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Batch Code: ANP-C6315

Lab Assignment – 12

Question 1: 1) Create a ArrayList object,

-> read the even numbers

-> Sort them by using Collections.sort()

-> reverse the list by using Collections.reverse()

-> Find the max and min value from list.

-> Read the search value and search by using BinarySearch()

Input:

```
import java.util.ArrayList;
import java.util.Collections;
import java.util.Scanner;

public class ArrayListExample {
    public static void main(String[] args) {
        // Create an ArrayList object
        ArrayList<Integer> numbers = new ArrayList<>();

        // Add some numbers to the list
        numbers.add(4);
        numbers.add(2);
        numbers.add(8);
```

```
numbers.add(6);
numbers.add(10);

// Read the even numbers
ArrayList<Integer> evenNumbers = new ArrayList<>();
for (int num : numbers) {
   if (num % 2 == 0) {
      evenNumbers.add(num);
   }
}

// Sort the even numbers
Collections.sort(evenNumbers);

// Reverse the list
Collections.reverse(evenNumbers);

// Find max and min value
int max = Collections.max(evenNumbers);
int min = Collections.min(evenNumbers);

// Display the sorted and reversed list
System.out.println("Sorted and reversed even numbers: " + evenNumbers);

// Display max and min values
System.out.println("Max value: " + max);
System.out.println("Min value: " + min);

// Read the search value
Scanner scanner = new Scanner(System.in);
System.out.print("Enter a number to search: ");
```

```
        int searchValue = scanner.nextInt();

        // Perform binary search
        int index = Collections.binarySearch(evenNumbers, searchValue);

        // Display the result of binary search
        if (index >= 0) {
            System.out.println(searchValue + " found at index " + index);
        } else {
            System.out.println(searchValue + " not found in the list.");
        }
    }
}
```

Output:

Sorted and reversed even numbers: [10, 8, 6, 4, 2]

Max value: 10

Min value: 2

Enter a number to search: 5

5 not found in the list.

Question 2: Write a Java Program to reverse a string without using any inbuilt function.

```
import java.util.Scanner;

public class StringReversal {
    public static void main(String[] args) {
        // Read a string from the user
        Scanner scanner = new Scanner(System.in);
```

```
    System.out.print("Enter a string: ");
    String input = scanner.nextLine();

    // Reverse the string without using inbuilt functions
    String reversed = reverseString(input);

    // Display the reversed string
    System.out.println("Reversed String: " + reversed);
}

// Function to reverse a string without using inbuilt functions
private static String reverseString(String str) {
    char[] charArray = str.toCharArray();
    int start = 0;
    int end = str.length() - 1;

    while (start < end) {
        // Swap characters at start and end indices
        char temp = charArray[start];
        charArray[start] = charArray[end];
        charArray[end] = temp;

        // Move indices towards the center
        start++;
        end--;
    }
```

```
        // Create a new string from the reversed character array
        return new String(charArray);
    }
}
```

Output:

Enter a string: Hello, World!

Reversed String: !dlroW ,olleH