Connecting Intelligence

Institute of Computer Engineering Technology

iCET Certified Developer

COURSE WORK

Assignement	Programming Fundamentals
Batch No	iCD 113
Name	Methods in JAVA
Ass. Date	16th September 2024

TAX Calculator

Case Study

Taxation is done in different ways in several categories. It is difficult to calculate manually and you are assigned to create a tax calculator to make it easier. When the amount earned under each tax category is input, the system should calculate the amount of ta to be paid and give it as output. Also, this system has the ability to calculate leasing payments.

Figure 1 – Use case Diagram

Requirements

You are supposed to create a Java application to calculate TAX. In the application, you need to implement the following use cases.

When you run the application, you should come up with something similar to the following Command Line Interface (CLI), where the user can enter an option number that he wants to execute. This will be the Home Page of the application that you will be developing.(Figure 2)

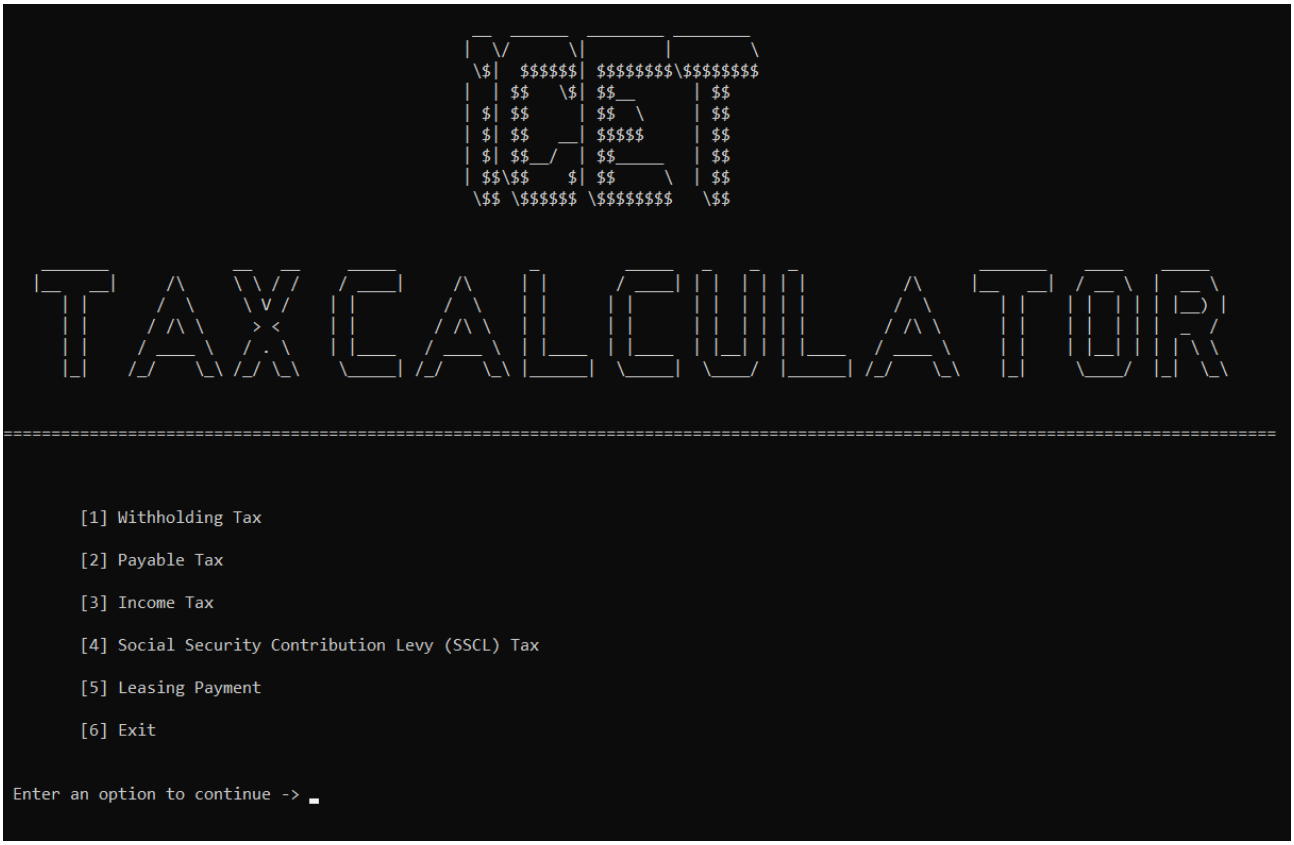

Figure 2 - Home Page of the TAX CALCULATOR

1. Withholding Tax

There are three categories of Withholding Tax. When the user selects the Withholding Tax category correctly, prompt the window related to the category. The withholding Tax page is given below(Figure 3) and the user can enter an option number that he wants to execute.

