accessories and school supplies.
//Return income after expenses

```

```

double calcExpenses(double netIncome)
{
    const double CLOTHES_PERCENT = .10;           //constant - percent spent on clothes
    const double SCHOOL_PERCENT = .01;           //constant - percent spent on school supplies

    double clothesAmt;                           //amount spent on cloths
    double schoolAmt;                             //amount spent on school supplies
    double incomeAfterExpenses;                   //amount of remaining income

    //calculate amount spent on clothes and other expense
    clothesAmt = netIncome * CLOTHES_PERCENT;

    //display money spent on clothes
    cout << setw(22) << left << "Clothes/Accessories:";
    cout << setw(2) << " $";
    cout << setw(8) << right << clothesAmt << endl;

    //calculate amount spent on school supplies
    schoolAmt = netIncome * SCHOOL_PERCENT;

    //display money spent on school supplies
    cout << setw(22) << left << "School Supplies:";
    cout << setw(2) << " $";
    cout << setw(8) << right << schoolAmt << endl;

    //calculate the amount of remaining money
    incomeAfterExpenses = netIncome - clothesAmt - schoolAmt;

    //return netIncome
    return incomeAfterExpenses;
}

//function for savings bonds contribution
void getSavingsContribution(double incomeAfterExpenses, double netIncome)
{
    double savingsPercent;                       //variable for user input of savings contribution

    //display blank line
    cout << endl;

    //ask user for the percent they wish to use to buy savings bonds
    cout << "Percent for Savings Bonds (25% - Enter 25): ";
    cin >> savingsPercent;

    //if - else if statement to call functions for various contributions
    if (savingsPercent == 0)
        calcSavingsZero(incomeAfterExpenses);
    else if (savingsPercent > 0 && savingsPercent < 25)
        calcSavingsLess25(savingsPercent, netIncome, incomeAfterExpenses);
    else if (savingsPercent >= 25)
        calcSavingsGreater25(savingsPercent, netIncome, incomeAfterExpenses);
}

//function to calculate and display amount used on savings and parental savings contribution
//when user contribution is zero percent
void calcSavingsZero(double incomeAfterExpenses)
{
    const double PARENT_SAVINGS = .01; //constant-parental contrib. 1% of income after expenses
    double parentAmt;                  //amount of parental savings contribution

```

```

    //display blank line
    cout << endl;

    //display user contribution to savings bond as zero
    cout << setw(22) << left << "Savings Bonds/Student:";
    cout << setw(2) << " $";
    cout << setw(8) << right << 0.00 << endl;

    //calculate parental contribution to savings bonds
    parentAmt = incomeAfterExpenses * PARENT_SAVINGS;

    //display amount of parental savings contribution
    cout << setw(22) << left << "Savings Bonds/Parents:";
    cout << setw(2) << " $";
    cout << setw(8) << right << parentAmt << endl;
}

//function to calculate and display amount used on savings and parental savings contribution
//when user contribution is greater than zero but less than 25% of net income
void calcSavingsLess25(double savingsPercent, double netIncome, double incomeAfterExpenses)
{
    const double PARENT_NET = .25; //constant-parental contrib. $0.25 per dollar of net income
    const double PARENT_SAVINGS = .01; //constant-parental contrib. 1% of income after expenses

    double savingsAmt; //amount used for savings bond
    double parentAmt; //amount of parental savings contribution

    //display blank line
    cout << endl;

    //calculate amount used for savings bond
    savingsAmt = netIncome * (savingsPercent/100);

    //display money used for savings bond
    cout << setw(22) << left << "Savings Bonds/Student:";
    cout << setw(2) << " $";
    cout << setw(8) << right << savingsAmt << endl;

    //calculate amount of parental savings contribution
    parentAmt = (savingsAmt * PARENT_NET) + (incomeAfterExpenses * PARENT_SAVINGS);

    //display amount of parental savings contribution
    cout << setw(22) << left << "Savings Bonds/Parents:";
    cout << setw(2) << " $";
    cout << setw(8) << right << parentAmt << endl;
}

