```java
// Name: Rupankar Das
// PRN: 23070126111
// Batch: Class of 2027 | AIML B2
// Description: This program demonstrates array operations, including separation of even/odd numbers, //
finding the smallest distance between two numbers, and converting between arrays and ArrayLists.

public class Main {     public static void
main(String[] args) {          // Example usage of
different functionalities

        // Separate even and odd numbers
EvenOddSeparator separator = new EvenOddSeparator();
separator.acceptNumbers();          separator.display();

        // Find smallest distance between two adjacent numbers          int[] arr = {3, 8, 15,
2, 7, 9};          int index = SmallestDistanceFinder.findSmallestDistanceIndex(arr);
System.out.println("Index of the first number with the smallest distance: " + index);

        // Convert between Array and ArrayList
ArrayConverter converter = new ArrayConverter();
converter.arrayToArrayList();
converter.arrayListToArray();     }
}
```

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```java
import java.util.ArrayList;
import java.util.Arrays;

// This class provides methods to convert between arrays and
ArrayLists. public class ArrayConverter {     // Converts an array to
an ArrayList     public void arrayToArrayList() {         String[] arr
= {"Apple", "Banana", "Cherry"};
        ArrayList<String> list = new ArrayList<>(Arrays.asList(arr));

        System.out.println("Converted Array to ArrayList: " + list);
    }

    // Converts an ArrayList to an array     public void arrayListToArray() {
ArrayList<String> list = new ArrayList<>(Arrays.asList("Dog", "Cat", "Elephant"));
        String[] arr = list.toArray(new String[0]);

        System.out.println("Converted ArrayList to Array: " + Arrays.toString(arr));
    }
}
```

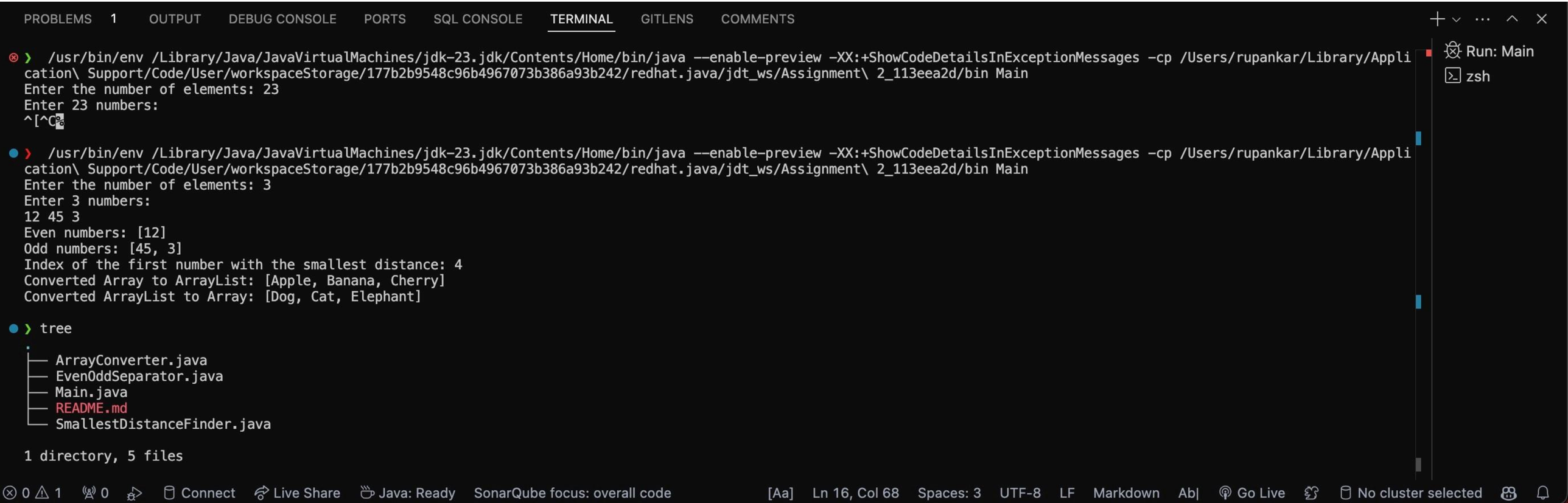
```java
// This class finds the index of two neighboring numbers with the smallest distance in an array.
public class SmallestDistanceFinder {     public static int
findSmallestDistanceIndex(int[] arr) {         if (arr.length < 2) {             throw
new IllegalArgumentException("Array must have at least two elements.");         }

        int minIndex = 0;         int minDiff =
Math.abs(arr[1] - arr[0]);

        for (int i = 1; i < arr.length - 1; i++) {
int diff = Math.abs(arr[i + 1] - arr[i]);
if (diff < minDiff) {                 minDiff =
diff;                 minIndex = i;             }
}         return minIndex;     }
}
```

GITHUB

https://github.com/mvrck-dev/Java-Lab/tree/main/Assignments/Assignment%202


PROBLEMS 1
OUTPUT
DEBUG CONSOLE
PORTS
SQL CONSOLE
TERMINAL
GITLENS
COMMENTS
Run: Main
zsh
❯ /usr/bin/env /Library/Java/JavaVirtualMachines/jdk-23.jdk/Contents/Home/bin/java --enable-preview -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/rupankar/Library/Application\ Support/Code/User/workspaceStorage/177b2b9548c96b4967073b386a93b242/redhat.java/jdt_ws/Assignment\ 2_113eea2d/bin Main
Enter the number of elements: 23
Enter 23 numbers:
^[^C
❯ /usr/bin/env /Library/Java/JavaVirtualMachines/jdk-23.jdk/Contents/Home/bin/java --enable-preview -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/rupankar/Library/Application\ Support/Code/User/workspaceStorage/177b2b9548c96b4967073b386a93b242/redhat.java/jdt_ws/Assignment\ 2_113eea2d/bin Main
Enter the number of elements: 3
Enter 3 numbers:
12 45 3
Even numbers: [12]
Odd numbers: [45, 3]
Index of the first number with the smallest distance: 4
Converted Array to ArrayList: [Apple, Banana, Cherry]
Converted ArrayList to Array: [Dog, Cat, Elephant]
❯ tree
.
├── ArrayConverter.java
├── EvenOddSeparator.java
├── Main.java
├── README.md
└── SmallestDistanceFinder.java
1 directory, 5 files
0 1 0
Connect
Live Share
Java: Ready
SonarQube focus: overall code
[Aa]
Ln 16, Col 68
Spaces: 3
UTF-8
LF
Markdown
Ab|
Go Live
No cluster selected