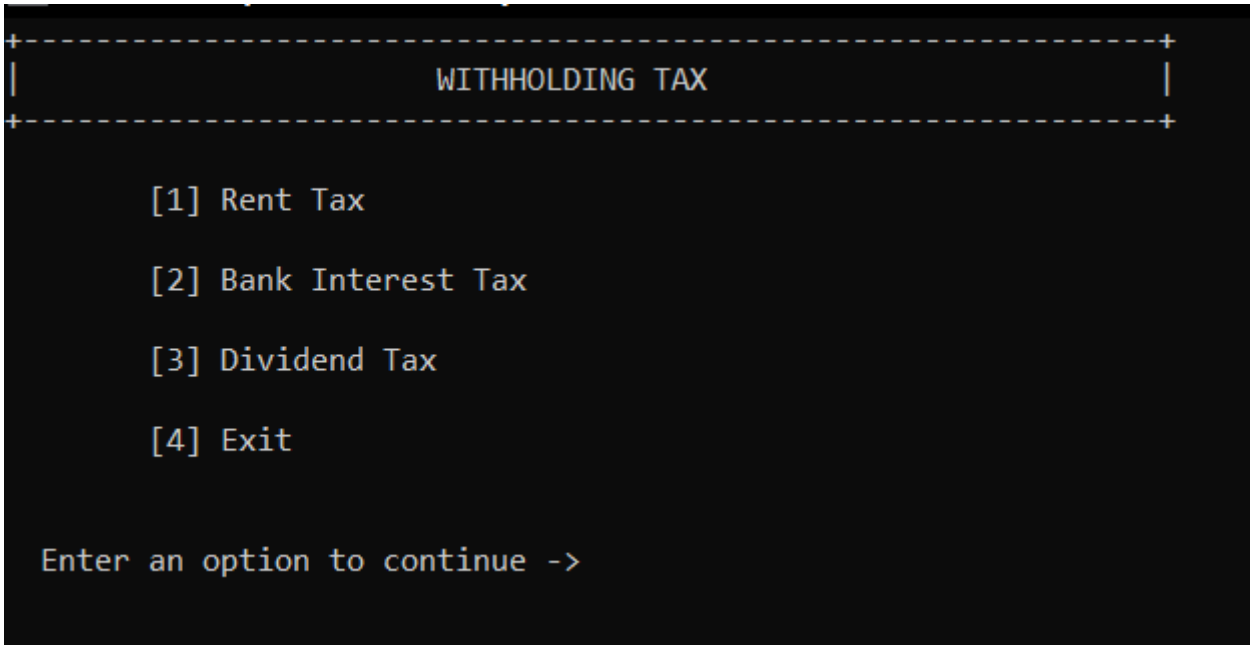

Figure 3 - Home Page of the Withholding TAX

I. Rent Tax (Demo)

Rent Tax is a tax that is collected by the organization when a person provides a service to the organization. In Rent Tax, 10% is charged for all payments above Rs.100 000 and no tax is charged up to Rs.100 000. If the service value is less than Rs.100 000, print “You don’t have to pay Rent Tax...”. (Figure 6)

When the user inputs the payment amount, the system should count the amount of the Rent Tax and display it.

Input values should be validated, which means input values should be greater than 0(can not input negative values). If the user has entered an invalid value, the user should be kept prompted until he enters a valid value (Figure 5).

Once the system calculates Rent Tax successfully, a message should prompt to ask whether the user wants to calculate Rent Tax again or go back to the main menu (Figure 4). If the user input “Y”, the user can calculate Rent Tax again. If the user inputs “N”, the user can go to the Home page.

