CS1073
FR03B
Lab #4

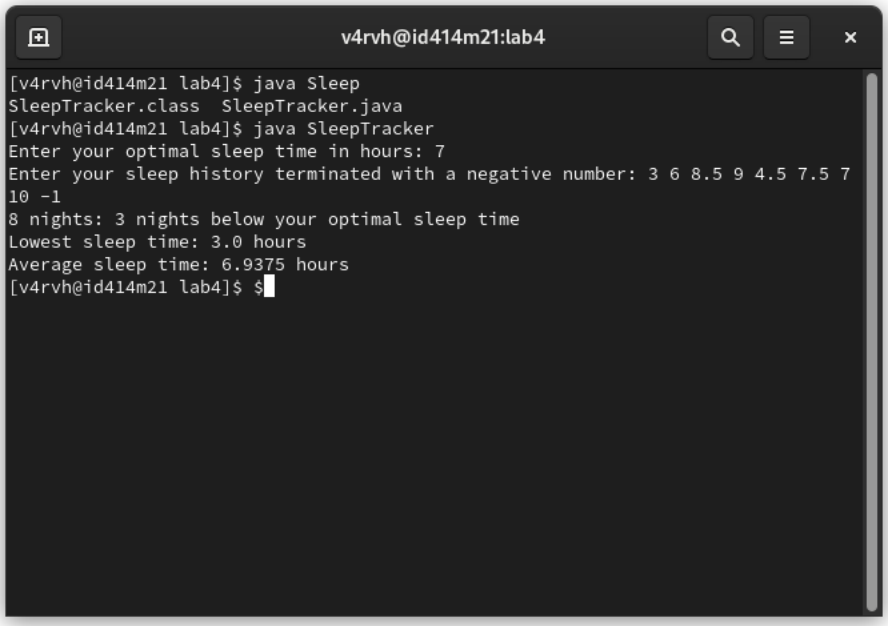
Daniyal Khan
3765942

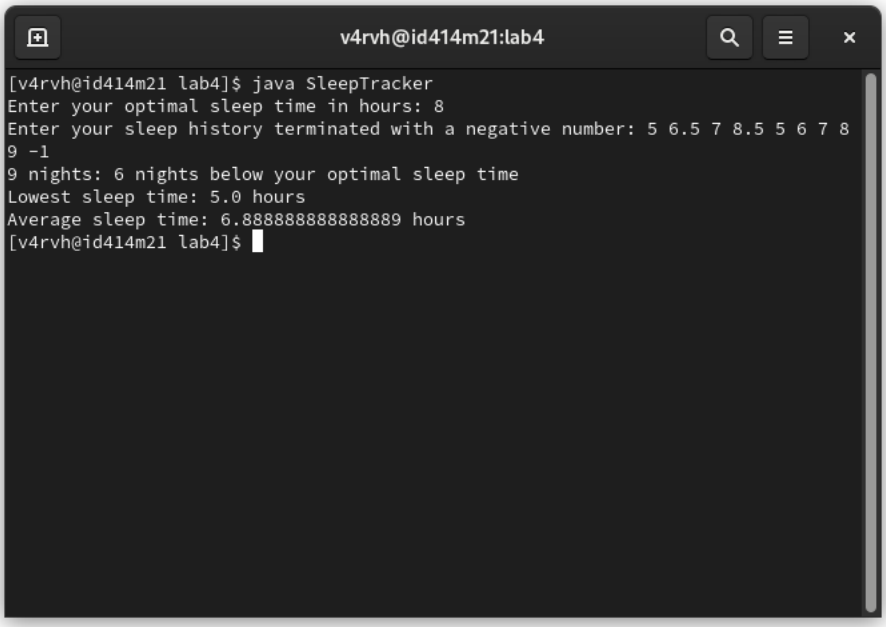
Question I:

```
/**
The class is used to track the sleep of user
@author Daniyal Khan 3765942
*/

import java.util.Scanner;

public class SleepTracker {

     public static void main(String[] args) {

     Scanner scan = new Scanner(System.in);
     System.out.print("Enter your optimal sleep time in hours:
");
     double optimalTime = scan.nextDouble();

     int nightCount = 0;
     int belowOptimalSleep = 0;
     double totalSleepTime = 0;
     double lowestSleepTime = 0;

     System.out.print("Enter your sleep history terminated with
a negative number: ");
     double sleepHistory = scan.nextDouble();
     lowestSleepTime = sleepHistory;

     while (sleepHistory != -1) {
          if (optimalTime > sleepHistory) {
               belowOptimalSleep++;
          }
          if (sleepHistory <= lowestSleepTime) {
               lowestSleepTime = sleepHistory;
          }
          totalSleepTime += sleepHistory;
          nightCount++;
          sleepHistory = scan.nextDouble();
     }

     double averageSleepTime =
(double)totalSleepTime/nightCount;
```

```
     System.out.println(nightCount + " nights: " +
belowOptimalSleep + " nights below your optimal sleep time");
     System.out.println("Lowest sleep time: " + lowestSleepTime
+ " hours");
     System.out.println("Average sleep time: " +
averageSleepTime + " hours");
     }
}
```

