Lab 01: Environment Setup and Java Basics

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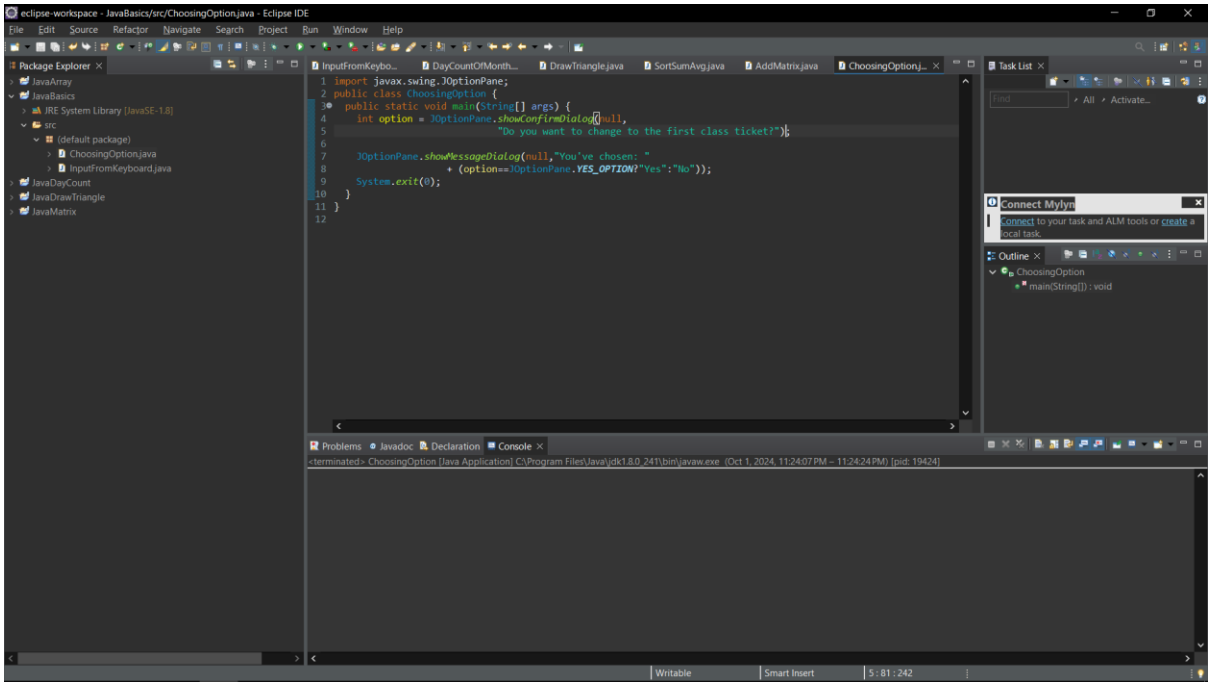
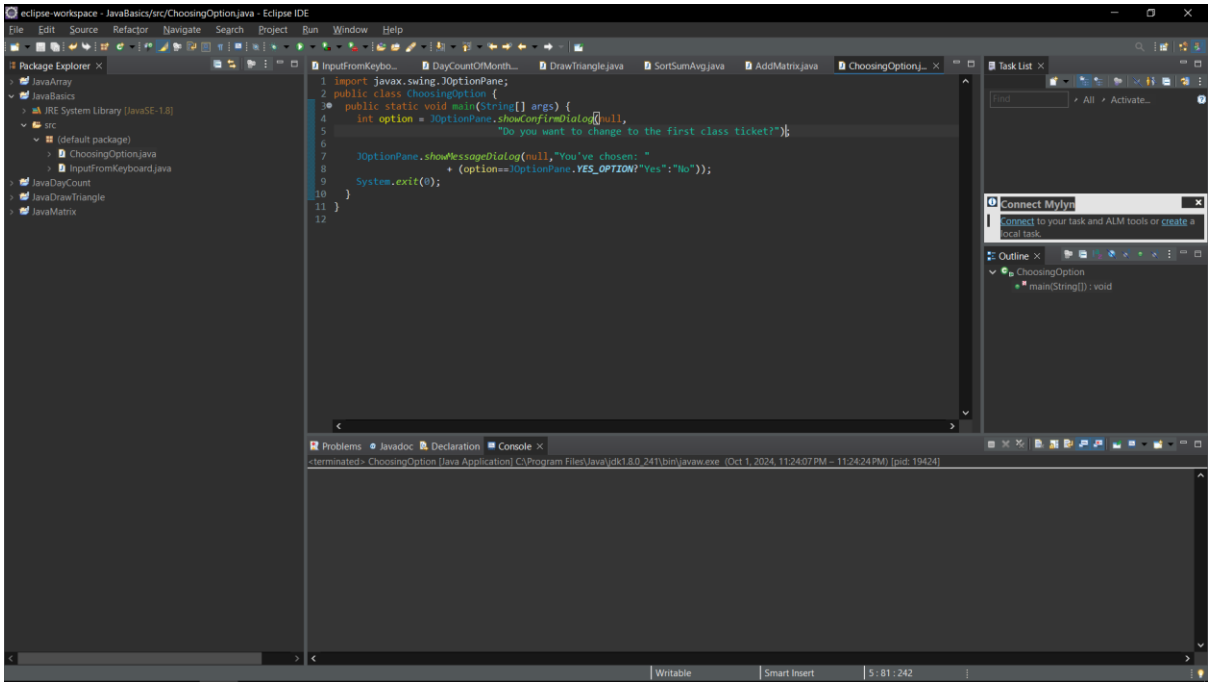
6. Exercises

