

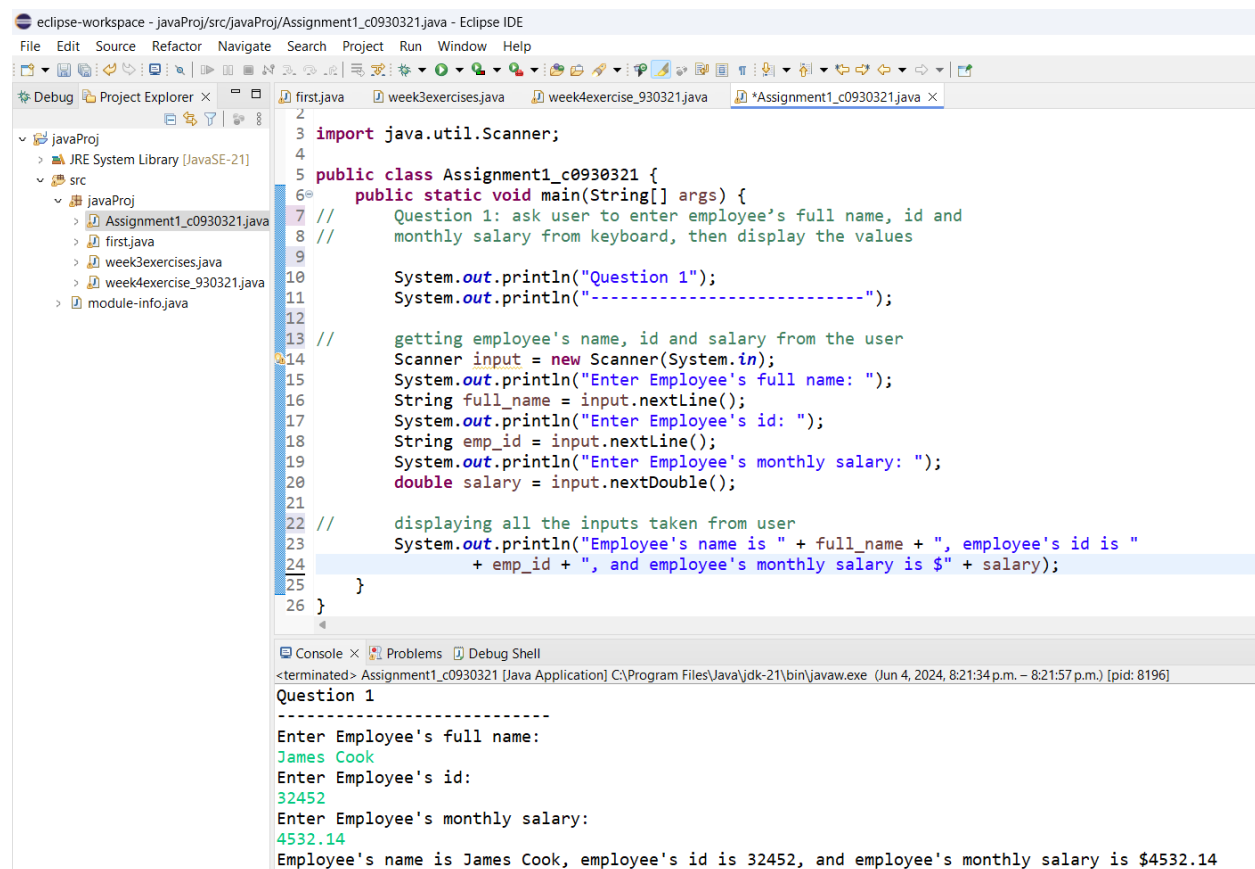
## Assignment: 01

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## Screenshots of the code with output

