

### Exercise 5: Testing.

A software engineer has asked ChatGPT to create a Java program that finds the items in an array that are lower than 50 and ChatGPT has generated the following code:

*Sure, here's a simple Java program that finds and prints the items in an array that are lower than 50:*

```
public class Main {  
    public static void main(String[] args) {  
        int[] array = {10, 60, 30, 40, 80, 20, 90}; // Example array  
        System.out.println("Items in the array lower than 50:");  
  
        // Loop through the array  
        for (int i = 0; i < array.length; i++) {  
            // Check if the current element is lower than 50  
            if (array[i] < 50) {  
                System.out.println(array[i]);  
            }  
        }  
    }  
}
```

Given the above Java code, design a test plan using black-box and white-box testing.

After writing your testing plan, run the tests using the given code and write the output in the 'Output column, add mark in 'Pass/fail' if the program has passed the test (i.e., the result is the same as the expected result).

[SOLUTION]

Test case / scenario	Input	Expected Output	Output	Pass/Fail
Empty array test	[]	None	None	Pass
Array with no elements lower than 50	[100, 300, 62]	None	None	Pass
Array with some elements lower than 50	[23, 45, 90, 100]	23 45	23 45	Pass

Arrays with all elements lower than 50	[0, 4, 45, 30]	0 4 45 30	0 4 45 30	Pass
Array with first element and last element lower than 50	[0, 89, 75, 23]	0 23	0 23	Pass
Array with negative elements	[-30, -10, -50]	-30 -10 -50	-30 -10 -50	Pass
Array with only one element lower than 50	[10]	10	10	Pass
Array with one element greater than 50	[245]	245	245	Pass
Array with value 50	[50, 23, 45]	23 45	23 45	Pass
Array with value 49	[49, 23, 45]	49 23 45	49 23 45	Pass
Array with duplicates	[49, 49, 48, 48]	49 49 48 48	49 49 48 48	Pass
Array of doubles	[1.2, 3.5, 49.8]	1.2 3.5 49.8	Compilation error	Fail
Array with wrong data type	["Alex", "Bob", "MAx"]	Error message	Compilation error	Fail

Please note that this list is not exhaustive.