6.1 Write, compile and run the ChoosingOption program





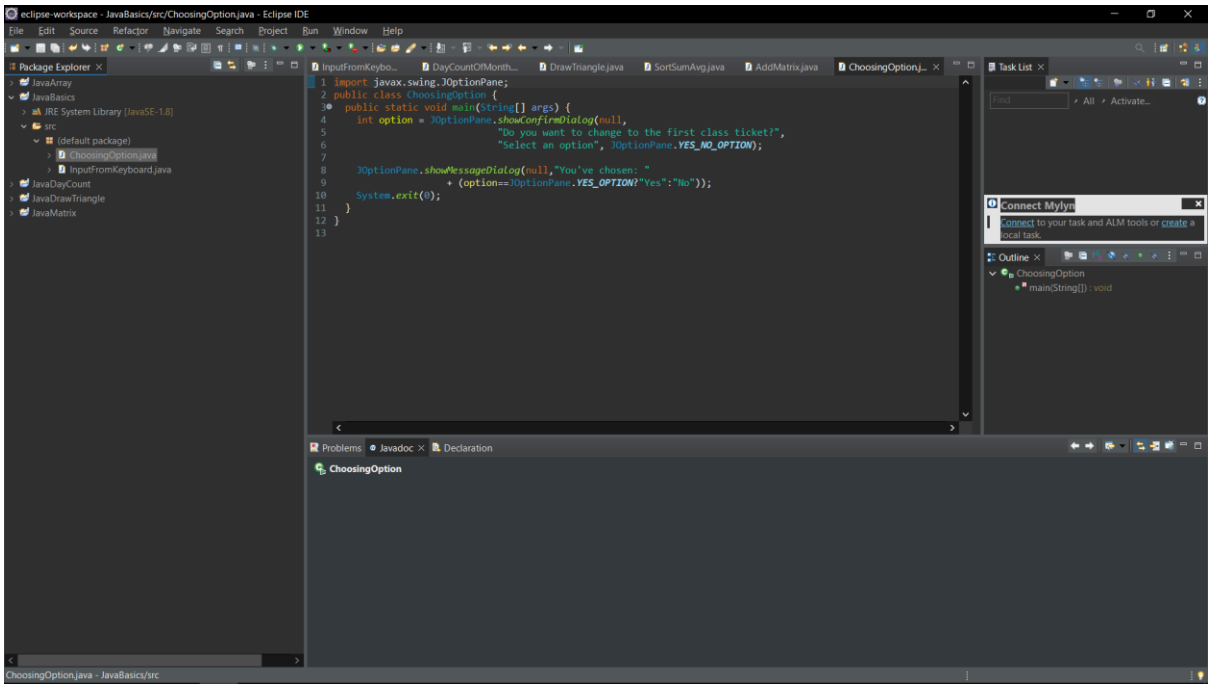
Questions:

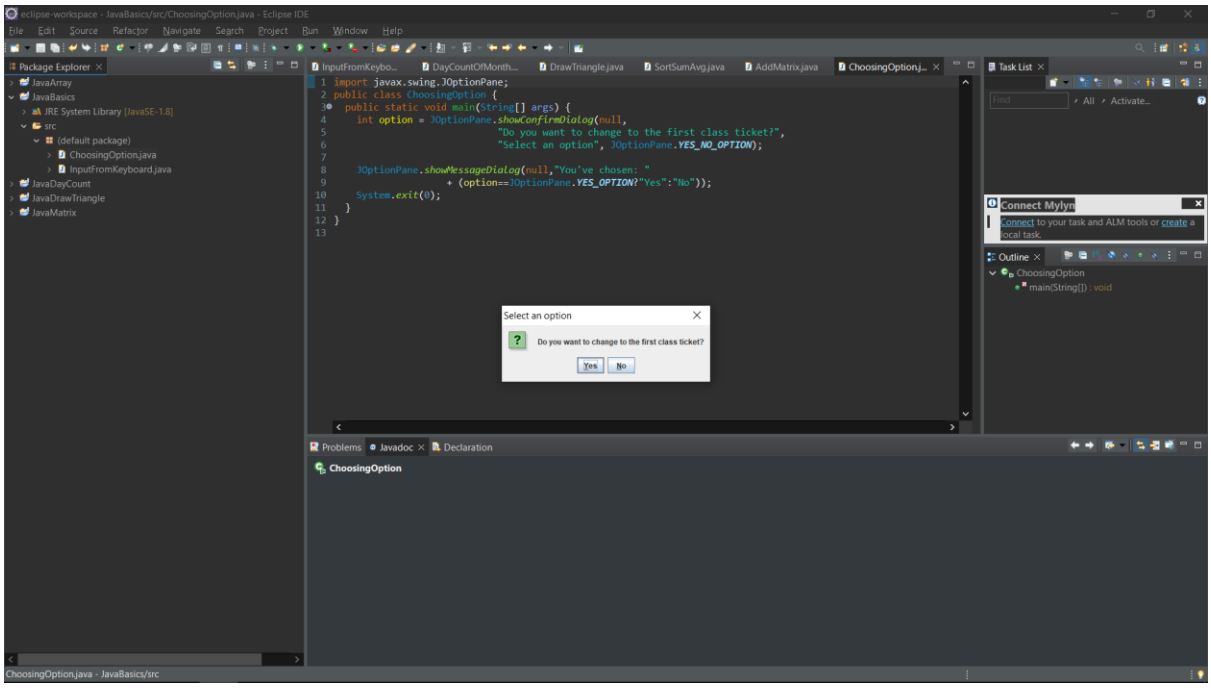
- What happens if users choose “Cancel”?