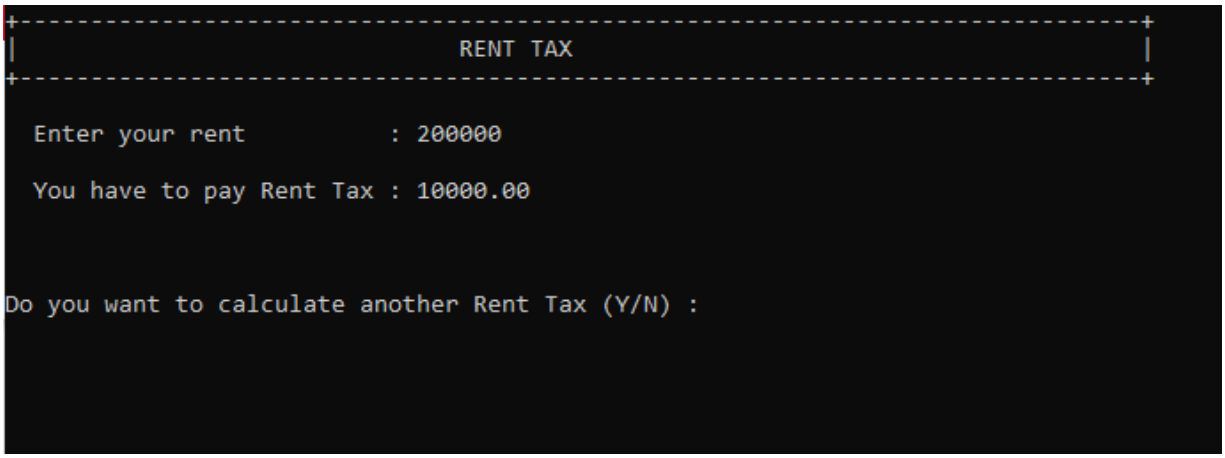

Figure 4 - Rent Tax calculate

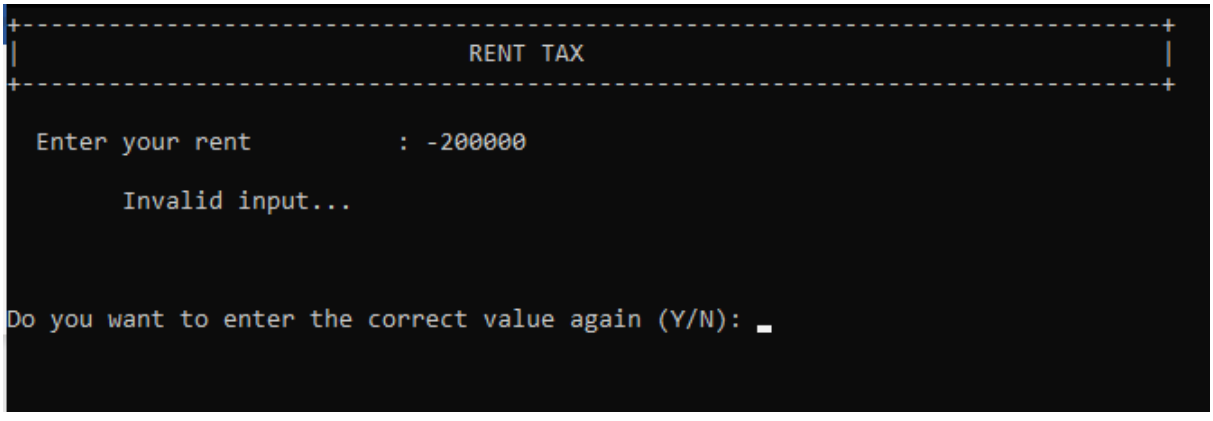

Figure 5 – User Input Validate

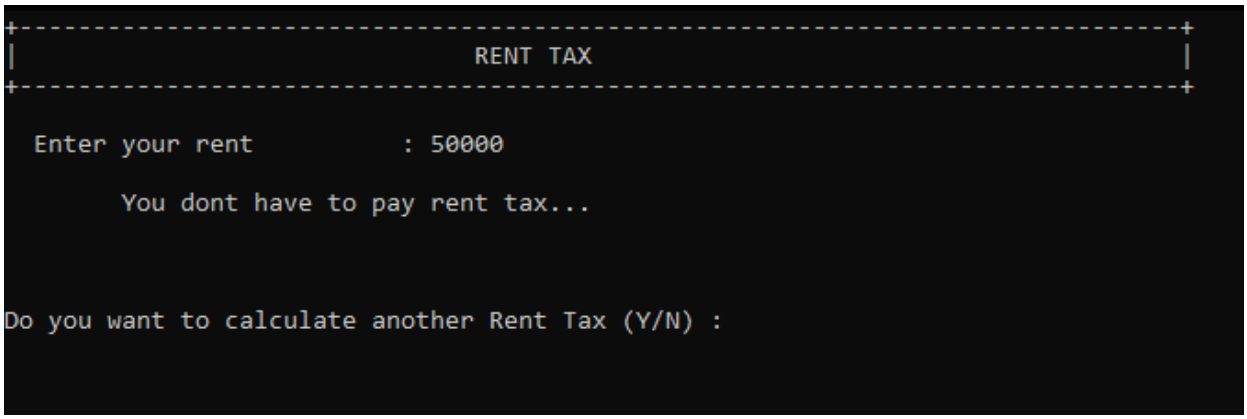

Figure 6 – When service charge less than Rs.100 000

II. Bank Interest Tax (Demo)

Bank Interest Tax is charged from the annual bank interest. Bank Interest Tax is 5% of annual interest. When the user inputs the annual bank interest amount, the system should count the amount of the Bank Interest Tax and display it. Values should be validated as previously. Once calculate the Tax value is correct, it should prompt whether to calculate Bank Interest Tax again or go back to the main menu.