### # Question 1



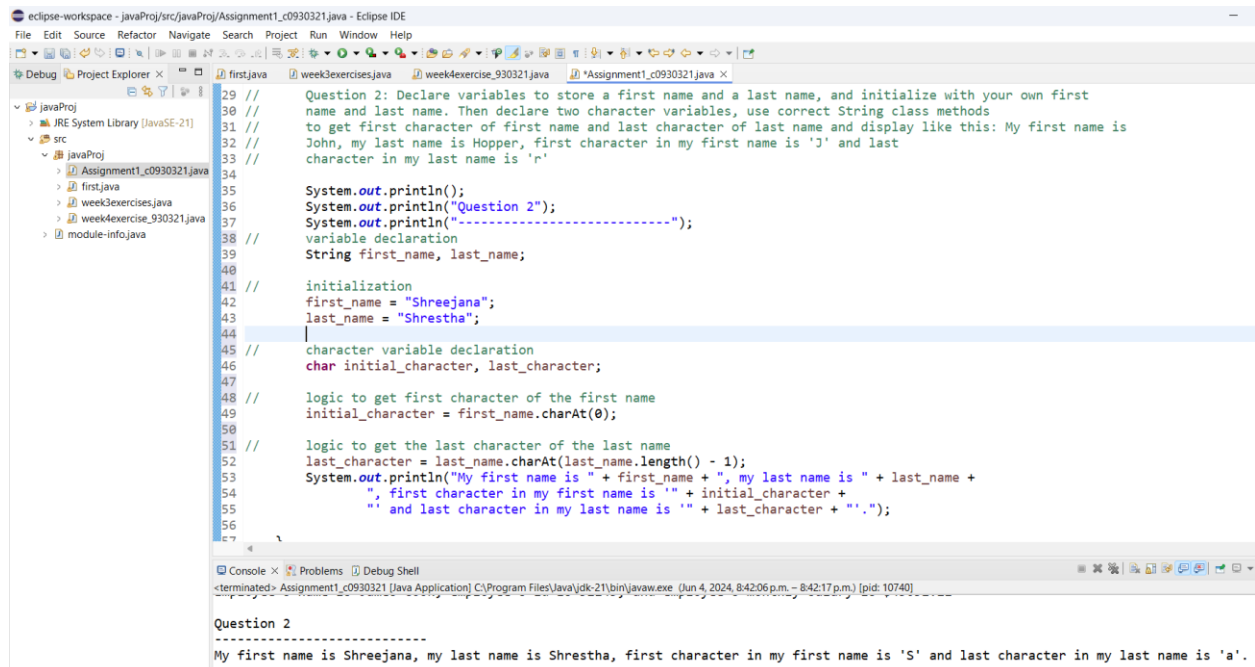
The screenshot displays the Eclipse IDE interface. The Project Explorer on the left shows a project named 'javaProj' with a source folder 'src' containing files: 'Assignment1\_c0930321.java', 'first.java', 'week3exercises.java', 'week4exercise\_930321.java', and 'module-info.java'. The main editor window shows the code for 'Assignment1\_c0930321.java'. The code imports 'java.util.Scanner' and defines a 'main' method that prompts the user for an employee's full name, ID, and monthly salary, then displays the collected information.

```
1  import java.util.Scanner;
2
3  public class Assignment1_c0930321 {
4      public static void main(String[] args) {
5          // Question 1: ask user to enter employee's full name, id and
6          // monthly salary from keyboard, then display the values
7
8          System.out.println("Question 1");
9          System.out.println("-----");
10
11         // getting employee's name, id and salary from the user
12         Scanner input = new Scanner(System.in);
13         System.out.println("Enter Employee's full name: ");
14         String full_name = input.nextLine();
15         System.out.println("Enter Employee's id: ");
16         String emp_id = input.nextLine();
17         System.out.println("Enter Employee's monthly salary: ");
18         double salary = input.nextDouble();
19
20         // displaying all the inputs taken from user
21         System.out.println("Employee's name is " + full_name + ", employee's id is "
22             + emp_id + ", and employee's monthly salary is $" + salary);
23     }
24 }
25
26 }
```

The Console window at the bottom shows the program's execution output:

```
<terminated> Assignment1_c0930321 [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jun 4, 2024, 8:21:34 p.m. - 8:21:57 p.m.) [pid: 8196]
Question 1
-----
Enter Employee's full name:
James Cook
Enter Employee's id:
32452
Enter Employee's monthly salary:
4532.14
Employee's name is James Cook, employee's id is 32452, and employee's monthly salary is $4532.14
```