//function to calculate and display amount used on savings and parental savings contribution
//when user contribution is greater than/equal to 25% of net income
void calcSavingsGreater25(double savingsPercent, double netIncome, double incomeAfterExpenses)
{
    const double PARENT_NET = .40; //constant-parental contrib. $0.40 per dollar of net income
    const double PARENT_SAVINGS = .02; //constant-parental contrib. 2% of income after expenses

    double savingsAmt; //amount used for savings bond
    double parentAmt; //amount of parental savings contribution

    //display blank line
    cout << endl;

    //calculate amount used for savings bond
    savingsAmt = netIncome * (savingsPercent / 100);

```



```

//display money used for savings bond
cout << setw(22) << left << "Savings Bonds/Student:";
cout << setw(2) << " $";
cout << setw(8) << right << savingsAmt << endl;

//calculate amount of parental savings contribution
parentAmt = (savingsAmt * PARENT_NET) + (incomeAfterExpenses * PARENT_SAVINGS);

//display amount of parental savings contribution
cout << setw(22) << left << "Savings Bonds/Parents:";
cout << setw(2) << " $";
cout << setw(8) << right << parentAmt << endl;
}

```

The screenshot shows the Visual Studio IDE with the file `MidTermProject2.cpp` open. The code defines several functions for calculating income, net income, and savings contributions, and a `main` function that prompts the user for input and displays the results. The Debug Console on the right shows the program's execution output, including a list of expenses and the final savings calculations.

Source Code (MidTermProject2.cpp):

```

4
5 #include <iostream>
6 #include <iomanip>
7
8 using namespace std;
9
10 double calcIncome(double, double);
11 double calcNetIncome(double);
12 double calcExpenses(double);
13 void getSavingsContribution(double, double);
14 void calcSavingsZero(double);
15 void calcSavingsLess25(double, double, double);
16 void calcSavingsGreater25(double, double, double);
17
18
19 int main()
20 {
21     double payRate;           //variable for
22     double hoursWorked;       //variable for
23     double income;            //variable for
24     double netIncome;         //variable for
25     double incomeAfterExpenses; //variable for
26
27     //Display introduction
28     cout << "The program will ask the user for the
29     << "The computer will then output the follo
30     << "- Income before and after taxes (14% of income) (

```

Debug Console Output:

```

The computer will then output the following:
- Income before and after taxes (14% of income)
- Money spent on clothes and other accessories (10% of income)
- Money spent on school supplies (1% of income)
- Money spent to buy savings bonds (Amount varies- 0%, <25%, >25%)
- Money parents spent on buying additional savings bonds
  (depends on user amount)

Enter the hourly pay rate and hours worked below.

Hourly Pay Rate:      $   15.50
Hours Worked:         40

Income:               $  620.00
Taxes:                $   86.80
Net Income:           $  533.20

Clothes/Accessories:  $   53.32
School Supplies:      $    5.33

Percent for Savings Bonds (25% - Enter 25): 25
Savings Bonds/Student: $  133.30
Savings Bonds/Parents: $   62.81
C:\Users\bblair\source\repos\MidTermProject2\Debug\MidTermProject2.exe (
Press any key to close this window . . .

```

```

// Mickie Blair
// CIST 2361 - CRN 63227
// MidTerm Project - Project 3

#include <iostream>
#include <iomanip>

using namespace std;

int main()
{
    double loanAmount;           //loan amount
    double interestRate;         //interest rate
    double monthlyPayment;       //monthly payment
    double monthlyInterestRate;  //monthly interest rate
    double monthlyInterestDue;   //interest amount for month
    double principalPayment;     //payment toward principal
    double loanBalance;          //loan amount minus the principal payment

    int numberOfPayments = 1;    //months needed to payment back the loan

    //display introduction
    cout << "Loan Repayment Calculator\n" << endl;
    cout << "The program will ask the user to enter the\n";
    cout << "loan amount, interest rate, and monthly payment.\n";
    cout << "The program will calculate and display the number\n";
    cout << "of months it will take to repay the loan.\n" << endl;

    cout << setprecision(2) << fixed;

    //ask the user for loan amount
    cout << "Loan Amount: \t\t\t\t";
    cout << setw(3) << "$ ";
    cin >> loanAmount;

