PHASE 1 PRACTICE ASSISTED PROJECT

2. Writing a program in Java implementing the binary search algorithm

```java
package main;

public class BinarySearch {

	public static int binarySearch(int[] arr, int target) {
		int left = 0;
		int right = arr.length - 1;

			while (left <= right) {
				int mid = left + (right - left) / 2;

				if (arr[mid] == target) {
					return mid; // Target found
				} else if (arr[mid] < target) {
					left = mid + 1; // Search in the right half
				} else {
					right = mid - 1; // Search in the left half
				}
			}

			return -1; // Target not found
		}

		public static void main(String[] args) {
			int[] arr = {2, 5, 8, 12, 16, 23, 38, 56, 72, 91};
			int target = 23;

			int index = binarySearch(arr, target);

			if (index != -1) {
				System.out.println("Target found at index: " + index);
			} else {
				System.out.println("Target not found in the array.");
			}
		}
	}
```

OUTPUT-