Download the Netbeans project "FutureInvestmentsStarter" from Moodle. This project contains two classes (in a package called *sd4.dobs.ui*):

Console – This class is used for input/output from/to the console. You will not need to make any changes to this class.

Main – This is the main/driver class for the application. When you run this application, it will continually prompt you to enter a monthly investment amount, yearly interest rate and a number of years (that the amount will be invested for). The user can signal their intent to stop entering data (investments) at the prompt.

You must add another class (called **Investment** to the project). Add this class to the *sd4.dobs.model* package in the project.

Add the following three (*private*) instance variables to this class:

- monthlyInvestment (a *double*)
- yearlyInterestRate (a *double*)
- years (an *int*).

You must add appropriate getters/setters for these three instance variables to the **Investment** class.

You must also add two constructors to this class.

- The first must be the default (no-args) constructor and will initialise the three instance variables their default variables.
- The second constructor will accept values for a monthly investment, a yearly interest rate and a number of years. You must use these values to initialise the instance variables for a given object.

You must finally add the following utility method to the **Investment** class.

```
public double calculateFutureValue() {

    // convert yearly values to monthly values
    double monthlyInterestRate = yearlyInterestRate / 12 / 100;
    int months = years * 12;

    // calculate the future value
    double futureValue = 0;
    for (int i = 1; i <= months; i++) {
        futureValue += monthlyInvestment;
        double monthlyInterestAmount = futureValue * monthlyInterestRate;
        futureValue += monthlyInterestAmount;
    }

    return futureValue;
}
```

This method will calculate and return (as a double) the future value of a given investment.

You may (if you wish) override the *toString* method in the class as it could prove useful.

To Do (in the Main class):

1. Add an **ArrayList** to store Investment objects.

2. Create five Investment objects and add them to the **ArrayList**. The user must enter the data for these objects via the keyboard. Test data appears on the next page.

3. Output the details of the five investment objects along with their future value.

4. Increase the interest rate for each investment object by 2% and again display the details of the five investment objects (including their new future value).

5. Remove from the **ArrayList**, any investment object which has a future value of below €25,000. Display the details of the remaining objects left in the **ArrayList**.

*All input/output should be achieved using the various static methods of the **Console** class (which I have provided).*

Ensure that the appearance of any monetary and percentage values in your output is formatted appropriately (the NumberFormat class should help with this).

*Ensure that your **ArrayList** can only store **Investment** objects.*

```
Welcome to the Future Value Calculator

Enter monthly investment:   100
Enter yearly interest rate: 8.0
Enter number of years:      10
Continue? (y/n): y

Enter monthly investment:   150
Enter yearly interest rate: 8.0
Enter number of years:      10
Continue? (y/n): y

Enter monthly investment:   50
Enter yearly interest rate: 1.25
Enter number of years:      15
Continue? (y/n): y

Enter monthly investment:   500
Enter yearly interest rate: 12
Enter number of years:      25
Continue? (y/n): y

Enter monthly investment:   35
Enter yearly interest rate: 6.5
Enter number of years:      15
Continue? (y/n): n

Future Value Calculations
Inv/Mo. Rate    Years   Future Value
€100.00 8.00%   10      €18,416.57
€150.00 8.00%   10      €27,624.85
€50.00  1.25%   15      €9,903.71
€500.00 12.00%  25      €948,817.55
€35.00  6.50%   15      €10,681.61



Future Value Calculations If Rate Increased by 2%
Inv/Mo. Rate    Years   Future Value
€100.00 8.16%   10      €18,584.33
€150.00 8.16%   10      €27,876.49
€50.00  1.27%   15      €9,922.96
€500.00 12.24%  25      €990,368.11
€35.00  6.63%   15      €10,803.14


Future Value Calculations If We Remove All Investments < 25000
Inv/Mo. Rate    Years   Future Value
€150.00 8.16%   10      €27,876.49
€500.00 12.24%  25      €990,368.11



Bye!
```