## # Question 2:



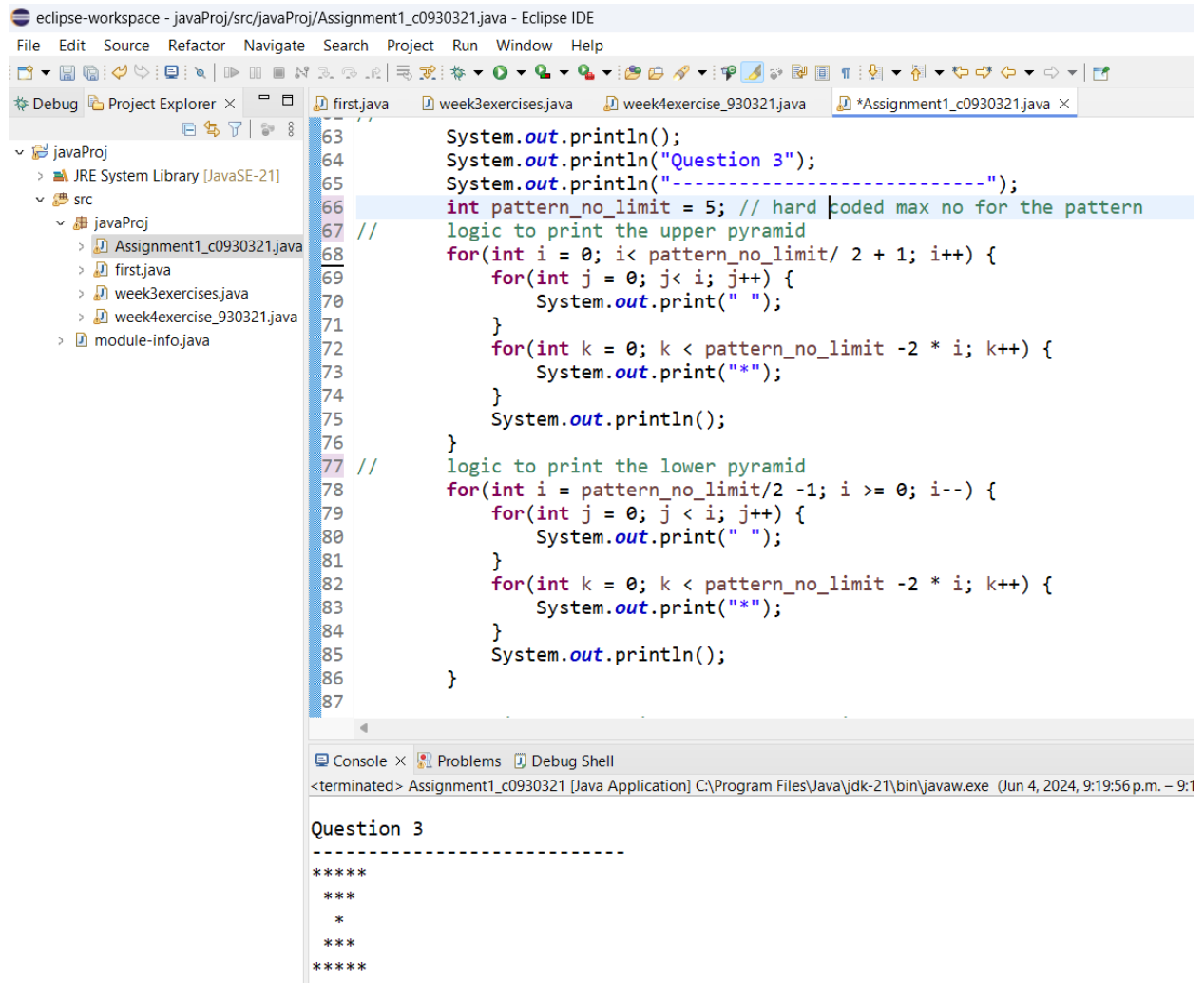
The screenshot shows the Eclipse IDE with a Java project named 'javaProj'. The 'src' folder contains several files, including 'Assignment1\_c0930321.java'. The code in this file is as follows:

```
29 // Question 2: Declare variables to store a first name and a last name, and initialize with your own first
30 // name and last name. Then declare two character variables, use correct String class methods
31 // to get first character of first name and last character of last name and display like this: My first name is
32 // John, my last name is Hopper, first character in my first name is 'J' and last
33 // character in my last name is 'r'
34
35 System.out.println();
36 System.out.println("Question 2");
37 System.out.println("-----");
38 // variable declaration
39 String first_name, last_name;
40
41 // initialization
42 first_name = "Shreejana";
43 last_name = "Shrestha";
44
45 // character variable declaration
46 char initial_character, last_character;
47
48 // logic to get first character of the first name
49 initial_character = first_name.charAt(0);
50
51 // logic to get the last character of the last name
52 last_character = last_name.charAt(last_name.length() - 1);
53 System.out.println("My first name is " + first_name + ", my last name is " + last_name +
54 " , first character in my first name is '" + initial_character +
55 " ' and last character in my last name is '" + last_character + "'");
56
```