    -> Same as choosing “No”

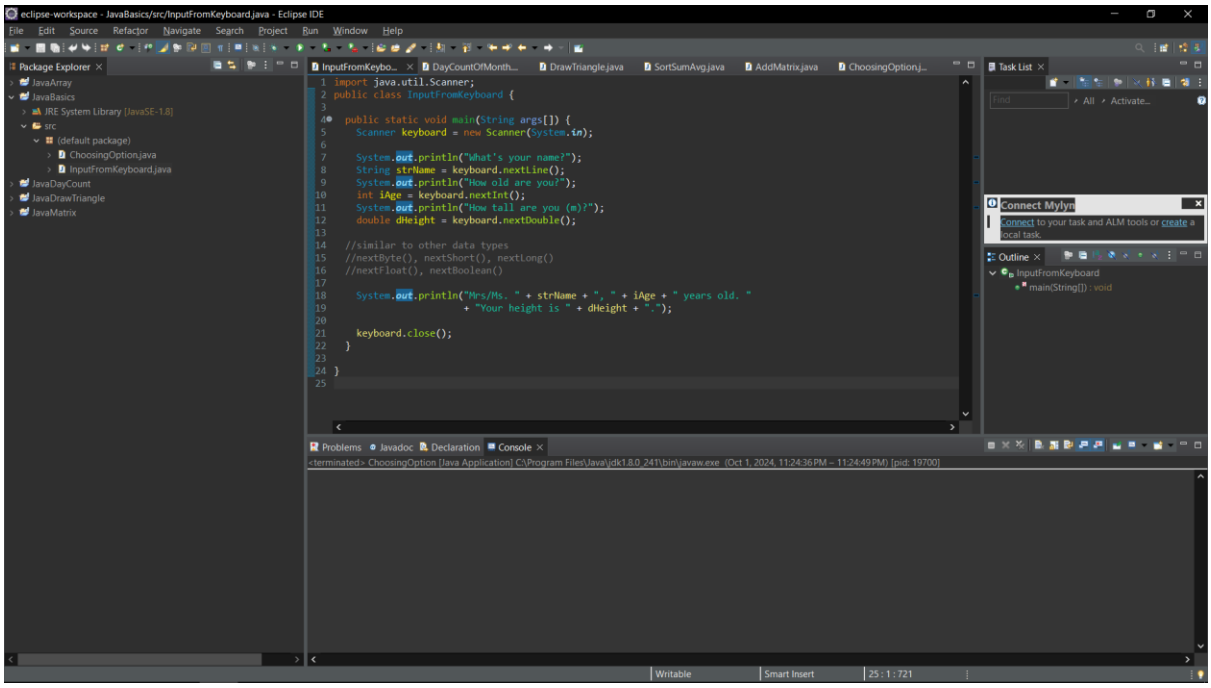
- How to customize the options to users, e.g. only two options: “Yes” and “No”, OR “I do”

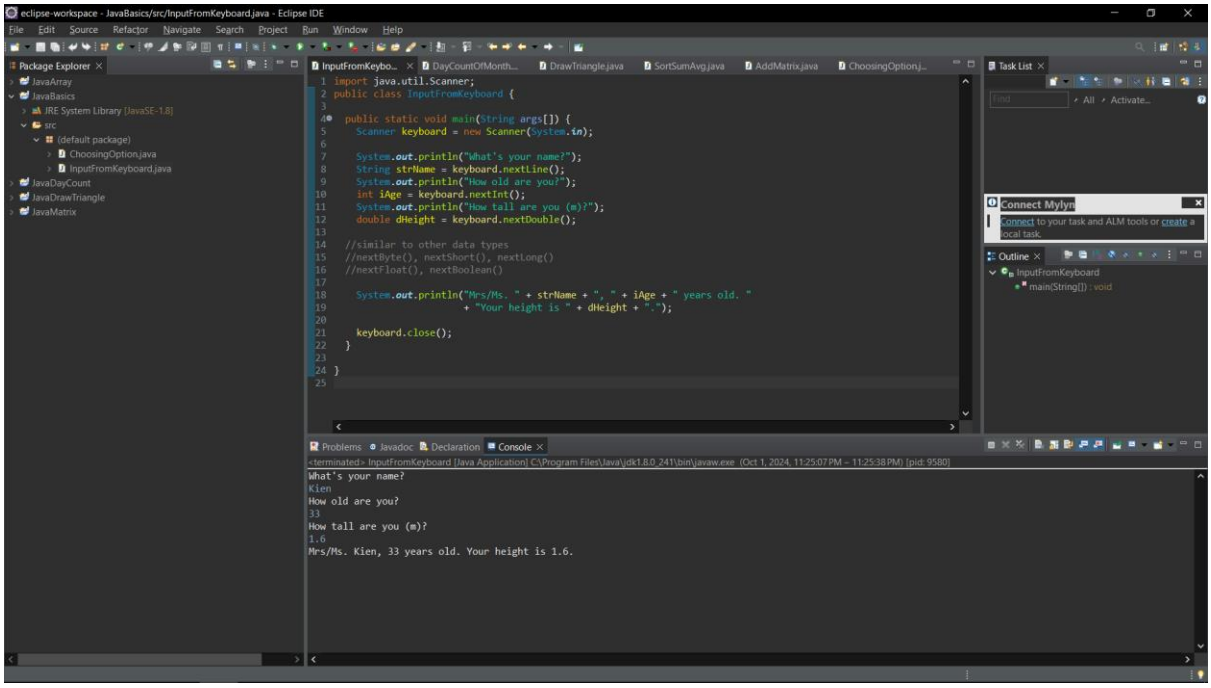
    -> Use another *showConfirmMessage* method that has *optionType* parameter set to ‘JoptionPane.*YES_NO_OPTION’*