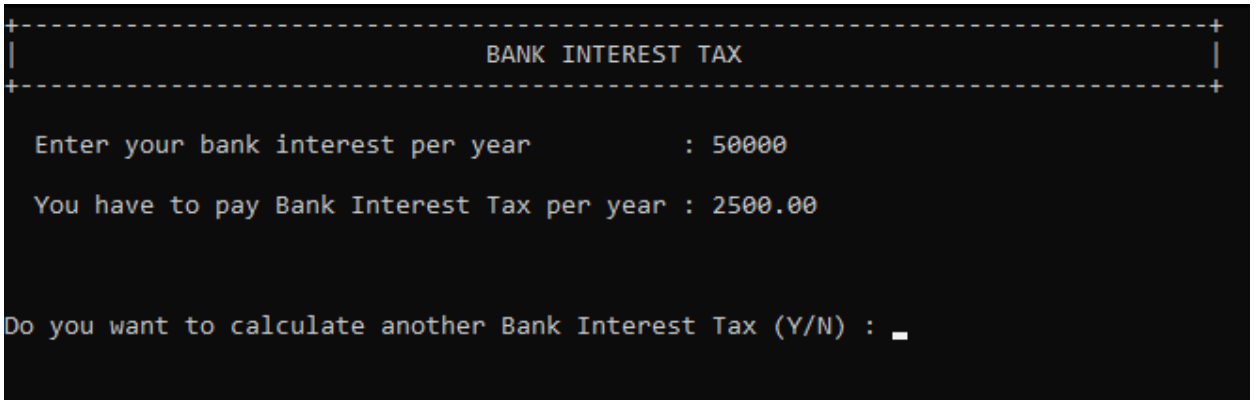

Figure 7 – Bank Interest Tax

III. Dividend Tax (Demo)

Dividend Tax is a tax that is collected from stock market dividends. In Dividend Tax, 14% is charged for all dividends above Rs.100 000 and no tax is charged up to Rs.100 000. If the dividend value is less than Rs.100 000, print “You don’t have to pay Dividend Tax….”. Values should be validated as previously. Once calculate the Tax value is correct, it should prompt whether to calculate Dividend Tax again or go back to the main menu.

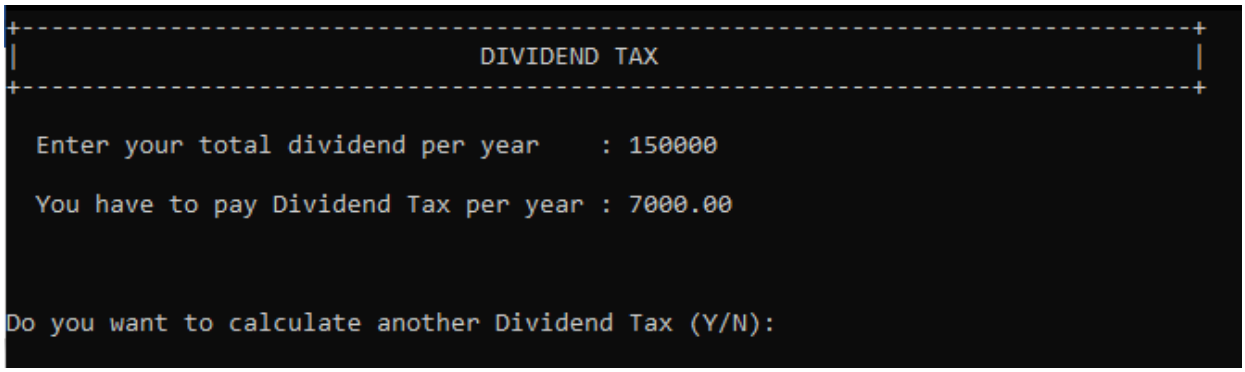

Figure 8 - Dividend Tax Calculator

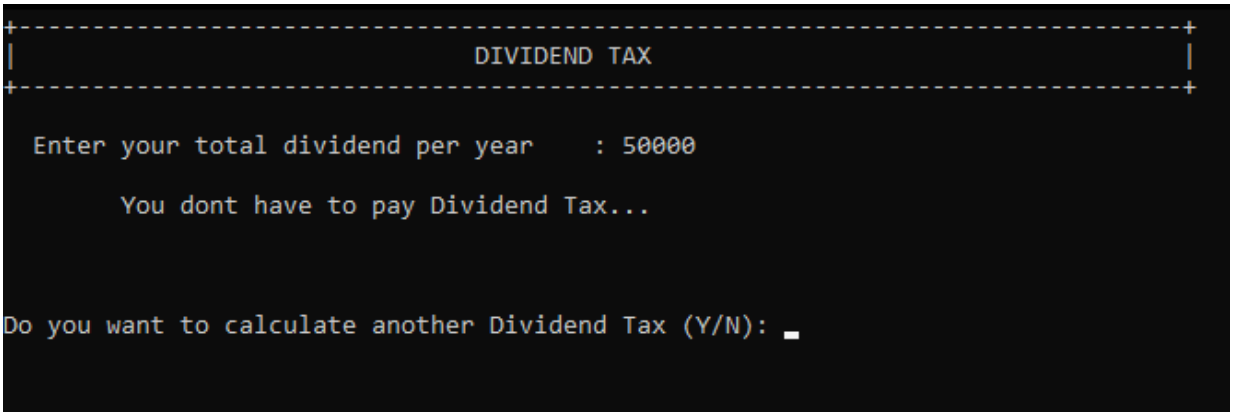

Figure 9 – When dividend TAX less than Rs.100 000

2. Payable Tax (Demo)

The company keeps a percentage of an employee's salary and pays it as a tax, it is called Payable Tax. The percentage of monthly Payable Tax is given below.

