

TITLE PAGE

Course: CS1073

Section: FR03B

Lab number: 4

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ScholarshipAssessment.java:

```
/**
 * This class is used to determine a student's scholarship eligibility.
 * @author Zohaib Khan 3740572
 */

import java.util.Scanner;

public class ScholarshipAssessment {
    public static void main (String[] args) {

        Scanner sc = new Scanner(System.in);
        int scholarship = 500;

        System.out.println("Enter the number of credit hours completed in
                           the last year:");
        int credits = sc.nextInt();

        while (credits < 0) {
            System.out.println("Credit hours must be non-negative.");
            System.out.println("Enter the number of credit hours completed in
                               the last year:");
            credits = sc.nextInt();
        }

        if (credits < 24) {

            System.out.println("Have you participated in a university co-op
                               program in the last year (yes or no)?");
            String coop = sc.next();

            while (!coop.equals("yes") && !coop.equals("no")) {
                System.out.println("Enter yes or no:");
                coop = sc.next();
            }

            if (coop.equals("yes")) {

                System.out.println("Enter your GPA:");
                double gpa = sc.nextDouble();

                while (gpa < 0) {
                    System.out.println("Invalid GPA. Enter a non-negative
                                         GPA:");
                    gpa = sc.nextDouble();
                }

                if (gpa >= 2.7) {

                    if (gpa >= 3 && gpa < 3.7) {
                        scholarship = scholarship + 200;
                    }
                }
            }
        }
    }
}
```

```

        if (gpa >= 3.7) {
            scholarship = scholarship + 400;
        }

        System.out.println("Enter the number of official university
                            clubs, societies, or teams in which you
                            participated last year:");
        int clubs = sc.nextInt();

        while (clubs < 0) {
            System.out.println("Invalid number. Enter a non-negative
                                number");
            clubs = sc.nextInt();
        }

        if (clubs >= 3) {
            scholarship = scholarship + 100;
        }

        System.out.println("Do you have demonstrated financial need
                            (yes or no)?");
        String need = sc.next();

        while (!need.equals("yes") && !need.equals("no")) {
            System.out.println("Enter yes or no:");
            need = sc.next();
        }
        if (need.equals("yes")) {
            scholarship = scholarship * 2;
        }

        System.out.println("You are eligible for a scholarship of
                            $" + scholarship);

    }
    else {
        System.out.println("Sorry, you are not eligible for a
                            scholarship.");
    }
}

else {
    System.out.println("Sorry, you are not eligible for a
                        scholarship.");
}
}
else {

    System.out.println("Enter your GPA:");
    double gpa = sc.nextDouble();

    while (gpa < 0) {
        System.out.println("Invalid GPA. Enter a non-negative GPA:");
    }
}

```


Q1Output:

```
zohaib@Zohaibs-MBP lab4 % java ScholarshipAssessment
Enter the number of credit hours completed in the last year:
-12
Credit hours must be non-negative.
Enter the number of credit hours completed in the last year:
12
Have you participated in a university co-op program in the last year (yes or no)?
n
Enter yes or no:
no
Sorry, you are not eligible for a scholarship.
zohaib@Zohaibs-MBP lab4 % java ScholarshipAssessment
Enter the number of credit hours completed in the last year:
0
Have you participated in a university co-op program in the last year (yes or no)?
yes
Enter your GPA:
-5
Invalid GPA. Enter a non-negative GPA:
2
Sorry, you are not eligible for a scholarship.
zohaib@Zohaibs-MBP lab4 % java ScholarshipAssessment
Enter the number of credit hours completed in the last year:
24
Enter your GPA:
3.5
Enter the number of official university clubs, societies, or teams in which you participated last year:
-4
Invalid number. Enter a non-negative number
3
Do you have demonstrated financial need (yes or no)?
no
You are eligible for a scholarship of $800
zohaib@Zohaibs-MBP lab4 % java ScholarshipAssessment
Enter the number of credit hours completed in the last year:
30
Enter your GPA:
4
Enter the number of official university clubs, societies, or teams in which you participated last year:
2
Do you have demonstrated financial need (yes or no)?
y
Enter yes or no:
yes
You are eligible for a scholarship of $1800
```

SleepTracker.java:

```
/**
 * This class generates a sleep tracking report.
 * @author Zohaib Khan 3740572
 */

import java.util.Scanner;

public class SleepTracker {
    public static void main (String[] args) {

        int numNights = 0;
        double idealTime = 0.00;
        int belowIdealTime = 0;
        double min = 10000.00;
        double avg = 0.00;
        double total = 0.00;

        Scanner sc = new Scanner(System.in);

        System.out.println("Please enter your optimal sleep time (in
            hours):");
        idealTime = sc.nextDouble();

        while (idealTime < 0) {
            System.out.println("Optimal sleep time must be non-
                negative.");
            System.out.println("Please enter your optimal sleep time (in
                hours):");
            idealTime = sc.nextDouble();
        }

        System.out.println("Next, enter your recorded sleep history
            values (in hours).");
        System.out.println("Enter a negative number when done:");

        double sleepRecord = sc.nextDouble();
        while (sleepRecord >= 0) {
            numNights = numNights + 1;
            total = total + sleepRecord;
            if (sleepRecord < min) {
                min = sleepRecord;
            }
            if (sleepRecord < idealTime) {
                belowIdealTime = belowIdealTime + 1;
            }
            sleepRecord = sc.nextDouble();
        }
        avg = total / numNights;
    }
}
```

```
System.out.println("Your sleep report:\n"
    + numNights + " nights total\n"
    + belowIdealTime + " nights below your optimal\n"
    + "sleep time\n"
    + "Lowest sleep time: " + min + "\n"
    + "Average sleep time: " + avg);
}
```

Q2Output:

```
[zohaib@Zohaibs-MBP lab4 % java SleepTracker
Please enter your optimal sleep time (in hours):
-4
Optimal sleep time must be non-negative.
Please enter your optimal sleep time (in hours):
7
Next, enter your recorded sleep history values (in hours).
Enter a negative number when done:
3
6
8.5
9
4.5
7.5
7
10
-1
Your sleep report:
8 nights total
3 nights below your optimal sleep time
Lowest sleep time: 3.0
Average sleep time: 6.9375
[zohaib@Zohaibs-MBP lab4 % java SleepTracker
Please enter your optimal sleep time (in hours):
8
Next, enter your recorded sleep history values (in hours).
Enter a negative number when done:
4
10
9
5
11
0
-6
Your sleep report:
6 nights total
3 nights below your optimal sleep time
Lowest sleep time: 0.0
Average sleep time: 6.5
```