The console output shows the following:

```
Question 2
-----
My first name is Shreejana, my last name is Shrestha, first character in my first name is 'S' and last character in my last name is 'a'.
```

## # Question 3:



The screenshot shows the Eclipse IDE interface. The top menu bar includes File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, and Help. The toolbar contains various icons for file operations and development tools. The Project Explorer on the left shows a project named 'javaProj' with a 'src' folder containing files: 'Assignment1\_c0930321.java', 'first.java', 'week3exercises.java', 'week4exercise\_930321.java', and 'module-info.java'. The main editor displays the code for 'Assignment1\_c0930321.java'. The code prints 'Question 3' and generates a pattern of asterisks. The console at the bottom shows the output of the program.

```
63     System.out.println();
64     System.out.println("Question 3");
65     System.out.println("-----");
66     int pattern_no_limit = 5; // hard coded max no for the pattern
67     // logic to print the upper pyramid
68     for(int i = 0; i < pattern_no_limit/ 2 + 1; i++) {
69         for(int j = 0; j < i; j++) {
70             System.out.print(" ");
71         }
72         for(int k = 0; k < pattern_no_limit - 2 * i; k++) {
73             System.out.print("*");
74         }
75         System.out.println();
76     }
77     // logic to print the lower pyramid
78     for(int i = pattern_no_limit/2 -1; i >= 0; i--) {
79         for(int j = 0; j < i; j++) {
80             System.out.print(" ");
81         }
82         for(int k = 0; k < pattern_no_limit - 2 * i; k++) {
83             System.out.print("*");
84         }
85         System.out.println();
86     }
87 }
```

Console Output:

```
<terminated> Assignment1_c0930321 [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jun 4, 2024, 9:19:56 p.m. - 9:1
Question 3
-----
*****
***
*
***
*****
```

## # Question 4:

```
eclipse-workspace - javaProj/src/javaProj/Assignment1_c0930321.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help

Debug Project Explorer ×
javaProj
├── JRE System Library [JavaSE-21]
└── src
    ├── javaProj
    │   ├── Assignment1_c0930321.java
    │   ├── first.java
    │   ├── week3exercises.java
    │   └── week4exercise_930321.java
    └── module-info.java

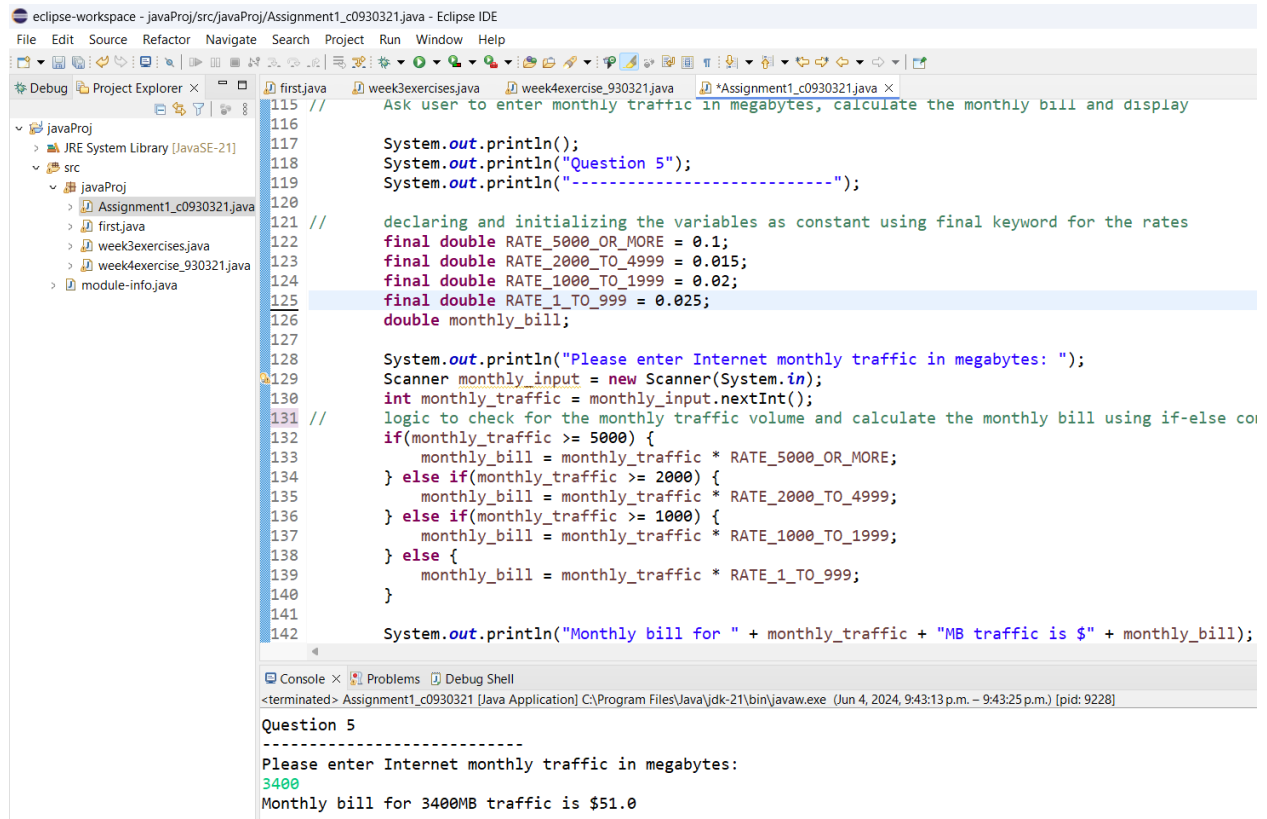
86      }
87
88  //      Question 4: Ontario sales tax rate is 13%. Ask user to enter sales amount from
89  //      calculate tax amount and display in the console. Decimal part must be rounded
90  //      hundredth (cents).
91
92      System.out.println();
93      System.out.println("Question 4");
94      System.out.println("-----");
95
96      double sales_tax_rate = 0.13;
97      System.out.println("Enter sales amount: ");
98      Scanner user_inp = new Scanner(System.in);
99      double sales_amount = user_inp.nextDouble();
100
101      double tax_amount = sales_amount * sales_tax_rate;
102
103  //      rounding off the tax amount to hundredth
104      tax_amount = Math.round(tax_amount * 100.0) / 100.0;
105
106      System.out.println("Sales tax amount is $" + tax_amount);
107
108
109  }
110
111 }
```