    //set the loan balance to the beginning loan amount
    loanBalance = loanAmount;

    //display blank line
    cout << endl;

    //ask the user for interest rate
    cout << "Interest Rate (7.2% - Enter 7.2): \t\t";
    cin >> interestRate;

    //display blank line
    cout << endl;

    //ask the user for monthly payment
    cout << "Monthly Payment Amount: \t\t";
    cout << setw(3) << "$ ";
    cin >> monthlyPayment;

    //display blank line
    cout << endl;

    //calculate monthly interest rate
    monthlyInterestRate = ((interestRate / 100) / 12);

    //use function to get monthly interest due
    monthlyInterestDue = loanBalance * monthlyInterestRate;

```

```

//display message that the payment amount is too low
while (monthlyPayment < monthlyInterestDue)
{
    //display monthly interest due
    cout << "\nInterest Due: \t\t\t\t";
    cout << setw(3) << "$ ";
    cout << setw(8) << right << monthlyInterestDue << endl;

    //display blank line
    cout << endl;

    cout << "The monthly Payment is less than the interest due." << endl;
    cout << "The loan could not be repaid with a payment this amount.\n" << endl;
    cout << "Please enter a monthly payment greater than the interest due." << endl;

    //display blank line
    cout << endl;

    //ask the user for monthly payment
    cout << "Monthly Payment Amount: \t\t";
    cout << setw(3) << "$ ";
    cin >> monthlyPayment;

    //calculate monthly interest rate
    monthlyInterestRate = ((interestRate / 100) / 12);

    //use function to get monthly interest due
    monthlyInterestDue = loanBalance * monthlyInterestRate;
}

do
{
    //calculate monthly interest due
    monthlyInterestDue = loanBalance * monthlyInterestRate;

    //calculate payment information
    principalPayment = monthlyPayment - monthlyInterestDue;

    //calculate the loan balance
    loanBalance -= principalPayment;

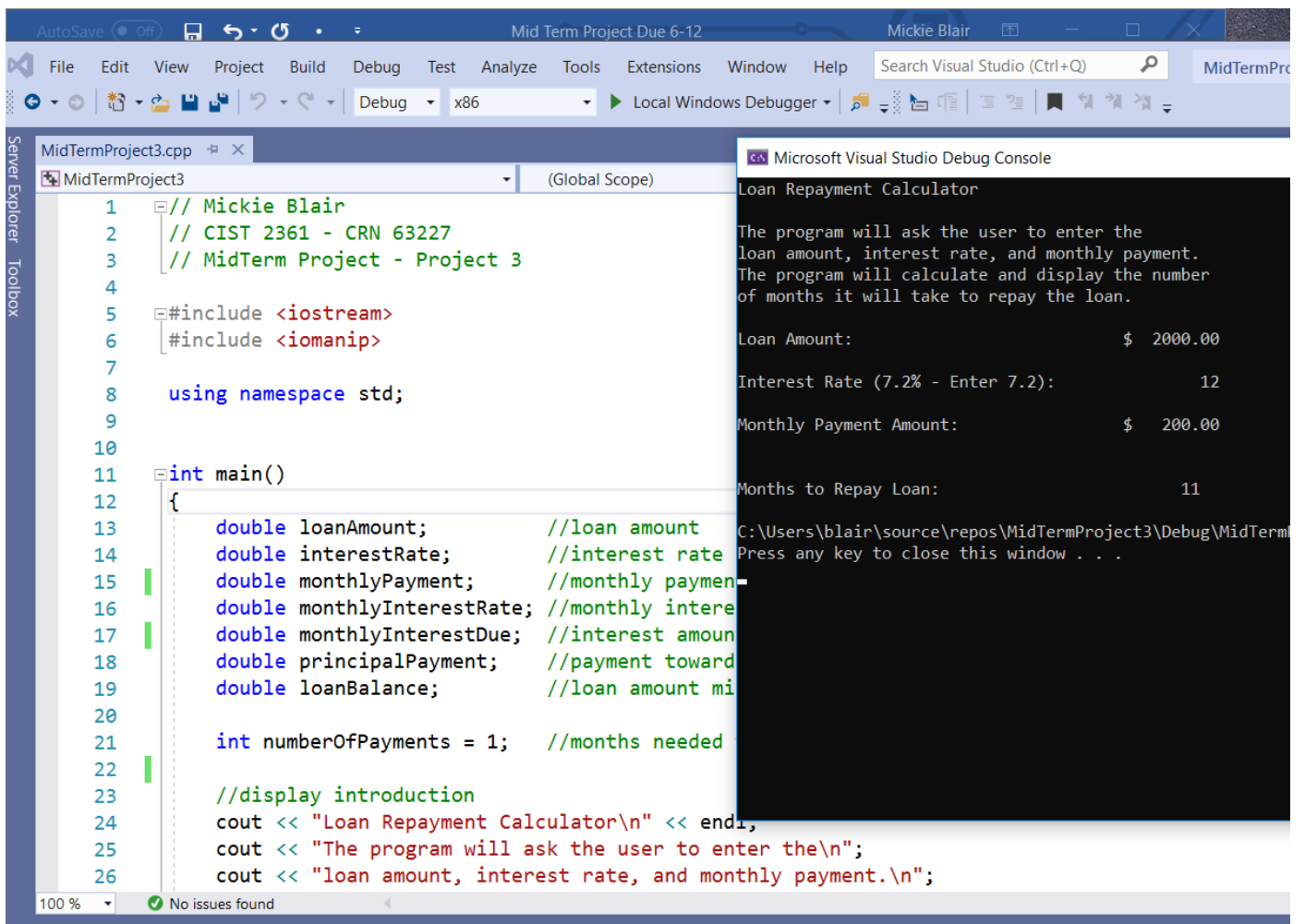
    if (loanBalance > 0)
    {
        //increment payment number
        numberOfPayments++;
    }
}
while (loanBalance > 0);

