

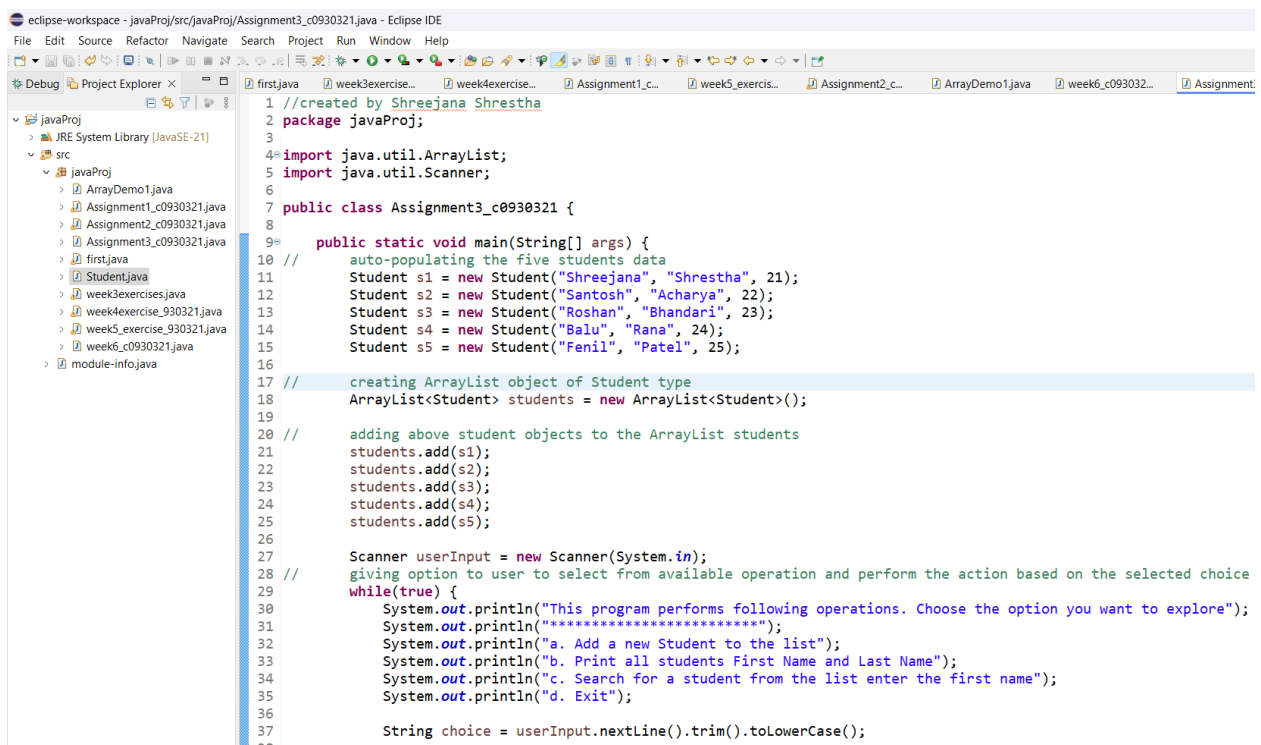
## Assignment: 02

Student Name : Shreejana Shrestha

Student Id : C0930321

## # Question 1

## # Screenshots of code with Output



```
eclipse-workspace - javaProj/src/javaProj/Assignment3_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
      ArrayDemo1.java
      Assignment1_c0930321.java
      Assignment2_c0930321.java
      Assignment3_c0930321.java
      first.java
      Student.java
      week3exercises.java
      week4exercise_930321.java
      week5_exercise_930321.java
      week6_c0930321.java
      module-info.java

1 //created by Shreejana Shrestha
2 package javaProj;
3
4 import java.util.ArrayList;
5 import java.util.Scanner;
6
7 public class Assignment3_c0930321 {
8
9     public static void main(String[] args) {
10         // auto-populating the five students data
11         Student s1 = new Student("Shreejana", "Shrestha", 21);
12         Student s2 = new Student("Santosh", "Acharya", 22);
13         Student s3 = new Student("Roshan", "Bhandari", 23);
14         Student s4 = new Student("Balu", "Rana", 24);
15         Student s5 = new Student("Fenil", "Patel", 25);
16
17         // creating ArrayList object of Student type
18         ArrayList<Student> students = new ArrayList<Student>();
19
20         // adding above student objects to the ArrayList students
21         students.add(s1);
22         students.add(s2);
23         students.add(s3);
24         students.add(s4);
25         students.add(s5);
26
27         Scanner userInput = new Scanner(System.in);
28         // giving option to user to select from available operation and perform the action based on the selected choice
29         while(true) {
30             System.out.println("This program performs following operations. Choose the option you want to explore");
31             System.out.println("*****");
32             System.out.println("a. Add a new Student to the list");
33             System.out.println("b. Print all students First Name and Last Name");
34             System.out.println("c. Search for a student from the list enter the first name");
35             System.out.println("d. Exit");
36
37             String choice = userInput.nextLine().trim().toLowerCase();
38         }
39     }
40 }
```