6.2 Write a program for input/output from keyboard

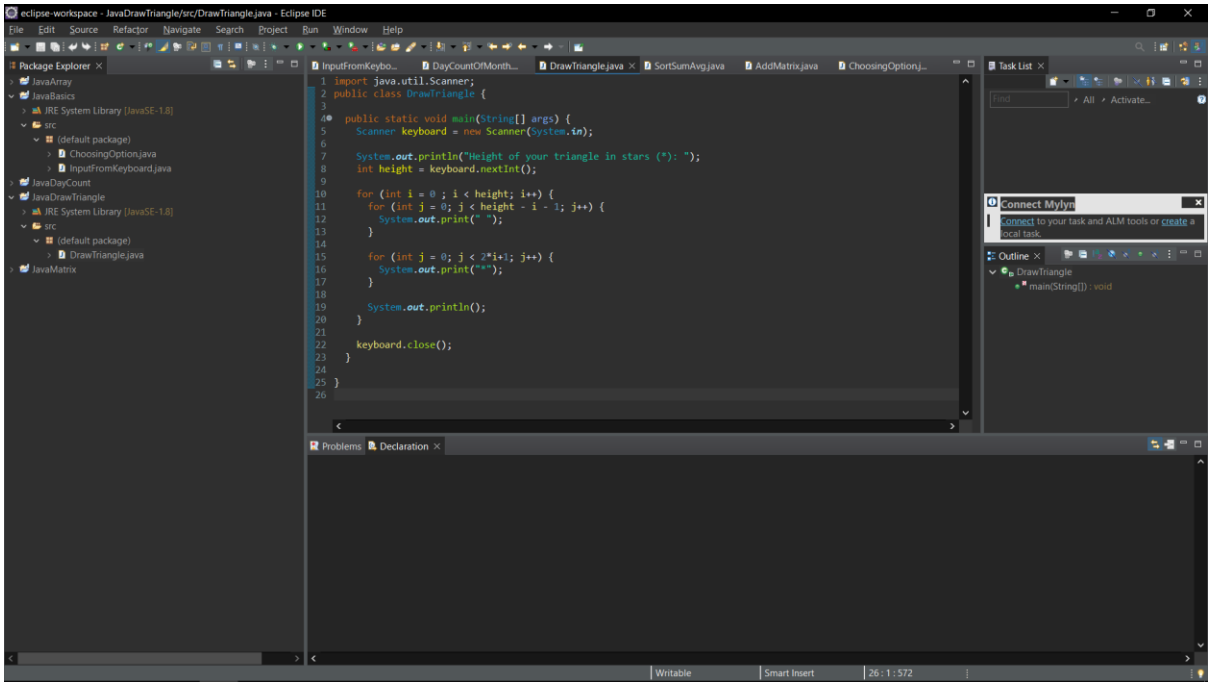


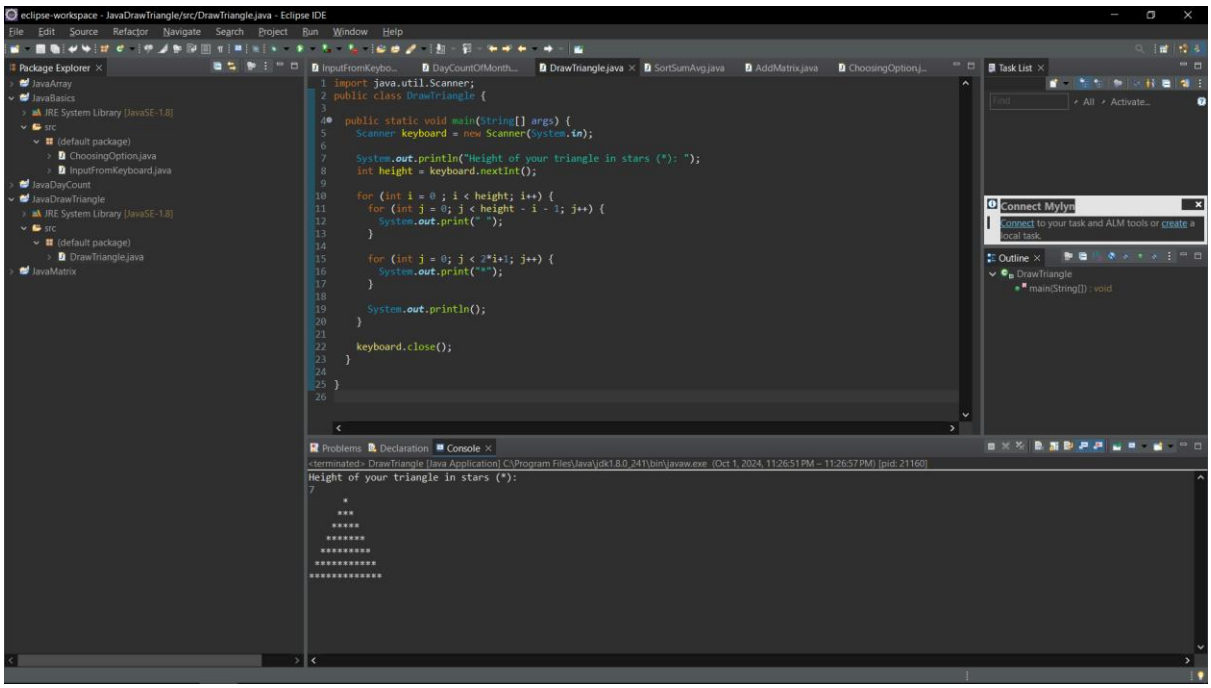


6.3 Write a program to display a triangle with a height of n stars (*), n is entered by users.

E.g. n=5:

```
    *
   ***
  *****
 *******
*********
```