Output:




v4rvh@id414m21:lab4
[v4rvh@id414m21 lab4]$ java SleepTracker
Enter your optimal sleep time in hours: 8
Enter your sleep history terminated with a negative number: 5 6.5 7 8.5 5 6 7 8
9 -1
9 nights: 6 nights below your optimal sleep time
Lowest sleep time: 5.0 hours
Average sleep time: 6.888888888888889 hours
[v4rvh@id414m21 lab4]$

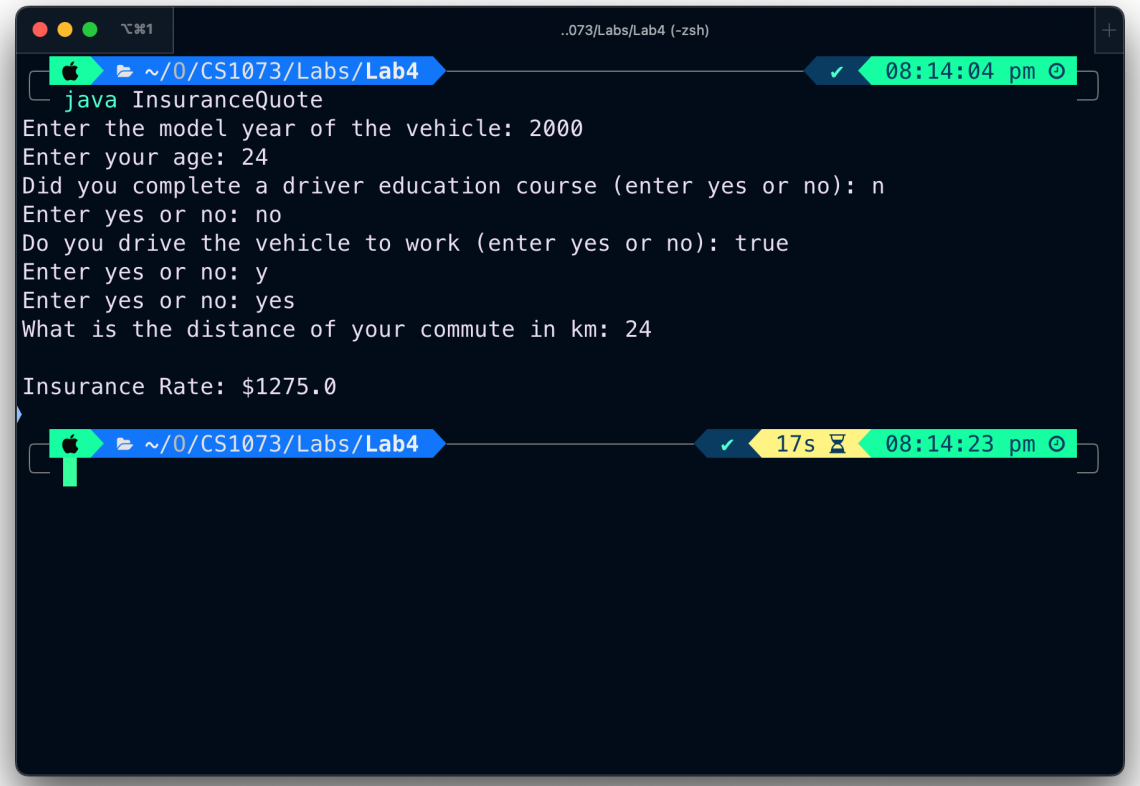
Question II:

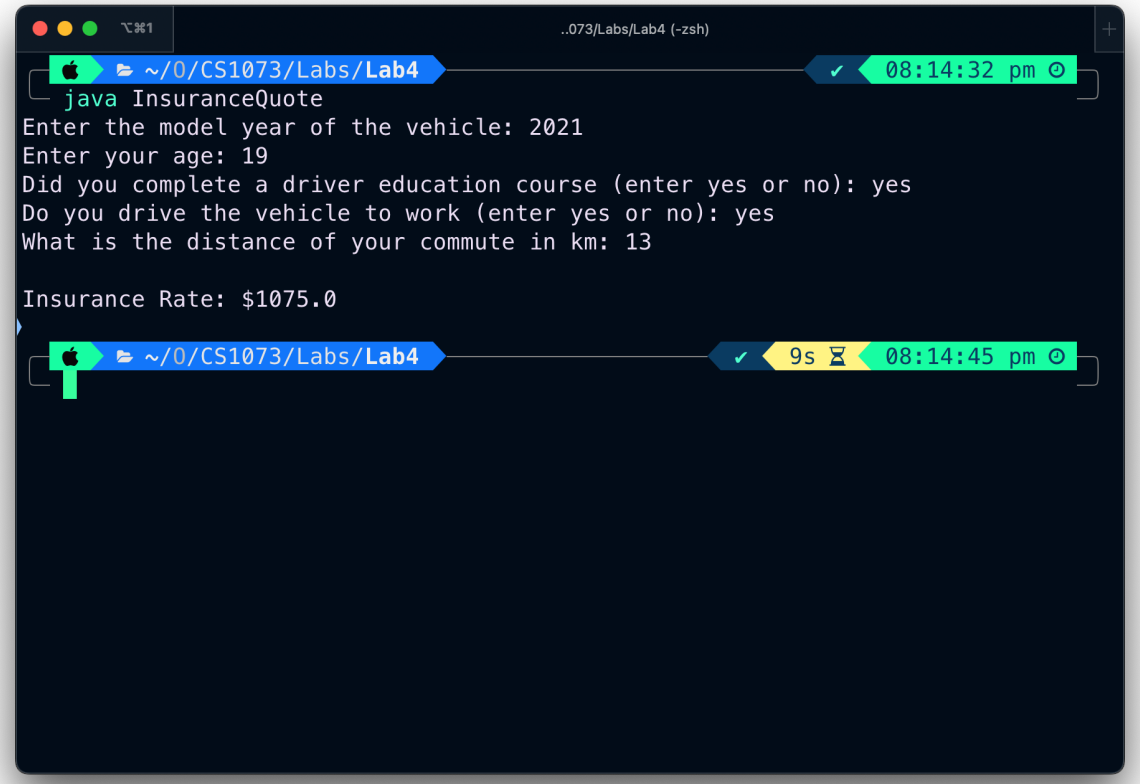
```
/**
This class is used to calculate the insurance quote of a
vechicle
@author Daniyal Khan 3765942
*/

import java.util.Scanner;

public class InsuranceQuote {
     public static void main(String[] args) {
          Scanner scan = new Scanner(System.in);
          final int baseRate = 900;
          double insuranceQuote = baseRate;

          System.out.print("Enter the model year of the vehicle:
");
          int modelYear = scan.nextInt();
          if (modelYear < 2016) {
               insuranceQuote += 50; // surcharge of 50 dollars
if model is older than 2016
          }

          System.out.print("Enter your age: ");
          int driverAge = scan.nextInt();
          scan.nextLine(); // Consume the newline character

          if (driverAge < 25) {
               String eduDriveCourse = "";
               System.out.print("Did you complete a driver
education course (enter yes or no): ");
               while (true) {
                    eduDriveCourse = scan.nextLine();
                    if (eduDriveCourse.equals("yes")) {
                         insuranceQuote += 75; // additional
charge of 75 if driver course complete
                         break;
                    }
                    else if (eduDriveCourse.equals("no")) {
                         insuranceQuote += 175; // additional
charge of 175 otherwise
                         break;
                    }
```