eclipse-workspace - javaProj/src/javaProj/Assignment3\_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
    - ArrayDemo1.java
    - Assignment1\_c0930321.java
    - Assignment2\_c0930321.java
    - Assignment3\_c0930321.java
    - first.java
    - Student.java
    - week3exercises.java
    - week4exercise\_930321.java
    - week5\_exercise\_930321.java
    - week6\_c0930321.java
    - module-info.java

```
39         switch(choice) {
40             case "a":
41                 addStudent(students, userInput);
42                 System.out.println("-----");
43                 break;
44             case "b":
45                 printAllStudentName(students);
46                 System.out.println("-----");
47                 break;
48             case "c":
49                 searchStudent(students, userInput);
50                 System.out.println("-----");
51                 break;
52             case "d":
53                 System.out.println("Exited from program!");
54                 System.out.println("Thank you. BYE BYE!!!");
55                 return;
56             default:
57                 System.out.println("Invalid choice. Please try again!");
58         }
59     }
60 }
61
62
63 // function to add the student to the arrayList taking details from user
64 public static void addStudent(ArrayList<Student> students, Scanner userInput) {
65     System.out.println("Please provide Student details");
66     System.out.println("-----");
67     System.out.print("Enter Student's first name: ");
68     String firstName = userInput.nextLine().trim();
69     // validating if the entered first name is empty
70     while(firstName.isEmpty()) {
71         System.out.println("First name cannot be empty. Please enter a valid first name: ");
72         firstName = userInput.nextLine().trim();
73     }
74
75     System.out.print("Enter Student's last name: ");
```

