

Assignment: 05

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Question 1

Screenshots of code with Output

The screenshot displays the Eclipse IDE interface. The left sidebar shows the Project Explorer with a tree view of the project structure, including 'javaProj' and its sub-packages like 'Ajawa', 'ArrayDemo1.java', and 'Assignment1_c0930321.java'. The main editor window shows the source code for 'Assignment3_c0930321.java'. The code is a Java program that prompts the user to enter the number of countries visited, validates the input, and then prompts for the names of the countries. It uses a regular expression to validate the country names and a pattern to sort them in descending order. The console window on the right shows the output of the program, including the prompts, user input, and the resulting lists of countries.

```
17 System.out.println("Enter the number of countries you visited:");
18 int size = 0;
19 while(true) {
20     if(userInput.hasNextInt()) {
21         size = userInput.nextInt();
22         userInput.nextLine();
23         if(size > 0) {
24             break;
25         } else {
26             System.out.println("Invalid input. Please enter a positive integer for the size.");
27         }
28     } else {
29         System.out.println("Invalid input. Please enter a positive integer for the size.");
30         userInput.next();
31     }
32 }
33
34 String[] countries = new String[size];
35 // pattern to validate the alphabetic strings entered by user
36 String regex = "[a-zA-Z]+";
37 Pattern pattern = Pattern.compile(regex);
38
39 // getting array elements from user and populating in the array
40 for(int i = 0; i < size; i++) {
41     System.out.println("Enter the name of countries you visited (strings(a-zA-Z) only):");
42     String el = userInput.nextLine();
43     Matcher matcher = pattern.matcher(el);
44
45     while(!matcher.matches()) {
46         System.out.println("Invalid input. Please enter a positive integer for the size.");
47         System.out.println("Enter the name of countries you visited (strings(a-zA-Z) only):");
48         el = userInput.nextLine();
49         matcher = pattern.matcher(el);
50     }
51     countries[i] = el;
52 }
53 }
```

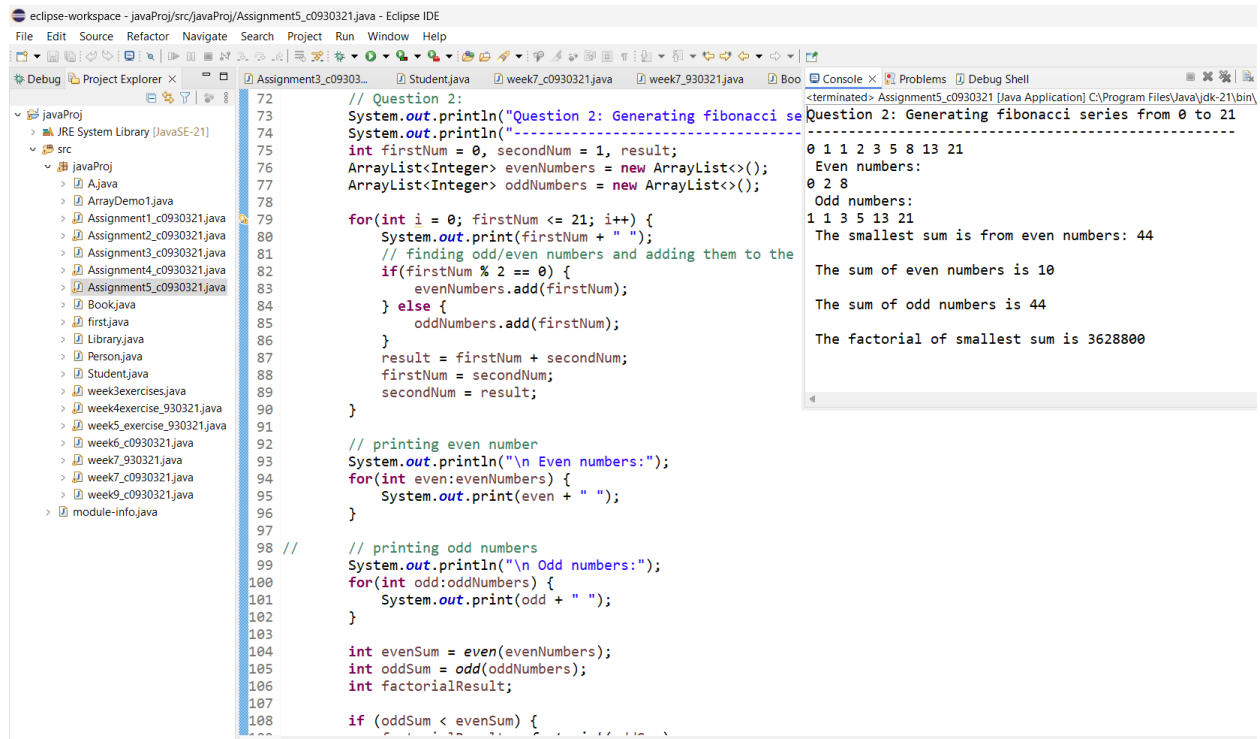
Console Output:

```
<terminated> Assignment5_c0930321 [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jul 11, 2024 11:00:00 AM)
Question 1
-----
Enter the number of countries you visited:
0
Invalid input. Please enter a positive integer for the size.
-1
Invalid input. Please enter a positive integer for the size.
5
Enter the name of countries you visited (strings(a-zA-Z) only):1:
Nepal
Enter the name of countries you visited (strings(a-zA-Z) only):2:
norway
Enter the name of countries you visited (strings(a-zA-Z) only):3:
Usa
Enter the name of countries you visited (strings(a-zA-Z) only):4:
uk
Enter the name of countries you visited (strings(a-zA-Z) only):5:
japan

List of countries you visited:
Nepal
norway
Usa
uk
japan

List of countries in descending order:
Usa
uk
norway
Nepal
japan
```