- Payable Tax is charged above Rs.100 000 and no tax is charged up to Rs.100 000.
- Rs.100 000 to the 1st Rs.41 667 (100 000 – 141 667) - 6%
- Rs.141 667 to the 2nd Rs.41 667 (141 667 – 183 333) - 12%
- Rs.183 333 to the 3rd Rs.41 667 (183 333 – 225 000) - 18%
- Rs. 225 000 to the 4th Rs.41 667 (225 000 – 266 667) - 24%
- Rs.266 667 to the 5th Rs.41 667 (266 667 – 308 333) - 30%
- More than Rs.308 333 - 36%

Monthly Income	Tax rate	Tax
100,000	NIL	
141,667	6%	2,500
183,333	12%	7,500
225,000	18%	15,000
266,667	24%	25,000
308,333	30%	37,500
350,000	36%	52,500
450,000	36%	88,500
550,000	36%	124,500
650,000	36%	160,500
750,000	36%	196,500
900,000	36%	250,500
1,000,000	36%	286,500

Several monthly incomes and the total Payable Tax are given in the above table.

Ex:- If an employee receives Rs.900 000 salary per month, his total amount of monthly Payable Tax is Rs.250 500.

Values should be validated as previously. Once calculate the Tax value is correct, it should prompt whether to calculate Payable Tax again or go back to the main menu.

```
+--------------------------------------------------------------------------+
|                              PAYABLE TAX                                 |
+--------------------------------------------------------------------------+

  Enter your employee payment per month : 50000

        You don't have to pay Payable Tax...



Do you want to calculate another Payable Tax (Y/N):
```

Figure 10 - Payable Tax

```
+--------------------------------------------------------------------------+
|                              PAYABLE TAX                                 |
+--------------------------------------------------------------------------+

  Enter your employee payment per month : 300000

  You have to pay Payable Tax per month : 35000.00


Do you want to calculate another Payable Tax (Y/N): _
```

Figure 11 – When Payable TAX less than Rs.100 000

3. Income Tax (Demo)

Income Tax is the amount of tax paid on the annual income of the person. The percentage of yearly Income Tax is given below.

- Income Tax is charged above Rs.1 200 000 and no tax is charged up to Rs.1 200 000.
- Rs.1 200 000 to the 1st Rs.500 000 (1 200 000 – 1 700 000) - 6%
- Rs.141 667 to the 2nd Rs. 500 000 (1 700 000 – 2 200 000) - 12%
- Rs.183 333 to the 3rd Rs. 500 000 (2 200 000 – 2 700 000) - 18%
- Rs. 225 000 to the 4th Rs. 500 000 (2 700 000 – 3 200 000) - 24%
- Rs.266 667 to the 5th Rs. 500 000 (3 200 000 – 3 700 000) - 30%
- More than Rs. 3 700 000 - 36%

Values should be validated as previously. Once calculate the Tax value is correct, it should prompt whether to calculate Payable Tax again or go back to the main menu.