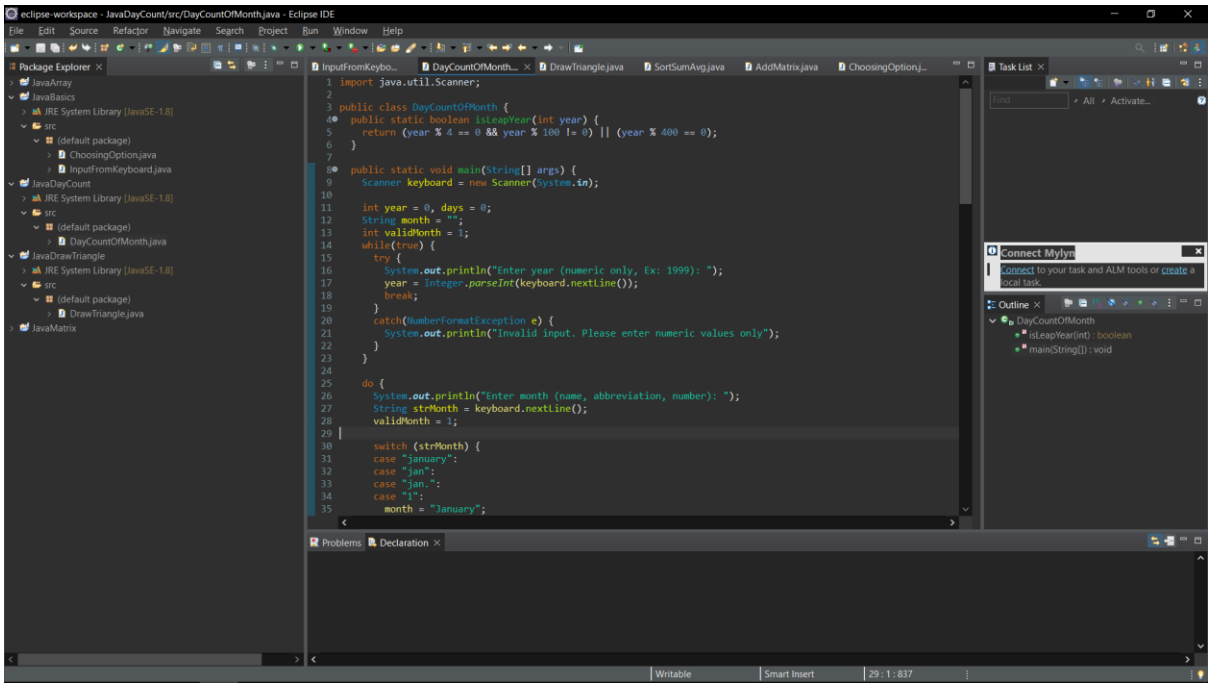
6.4 Write a program to display the number of days of a month, which is entered by users (both month and year). If it is an invalid month/year, ask the user to enter again.

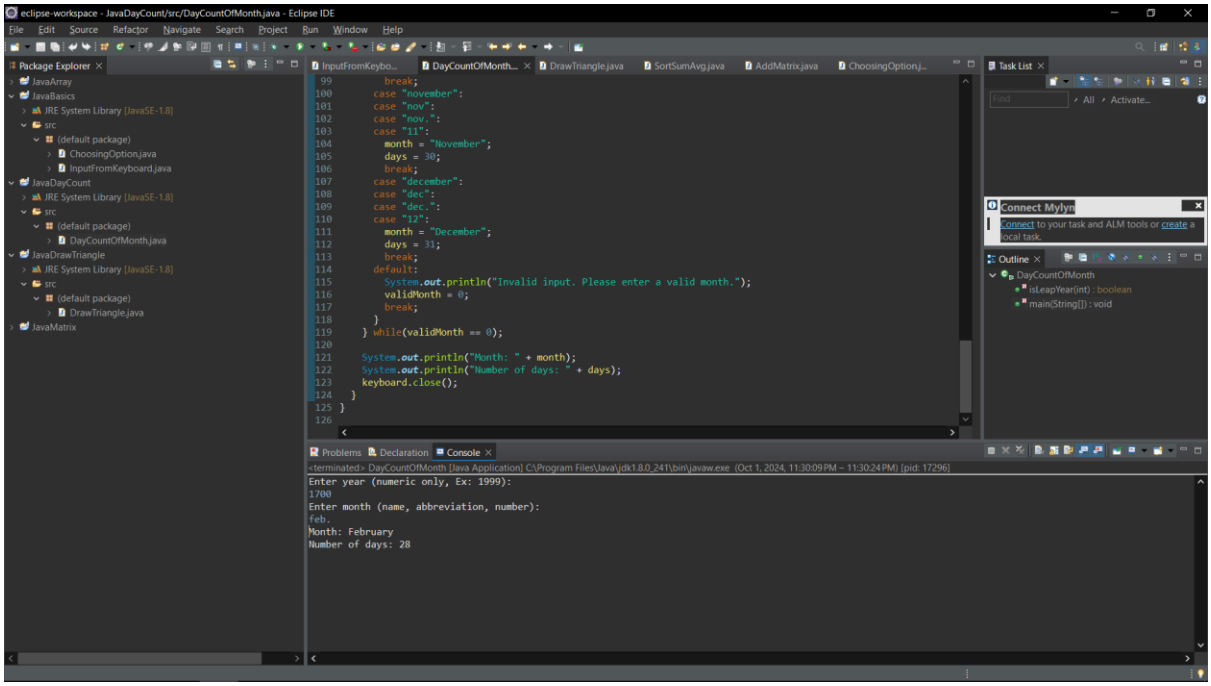
Note: You must create a new Java project for this exercise.