Question 2



The screenshot displays the Eclipse IDE interface. The left sidebar shows the Project Explorer with a project named 'javaProj' containing various Java files. The main editor window shows the code for 'Assignment5_c0930321.java'. The code implements a Fibonacci sequence generator and calculates the sum of even and odd numbers in the sequence, as well as the factorial of the smallest sum.

```
72 // Question 2:
73 System.out.println("Question 2: Generating fibonacci series from 0 to 21");
74 System.out.println("-----");
75 int firstNum = 0, secondNum = 1, result;
76 ArrayList<Integer> evenNumbers = new ArrayList<>();
77 ArrayList<Integer> oddNumbers = new ArrayList<>();
78
79 for(int i = 0; firstNum <= 21; i++) {
80     System.out.print(firstNum + " ");
81     // finding odd/even numbers and adding them to the
82     if(firstNum % 2 == 0) {
83         evenNumbers.add(firstNum);
84     } else {
85         oddNumbers.add(firstNum);
86     }
87     result = firstNum + secondNum;
88     firstNum = secondNum;
89     secondNum = result;
90 }
91
92 // printing even number
93 System.out.println("\n Even numbers:");
94 for(int even:evenNumbers) {
95     System.out.print(even + " ");
96 }
97
98 // printing odd numbers
99 System.out.println("\n Odd numbers:");
100 for(int odd:oddNumbers) {
101     System.out.print(odd + " ");
102 }
103
104 int evenSum = even(evenNumbers);
105 int oddSum = odd(oddNumbers);
106 int factorialResult;
107
108 if (oddSum < evenSum) {
109     factorialResult = factorial(oddSum);
110 } else {
111     factorialResult = factorial(evenSum);
112 }
```

The Console window on the right shows the output of the program:

```
<terminated> Assignment5_c0930321 (Java Application) C:\Program Files\Java\jdk-21\bin\
Question 2: Generating fibonacci series from 0 to 21
-----
0 1 1 2 3 5 8 13 21
Even numbers:
0 2 8
Odd numbers:
1 1 3 5 13 21
The smallest sum is from even numbers: 44

The sum of even numbers is 10
The sum of odd numbers is 44
The factorial of smallest sum is 3628800
```