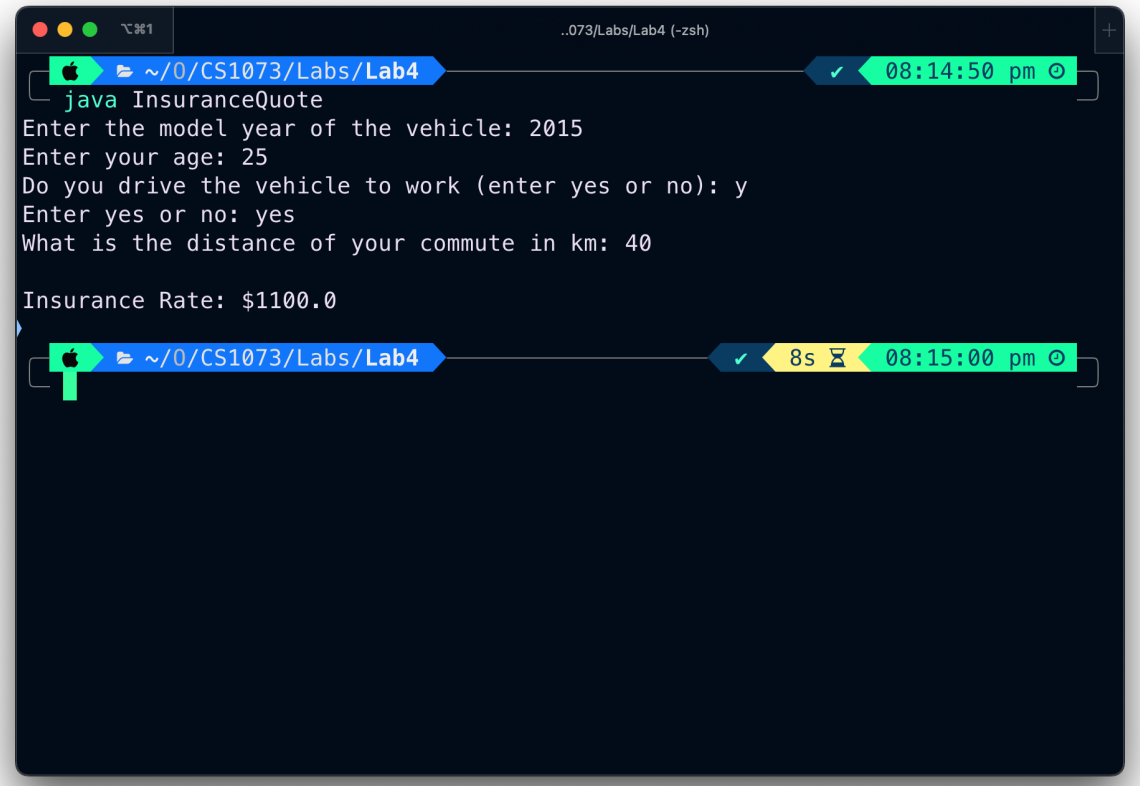
```
                    System.out.print("Enter yes or no: ");
               }
          }

          System.out.print("Do you drive the vehicle to work
(enter yes or no): ");
          while (true) {
               String driveToWork = scan.nextLine();
               if (driveToWork.equals("yes")) {
                    System.out.print("What is the distance of
your commute in km: ");
                    double distanceToCommute =
scan.nextDouble();
                    scan.nextLine();

                    if (distanceToCommute < 20) {
                         insuranceQuote += 100; // distance to
commute less than 20 than 100 fees
                         break;
                    }
                    else {
                         insuranceQuote += 150; // additional
fee of 150 otherwise
                         break;
                    }
               }
               else if (driveToWork.equals("no")) {
                    break;
               }
               System.out.print("Enter yes or no: ");
          }

          System.out.println("");
          System.out.println("Insurance Rate: $" +
insuranceQuote);
     }
}
```

Output:


..073/Labs/Lab4 (-zsh)
~/O/CS1073/Labs/Lab4
08:06:32 pm
java InsuranceQuote
Enter the model year of the vehicle: 2016
Enter your age: 34
Do you drive the vehicle to work (enter yes or no): no
Insurance Rate: $900.0
~/O/CS1073/Labs/Lab4
9s
08:06:46 pm


..073/Labs/Lab4 (-zsh)
~/O/CS1073/Labs/Lab4
08:14:04 pm
java InsuranceQuote
Enter the model year of the vehicle: 2000
Enter your age: 24
Did you complete a driver education course (enter yes or no): n
Enter yes or no: no
Do you drive the vehicle to work (enter yes or no): true
Enter yes or no: y
Enter yes or no: yes
What is the distance of your commute in km: 24
Insurance Rate: $1275.0
~/O/CS1073/Labs/Lab4
17s
08:14:23 pm


⌥⌘1
..073/Labs/Lab4 (-zsh)
~/O/CS1073/Labs/Lab4
08:14:32 pm
java InsuranceQuote
Enter the model year of the vehicle: 2021
Enter your age: 19
Did you complete a driver education course (enter yes or no): yes
Do you drive the vehicle to work (enter yes or no): yes
What is the distance of your commute in km: 13
Insurance Rate: $1075.0
~/O/CS1073/Labs/Lab4
9s
08:14:45 pm


⌥⌘1
..073/Labs/Lab4 (-zsh)
~/O/CS1073/Labs/Lab4
08:14:50 pm
java InsuranceQuote
Enter the model year of the vehicle: 2015
Enter your age: 25
Do you drive the vehicle to work (enter yes or no): y
Enter yes or no: yes
What is the distance of your commute in km: 40
Insurance Rate: $1100.0
~/O/CS1073/Labs/Lab4
8s
08:15:00 pm