//display blank line
cout << endl;

//number of months it will take to pay off the loan
cout << "Months to Repay Loan: \t\t\t";
cout << setw(8) << right << numberOfPayments << endl;

return 0;
}

```



```

// Mickie Blair

// CIST 2361 - CRN 63227
// MidTerm Project - Project 3

#include <iostream>
#include <iomanip>

using namespace std;

double calcMinPayment(double, double);

int main()
{
    double loanAmount;           //loan amount
    double interestRate;         //interest rate
    double minimumPayment;       //minimum monthly payment
    double monthlyPayment;       //monthly payment
    double monthlyInterestRate;  //monthly interest rate
    double monthlyInterestDue;   //interest amount for month
    double principalPayment;     //payment toward principal
    double loanBalance;          //loan amount minus the principal payment
    int numberOfPayments = 1;    //months needed to payment back the loan
    double totalInterest = 0;    //total amount of loan over the entire period
    double lastPayment;          //loan amount plus interest amount due

    //display introduction
    cout << "Loan Repayment Calculator\n" << endl;
    cout << "The program will ask the user to enter the\n";
    cout << "loan amount, interest rate, and monthly payment.\n";
    cout << "The program will calculate and display the following:\n";
    cout << " - number of months it will take to repay the loan"<< endl;
    cout << " - amount of last payment" << endl;
    cout << " - total interest paid\n" << endl;

    cout << setprecision(2) << fixed;

    //ask the user for loan amount
    cout << "Loan Amount: \t\t\t\t";
    cout << setw(3) << "$ ";
    cin >> loanAmount;

    //display blank line
    cout << endl;

    //ask the user for interest rate
    cout << "Interest Rate (7.2% - Enter 7.2): \t\t";
    cin >> interestRate;

    //display blank line
    cout << endl;

    //calculate monthly interest rate
    monthlyInterestRate = ((interestRate / 100) / 12);

    //call function to calculate minimum monthly Payment
    minimumPayment = calcMinPayment(loanAmount, monthlyInterestRate);

    //display the minimum payment
    cout << "Minimum Payment Amount: \t\t";
    cout << setw(3) << "$ ";
    cout << minimumPayment;
}

```

```

//display blank line
cout << endl;

//ask the user for monthly payment
cout << "\nMonthly Payment Amount: \t\t";
cout << setw(3) << "$ ";
cin >> monthlyPayment;