eclipse-workspace - javaProj/src/javaProj/Assignment3\_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
    - ArrayDemo1.java
    - Assignment1\_c0930321.java
    - Assignment2\_c0930321.java
    - Assignment3\_c0930321.java
    - first.java
    - Student.java
    - week3exercises.java
    - week4exercise\_930321.java
    - week5\_exercise\_930321.java
    - week6\_c0930321.java
    - module-info.java

```
76 String lastName = userInput.nextLine().trim();
77 // validating if the entered last name is empty
78 while(lastName.isEmpty()) {
79     System.out.println("Last name cannot be empty. Please enter a valid last name: ");
80     lastName = userInput.nextLine().trim();
81 }
82
83 int age = 0;
84 boolean validAge = false;
85 // validating the entered age to be positive
86
87 while (!validAge) {
88     System.out.print("Enter Student's age: ");
89     if (userInput.hasNextInt()) {
90         age = userInput.nextInt();
91         userInput.nextLine();
92         if (age > 0) {
93             validAge = true;
94         } else {
95             System.out.println("Age must be a positive integer.");
96         }
97     } else {
98         System.out.println("Invalid input. Please enter a valid integer for age.");
99         userInput.next();
100    }
101 }
102
103 students.add(new Student(firstName, lastName, age));
104 System.out.println("Student's details added successfully!");
105 System.out.println();
106 }
107
108 // function to print all the students' full name that consists in the list
109 public static void printAllStudentName(ArrayList<Student> students) {
110     for(Student student: students) {
111         System.out.println(student.getFirstName() + " " + student.getLastName());
112     }
113 }
114
115 // function to search student and get the student details
116 public static void searchStudent(ArrayList<Student> students, Scanner userInput) {
117     System.out.println("Enter the first name of student to view the details: ");
118     String firstName = userInput.nextLine().trim();
119     boolean isNameFound = false;
120
121     for(Student student: students) {
122         if(student.getFirstName().equalsIgnoreCase(firstName)) {
123             System.out.println("First Name: " + student.getFirstName() + "\n" + "Last Name: " + student.getLastName() + "\n" + "Age: " + student.getAge());
124             isNameFound = true;
125             break;
126         }
127     }
128     if (!isNameFound) {
129         System.out.println("No record found!");
130     }
131 }
132 }
133
134
```

```
100
107
108 // function to print all the students' full name that consists in the list
109 public static void printAllStudentName(ArrayList<Student> students) {
110     for(Student student: students) {
111         System.out.println(student.getFirstName() + " " + student.getLastName());
112     }
113 }
114
115 // function to search student and get the student details
116 public static void searchStudent(ArrayList<Student> students, Scanner userInput) {
117     System.out.println("Enter the first name of student to view the details: ");
118     String firstName = userInput.nextLine().trim();
119     boolean isNameFound = false;
120
121     for(Student student: students) {
122         if(student.getFirstName().equalsIgnoreCase(firstName)) {
123             System.out.println("First Name: " + student.getFirstName() + "\n" + "Last Name: " + student.getLastName() + "\n" + "Age: " + student.getAge());
124             isNameFound = true;
125             break;
126         }
127     }
128     if (!isNameFound) {
129         System.out.println("No record found!");
130     }
131 }
132 }
133
134
```

```
Console x Problems J Debug Shell
<terminated> Assignment3_c0930321 [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jun 19, 2024, 9:55:54 p.m. – 9:56:47 p.m.) [pid
This program performs following operations. Choose the option you want to explore
*****
a. Add a new Student to the list
b. Print all students First Name and Last Name
c. Search for a student from the list enter the first name
d. Exit
a
Please provide Student details
-----
Enter Student's first name:
First name cannot be empty. Please enter a valid first name:
Roshan
Enter Student's last name: Adhikari
Enter Student's age: 26
Student's details added successfully!

-----
This program performs following operations. Choose the option you want to explore
*****
a. Add a new Student to the list
b. Print all students First Name and Last Name
c. Search for a student from the list enter the first name
d. Exit
a
Please provide Student details
-----
Enter Student's first name: Gaurav
Enter Student's last name: Gc
Enter Student's age: 27
Student's details added successfully!

-----
```

-----

This program performs following operations. Choose the option you want to explore

\*\*\*\*\*

- a. Add a new Student to the list
- b. Print all students First Name and Last Name
- c. Search for a student from the list enter the first name
- d. Exit

b

Shreejana Shrestha  
Santosh Acharya  
Roshan Bhandari  
Balu Rana  
Fenil Patel  
Roshan Adhikari  
Gaurav Gc

-----

This program performs following operations. Choose the option you want to explore

\*\*\*\*\*

- a. Add a new Student to the list
- b. Print all students First Name and Last Name
- c. Search for a student from the list enter the first name
- d. Exit

c

Enter the first name of student to view the details:

Balu

First Name: Balu  
Last Name: Rana  
Age: 24

-----

This program performs following operations. Choose the option you want to explore

\*\*\*\*\*

- a. Add a new Student to the list

```
Console × Problems Debug Shell
<terminated> Assignment3_c0930321 [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jun 19, 2024, 9:55:54 p.m. – 9:56:47 p.m.)

a. Add a new Student to the list
b. Print all students First Name and Last Name
c. Search for a student from the list enter the first name
d. Exit
c
Enter the first name of student to view the details:
shreejana
First Name: Shreejana
Last Name: Shrestha
Age: 21
-----
This program performs following operations. Choose the option you want to explore
*****
a. Add a new Student to the list
b. Print all students First Name and Last Name
c. Search for a student from the list enter the first name
d. Exit
c
Enter the first name of student to view the details:
a
No record found!
-----
This program performs following operations. Choose the option you want to explore
*****
a. Add a new Student to the list
b. Print all students First Name and Last Name
c. Search for a student from the list enter the first name
d. Exit
d
Exited from program!
Thank you. BYE BYE!!!
```