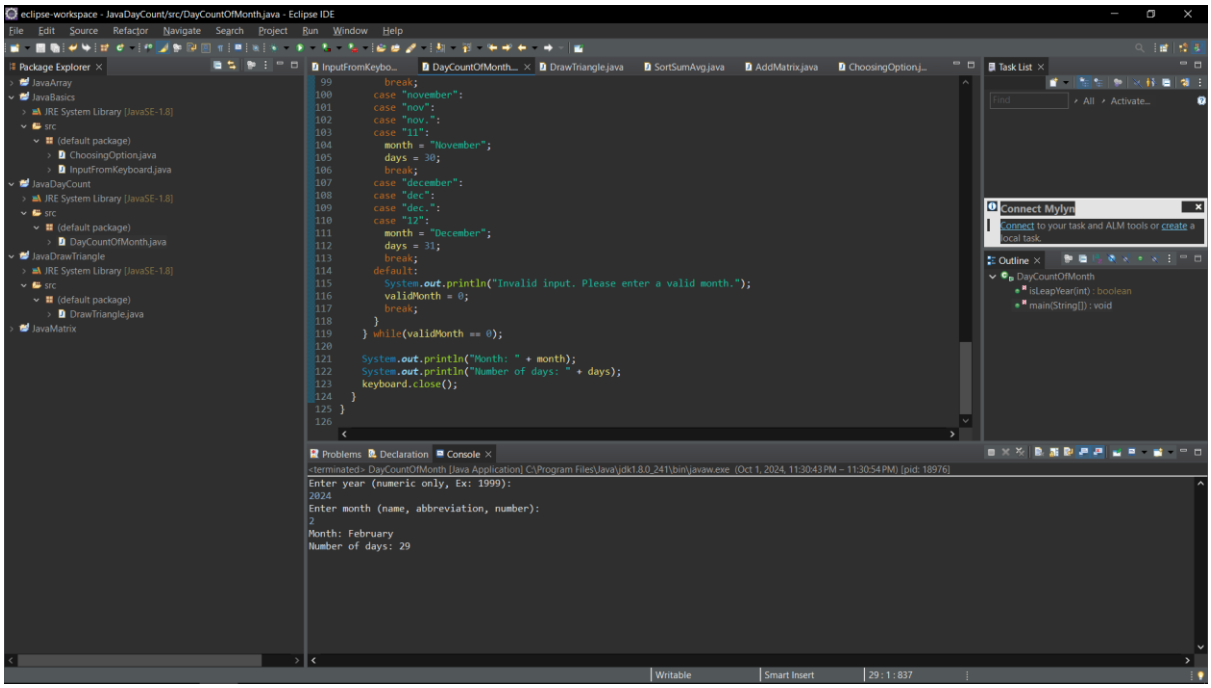
- The user can either enter a month in its full name, abbreviation, in 3 letters, or in number. To illustrate, the valid inputs of January are January, Jan., Jan, and 1.

- The user must enter a year in a non-negative number and enter all the digits. For instance, the valid inputs of year 1999 is only 1999, but not 99, “one thousand nine hundred ninety-nine”, or anything else.

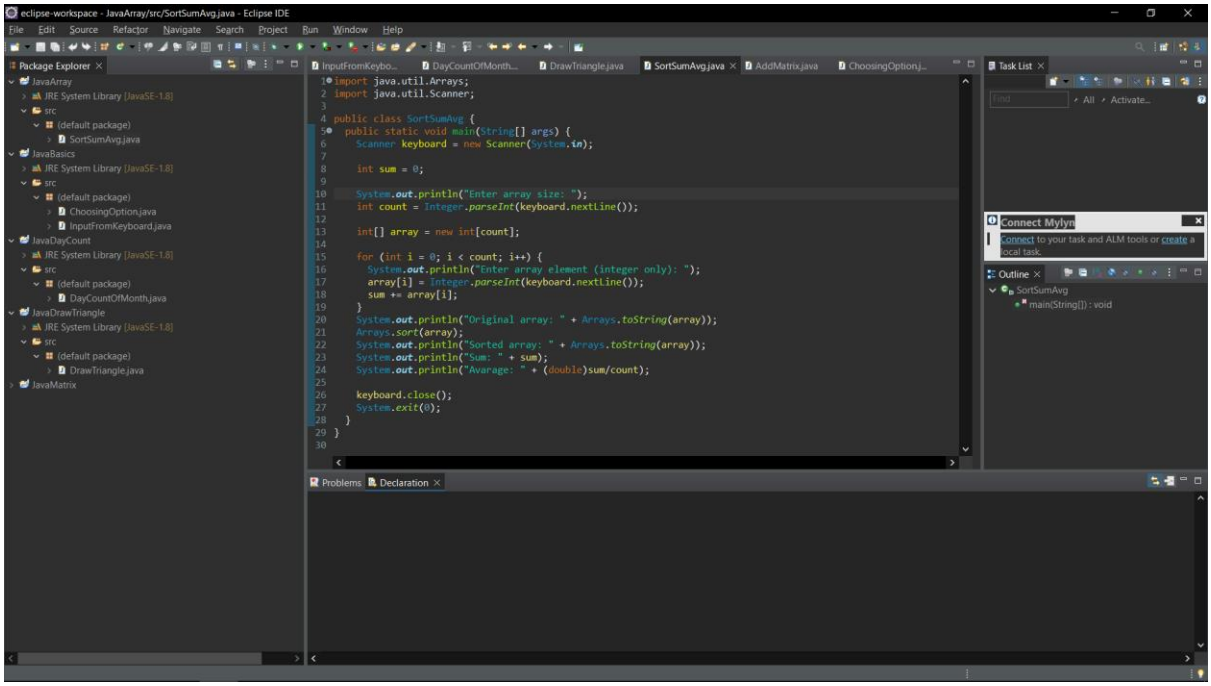
- A year is either a common year of 365 days or a leap year of 366 days. Every year that is divisible by 4 is a leap year, except for years that are divisible by 100, but not by 400. For instance, year 1800 is not a leap year, yet year 2000 is a leap year.