//display blank line
cout << endl;

//display message that the payment amount is too low
while (monthlyPayment < minimumPayment)
{
    cout << "The monthly payment is less than the minimum payment." << endl;
    cout << "Please enter a monthly payment greater than or" << endl;
    cout << "equal to the minimum payment." << endl;

    //display blank line
    cout << endl;

    //ask the user for monthly payment
    cout << "Monthly Payment Amount: \t\t";
    cout << setw(3) << "$ ";
    cin >> monthlyPayment;
}

//set the loan balance to the beginning loan amount
loanBalance = loanAmount;

//use function to get monthly interest due
monthlyInterestDue = loanBalance * monthlyInterestRate;

while (loanBalance > monthlyPayment)
{
    //calculate the monthly interest due
    monthlyInterestDue = loanBalance * monthlyInterestRate;

    //calculate payment information
    principalPayment = monthlyPayment - monthlyInterestDue;

    //calculate the loan balance
    loanBalance -= principalPayment;

    //calculate total interest
    totalInterest += monthlyInterestDue;

    //increment payment number
    numberOfPayments++;
}

//display blank line
cout << endl;

//display original loan amount
cout << "Loan Amount: \t\t\t\t";
cout << setw(2) << "$ ";
cout << setw(8) << right << loanAmount << endl;

//display blank line
cout << endl;

```

```

//calculate the monthly interest due on the remaining balance
monthlyInterestDue = loanBalance * monthlyInterestRate;

//adding last interest amount to total interest
totalInterest += monthlyInterestDue;

//set last payment equals to balance due
lastPayment = loanBalance;

//display total interest paid
cout << "Total Interest Paid: \t\t\t";
cout << setw(2) << "$ ";
cout << setw(8) << right << totalInterest << endl;

//display blank line
cout << endl;

//display last Payment
cout << "Final Payment: \t\t\t\t";
cout << setw(2) << "$ ";
cout << setw(8) << right << lastPayment << endl;

//display blank line
cout << endl;

//number of months it will take to pay off the loan
cout << "Months to Repay Loan: \t\t\t";
cout << setw(8) << right << numberOfPayments << endl;

return 0;
}

//function to calculate monthly minimum payment
double calcMinPayment(double loanAmount, double monthlyInterestRate)
{
    double minimum;           //minimum payment

    minimum = (loanAmount * monthlyInterestRate) + 0.01;

    return minimum;
}

```

Visual Studio interface showing a C++ program for a Loan Repayment Calculator. The code is in `MidTermProjectPartBcpp.cpp` and the output is in the `Microsoft Visual Studio Debug Console`.

```
4
5 #include <iostream>
6 #include <iomanip>
7
8 using namespace std;
9
10 double calcMinPayment(double, double)
11
12 int main()
13 {
14     double loanAmount;
15     double interestRate;
16     double minimumPayment;
17     double monthlyPayment;
18     double monthlyInterestRate;
19     double monthlyInterestDue;
20     double principalPayment;
21     double loanBalance;
22     int numberOfPayments = 1;
23     double totalInterest = 0;
24     double lastPayment;
25
26     //display introduction
27     cout << "Loan Repayment Calculator\n";
28     cout << "The program will ask the user to enter the\n";
29     cout << "loan amount, interest rate, and monthly payment.\n";
30     cout << "The program will calculate and display the following:\n";
```

The output in the Debug Console shows the program's execution results:

```
Loan Repayment Calculator

The program will ask the user to enter the
loan amount, interest rate, and monthly payment.
The program will calculate and display the following:
- number of months it will take to repay the loan
- amount of last payment
- total interest paid

Loan Amount: $ 8000.00
Interest Rate (7.2% - Enter 7.2): 12
Minimum Payment Amount: $ 80.01
Monthly Payment Amount: $ 250.00
Loan Amount: $ 8000.00
Total Interest Paid: $ 1689.92
Final Payment: $ 188.04
Months to Repay Loan: 39

C:\Users\blair\source\repos\MidTermProject3PartB\Debug\MidTerm
Press any key to close this window . . .
```