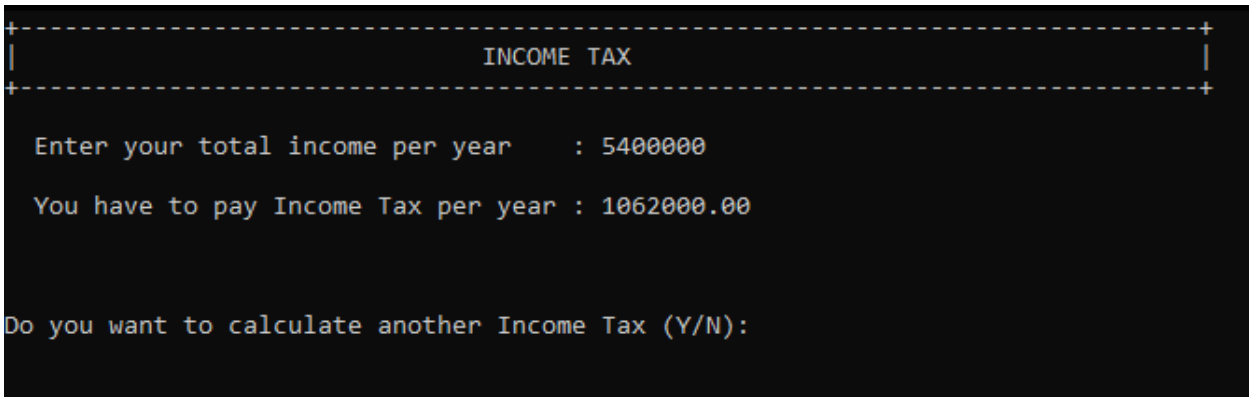

Figure 12 - Income Tax

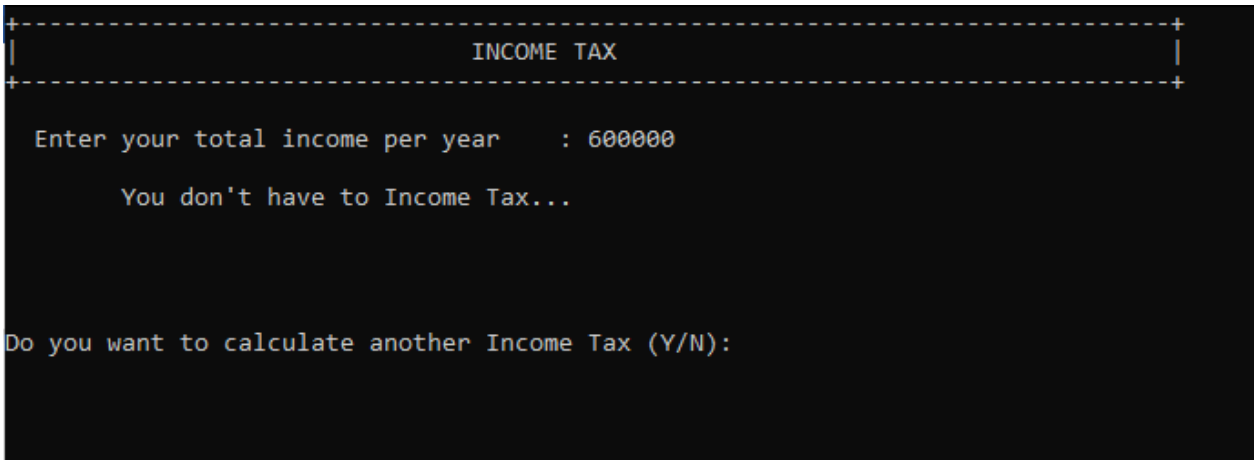

Figure 13 – When Income TAX less than Rs.1 200 000

4. Social Security Contribution Levy (SSCL) Tax (Demo)

A Social Security Contribution Levy (SSCL) is a payable tax imposed on importers, manufacturers, service providers, wholesalers, and retailers. SSCL Tax calculates in two steps. The steps are given below.

Step 1

Add sale tax to the value. (Sale Tax -2.5%)

Ex:- value of Goods -100 000

Sale tax - 100 000*2.5% = 2 500

Value of Goods after sale tax added – 100 000 + 2 500 = 102 500

Step 2

Add VAT to the Value of Goods after sale tax added.(VAT -15%)

Ex:- Value of Goods after sale tax added – 102 500

Value of Goods after VAT added – 102 500*15% = 15 375

Total SSCL Tax = Sale Tax + VAT

= 2 500 + 15 375 = 17 875

User input values should be validated as previously. Once calculate the Tax value is correct, it should prompt whether to calculate SSCL Tax again or go back to the main menu.

```
+--------------------------------------------------------------------------+
|              SOCIAL SECURITY CONTRIBUTION LEVY (SSCL) TAX                |
+--------------------------------------------------------------------------+

  Enter value of Good or Service : 100000

  You have to pay SSCL Tax       : 17875.00


Do you want to calculate another SSCL Tax (Y/N):
```

Figure 14 - SSCL Tax

5. Leasing Payment

When the user input the lease amount, annual interest and the number of year, we can count monthly leasing installment by using leasing formula.

Lease Payment Calculation Formula

Monthly installment = $A \times i \; / \; (1 - (1 / (1 + i)^{n}))$

A – lease amount	n – number of month
i - annual interest rate / 12	

There are three categories of calculate Leasing Payments. When the user selects the Leasing Payment category correctly, prompt the window related to the category. The Leasing Payment page is given below(Figure 15) and the user can enter an option number that he wants to execute.

```
+-------------------------------------------------------------------------------+
|                              Leasing Payment                                  |
+-------------------------------------------------------------------------------+

       [1] Calculate Monthly Installment

       [2] Search Leasing Category

       [3] Find Leasing Amount

       [4] Exit

 Enter an option to continue ->
```

Figure 15 - Leasing Payment Home Page

I. Calculate Monthly Installment (Demo)

First, the user should enter a valid lease amount. Otherwise, it should handle like previously. Once the user has entered a valid lease amount, the user should enter the annual interest rate and the number of years. The annual interest rate must be greater than 0% and the maximum number of the year is 5. If the year is greater than 5, then it should be notified as well as follows(Figure 17).