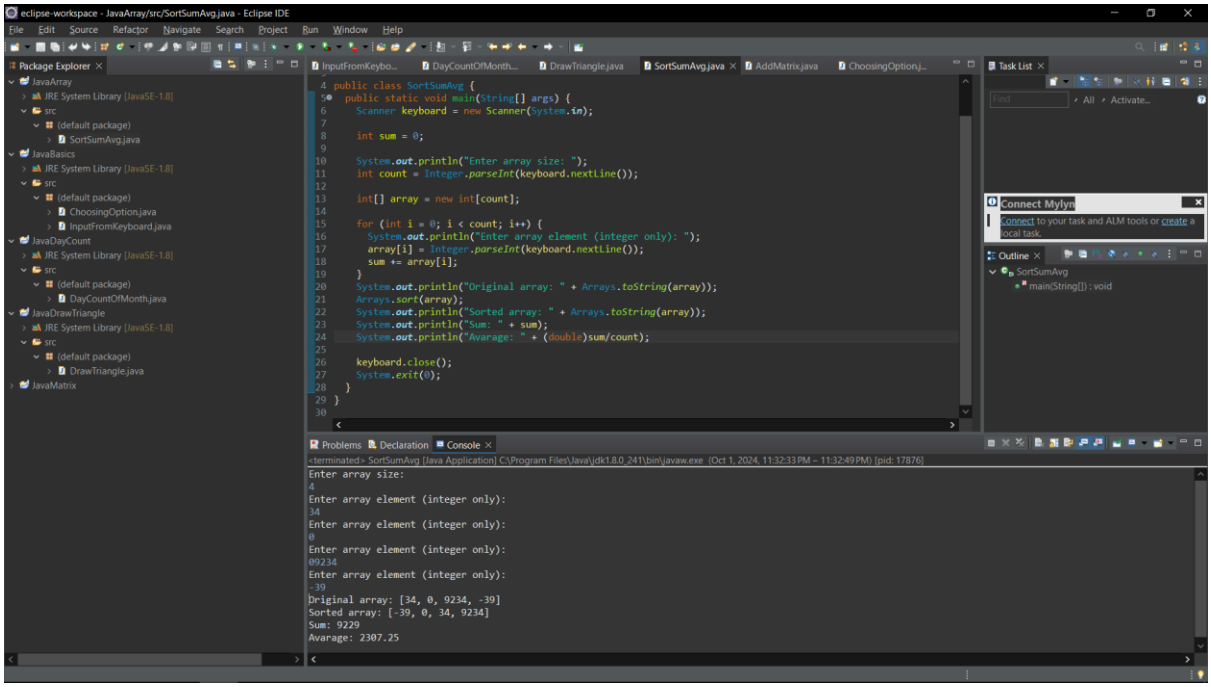




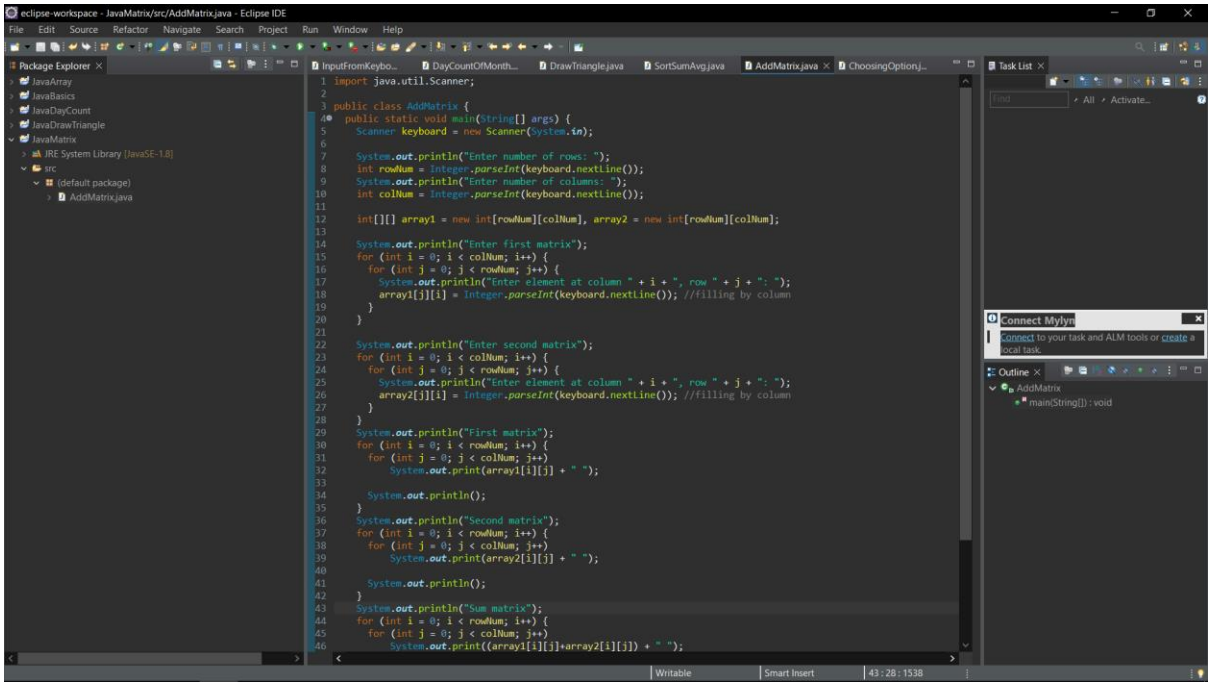


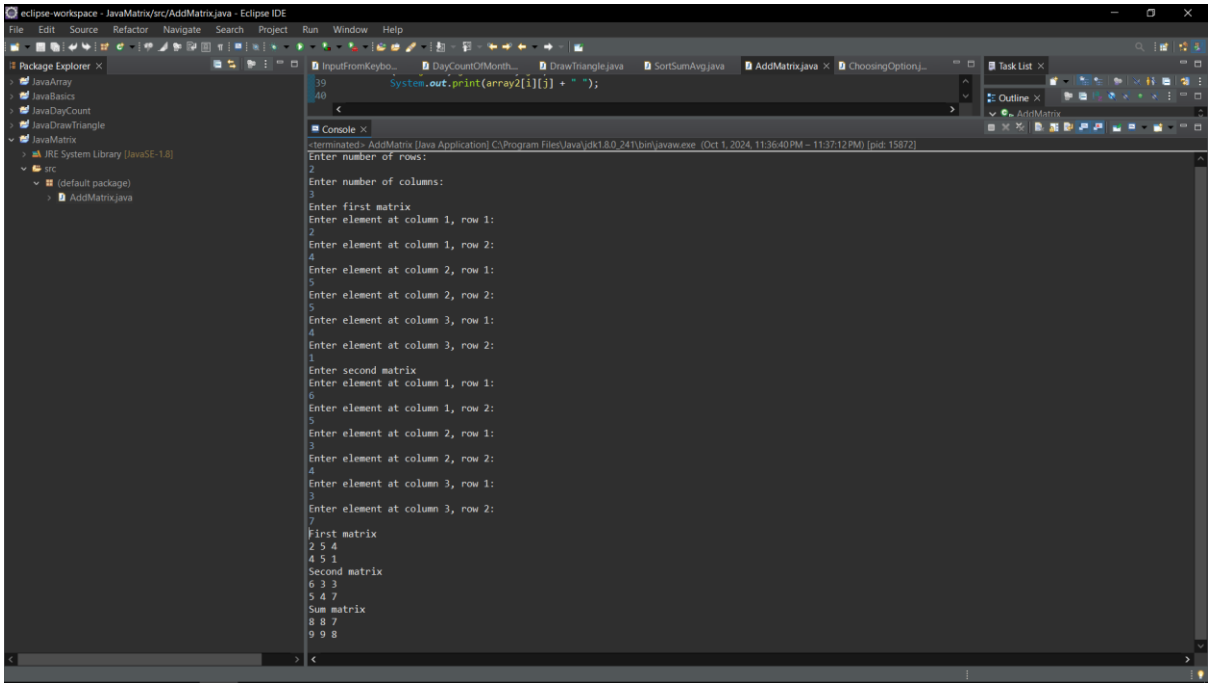
6.5 Write a Java program to sort a numeric array, and calculate the sum and average value of array elements.





6.6 Write a Java program to add two matrices of the same size.


eclipse-workspace - JavaMatrix/src/AddMatrix.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
JavaArray
JavaBasics
JavaDayCount
JavaDrawTriangle
JavaMatrix
JRE System Library [JavaSE-1.8]
src
(default package)
AddMatrix.java
InputFromKeybo...
DayCountOfMonth...
DrawTriangle.java
SortSumAvg.java
AddMatrix.java
ChoosingOption.j...
import java.util.Scanner;
public class AddMatrix {
public static void main(String[] args) {
Scanner keyboard = new Scanner(System.in);
System.out.println("Enter number of rows: ");
int rowNum = Integer.parseInt(keyboard.nextLine());
System.out.println("Enter number of columns: ");
int colNum = Integer.parseInt(keyboard.nextLine());
int[][] array1 = new int[rowNum][colNum], array2 = new int[rowNum][colNum];
System.out.println("Enter first matrix");
for (int i = 0; i < colNum; i++) {
for (int j = 0; j < rowNum; j++) {
System.out.println("Enter element at column " + i + ", row " + j + ": ");
array1[j][i] = Integer.parseInt(keyboard.nextLine()); //filling by column
}
}
System.out.println("Enter second matrix");
for (int i = 0; i < colNum; i++) {
for (int j = 0; j < rowNum; j++) {
System.out.println("Enter element at column " + i + ", row " + j + ": ");
array2[j][i] = Integer.parseInt(keyboard.nextLine()); //filling by column
}
}
System.out.println("First matrix");