Console × Problems Debug Shell

```
<terminated> Assignment1_c0930321 [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jun 4, 2024, 9:28:16 p.m. – 9:28:23 p.m.) [pid: 1912]
*****

Question 4
-----
Enter sales amount:
45609
Sales tax amount is $5929.17
```

## #Question 5:



The screenshot shows the Eclipse IDE interface. The top toolbar includes icons for File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, and Help. The Project Explorer on the left shows a project named 'javaProj' with a source folder 'src' containing files: 'first.java', 'Assignment1\_c0930321.java', 'week3exercises.java', 'week4exercise\_930321.java', and 'module-info.java'. The main editor displays the code for 'Assignment1\_c0930321.java'.

```
115 // Ask user to enter monthly traffic in megabytes, calculate the monthly bill and display
116
117 System.out.println();
118 System.out.println("Question 5");
119 System.out.println("-----");
120
121 // declaring and initializing the variables as constant using final keyword for the rates
122 final double RATE_5000_OR_MORE = 0.1;
123 final double RATE_2000_TO_4999 = 0.015;
124 final double RATE_1000_TO_1999 = 0.02;
125 final double RATE_1_TO_999 = 0.025;
126 double monthly_bill;
127
128 System.out.println("Please enter Internet monthly traffic in megabytes: ");
129 Scanner monthly_input = new Scanner(System.in);
130 int monthly_traffic = monthly_input.nextInt();
131 // logic to check for the monthly traffic volume and calculate the monthly bill using if-else co
132 if(monthly_traffic >= 5000) {
133     monthly_bill = monthly_traffic * RATE_5000_OR_MORE;
134 } else if(monthly_traffic >= 2000) {
135     monthly_bill = monthly_traffic * RATE_2000_TO_4999;
136 } else if(monthly_traffic >= 1000) {
137     monthly_bill = monthly_traffic * RATE_1000_TO_1999;
138 } else {
139     monthly_bill = monthly_traffic * RATE_1_TO_999;
140 }
141
142 System.out.println("Monthly bill for " + monthly_traffic + "MB traffic is $" + monthly_bill);
```

The Console window at the bottom shows the program's execution output:

```
<terminated> Assignment1_c0930321 [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jun 4, 2024, 9:43:13 p.m. - 9:43:25 p.m.) [pid: 9228]

Question 5
-----
Please enter Internet monthly traffic in megabytes:
3400
Monthly bill for 3400MB traffic is $51.0
```