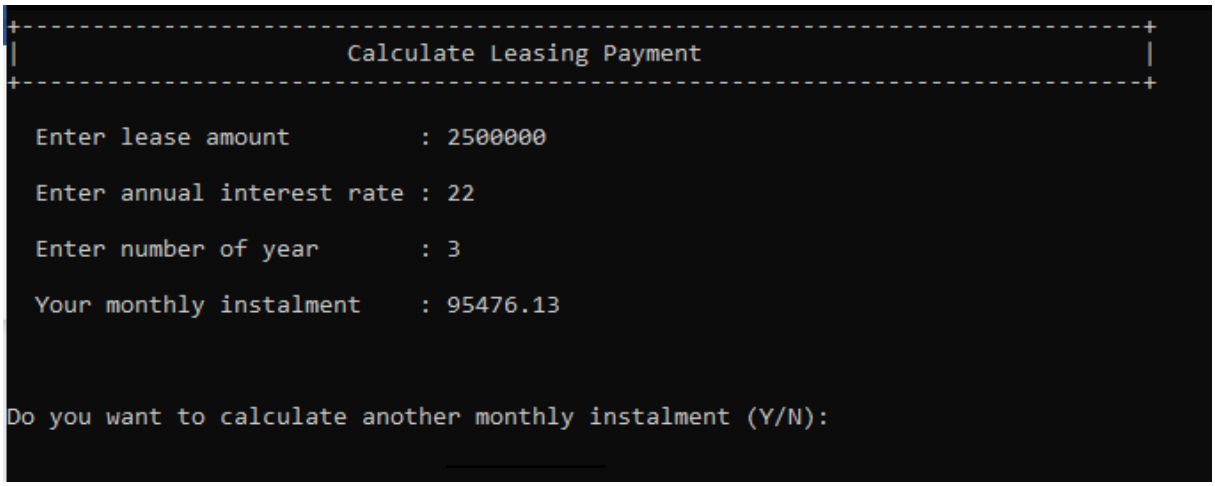

Figure 16 - Calculate Monthly Installment

Once calculate the Monthly Installment is correctly, it should prompt whether to calculate the Monthly Installment again or go back to the main menu.

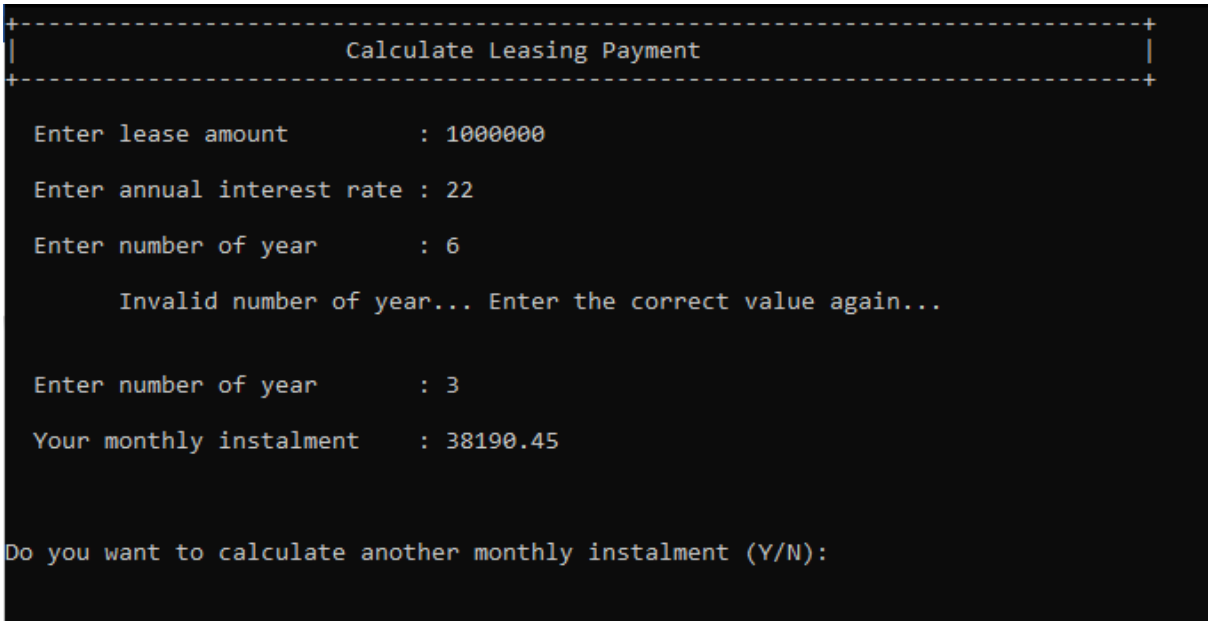

Figure 17 - When input incorrect year

II. Search Leasing Category (Demo)

First, the user should enter the lease amount and the annual interest rate. The annual interest rate must be greater than 0%. The system should display monthly payments of 3 years,4 years, and 5 years of leasing plans.