for (int i = 0; i < rowNum; i++) {
for (int j = 0; j < colNum; j++)
System.out.print(array1[i][j] + " ");
System.out.println();
}
System.out.println("Second matrix");
for (int i = 0; i < rowNum; i++) {
for (int j = 0; j < colNum; j++)
System.out.print(array2[i][j] + " ");
System.out.println();
}
System.out.println("Sum matrix");
for (int i = 0; i < rowNum; i++) {
for (int j = 0; j < colNum; j++)
System.out.print((array1[i][j]+array2[i][j]) + " ");
Task List
Connect Mylyn
Connect to your task and ALM tools or create a local task.
Outline
AddMatrix
main(String[]) : void
Writable
Smart Insert
43 : 28 : 1538


eclipse-workspace - JavaMatrix/src/AddMatrix.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
JavaArray
JavaBasics
JavaDayCount
JavaDrawTriangle
JavaMatrix
JRE System Library [JavaSE-1.8]
src
(default package)
AddMatrix.java
System.out.print(array2[i][j] + " ");
Console
<terminated> AddMatrix [Java Application] C:\Program Files\Java\jdk1.8.0_241\bin\javaw.exe (Oct 1, 2024, 11:36:40 PM – 11:37:12 PM) [pid: 15872]
Enter number of rows:
2
Enter number of columns:
3
Enter first matrix
Enter element at column 1, row 1:
2
Enter element at column 1, row 2:
4
Enter element at column 2, row 1:
5
Enter element at column 2, row 2:
5
Enter element at column 3, row 1:
4
Enter element at column 3, row 2:
1
Enter second matrix
Enter element at column 1, row 1:
6
Enter element at column 1, row 2:
5
Enter element at column 2, row 1:
3
Enter element at column 2, row 2:
4
Enter element at column 3, row 1:
3
Enter element at column 3, row 2:
7
First matrix
2 5 4
4 5 1
Second matrix
6 3 3
5 4 7
Sum matrix
8 8 7
9 9 8