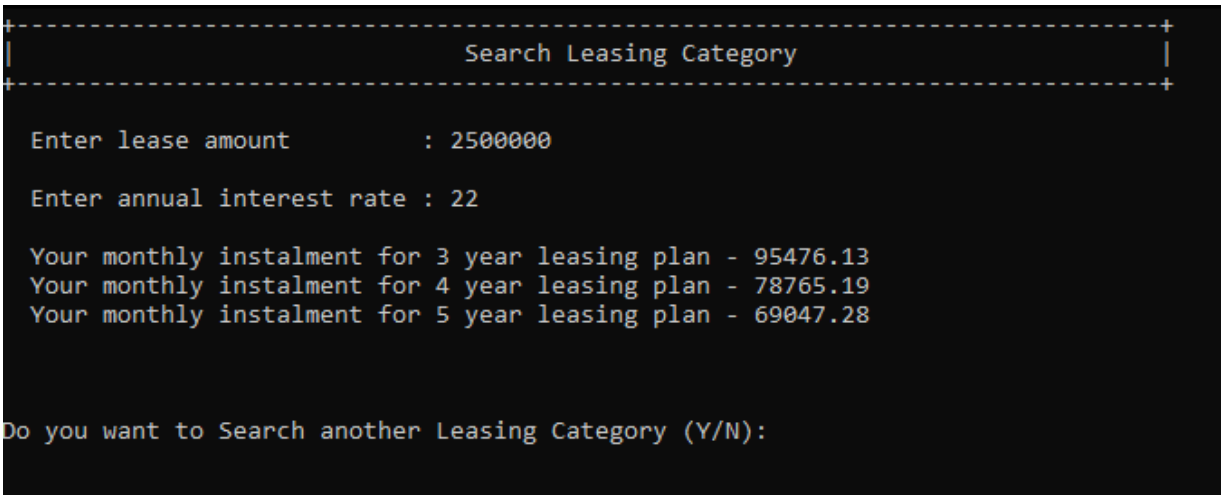

Figure 18 - Search Leasing Category

III. Find the Leasing Amount (Demo)

First, the user should enter the monthly lease payment amount user can pay, the annual interest rate, and the number of years. The annual interest rate must be greater than 0% and the maximum number of the year is 5. Finally , system should calculate the total leasing amount available from the leasing company.

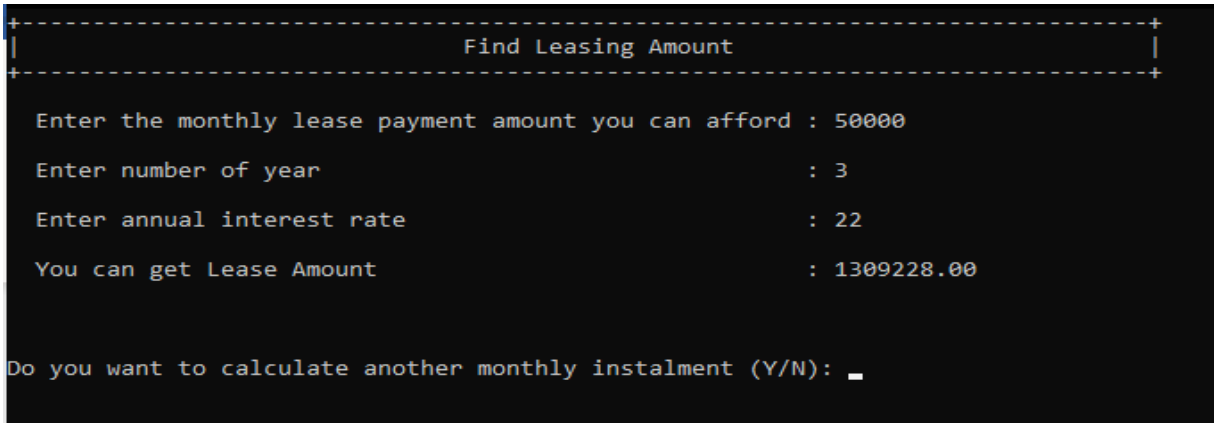

Figure 19 - Find Leasing Amount

Guideline

- Refer to the Coursework Guidelines at the end to understand the specific guidelines to be followed when developing the project required.
- You can't create classes except for the class that holds the main method.
- Use the Scanner class to get input from the command-line-interface.
- All validations that have been mentioned in this document should be implemented
- It is not required to clear the command line screen while navigating between the options. But doing so highly recommend it.
- The code to clear the command line from inside a Java application is as follows. You can use this code when you need to clear the command line.

```
public final static void clearConsole() {
    try {
        final String os = System.getProperty("os.name");
        if (os.contains("Windows")) {
            new ProcessBuilder("cmd", "/c", "cls").inheritIO().start().waitFor();
        } else {
            System.out.print("\033[H\033[2J");
            System.out.flush();
          }
      } catch (final Exception e) {
          e.printStackTrace();
          // Handle any exceptions.
       }
  }
```

- You can create as many methods as you wish in the only class that you have.
- Demo Videos are given at relevant places for you to understand the coursework requirement better and Demo videos may help you to clarify your doubts to some extent.
- Submission - Your work is to be made into a .zip file with the file name format [BatchNumber_ Name], and submit on or before the deadline.
- If you still have any questions, feel free to question.