Day 1 - Java Practice: Arrays & Strings (Beginner)

Problem 1: Reverse an Array

```
Write a program to reverse an array in Java.

Example:
Input: [1, 2, 3, 4, 5]
Output: [5, 4, 3, 2, 1]

Solution:

int[] arr = {1, 2, 3, 4, 5};
int start = 0, end = arr.length - 1;
while (start < end) {
    int temp = arr[start];
    arr[start] = arr[end];
    arr[end] = temp;
    start++;
    end--;
}
System.out.println(Arrays.toString(arr));
```

Problem 2: Find Maximum Element in Array

```
Write a program to find the maximum element in an array.

Example:
Input: [1, 9, 3, 7]
Output: 9

Solution:

int[] arr = {1, 9, 3, 7};
int max = arr[0];
for (int i = 1; i < arr.length; i++) {
    if (arr[i] > max) {
        max = arr[i];
    }
}
System.out.println("Max: " + max);
```

Problem 3: Check if String is Palindrome

```
Write a Java program to check if a given string is a palindrome.

Example:
Input: "madam"
```

```
Output: true

Solution:

String str = "madam";
int left = 0, right = str.length() - 1;
boolean isPalindrome = true;
while (left < right) {
    if (str.charAt(left) != str.charAt(right)) {
        isPalindrome = false;
        break;
    }
    left++;
    right--;
}
System.out.println(isPalindrome);
```

Problem 4: Count Frequency of Element

```
Write a program to count the frequency of an element in an array.

Example:
Input: [1, 2, 2, 3, 2], target = 2
Output: 3

Solution:

int[] arr = {1, 2, 2, 3, 2};
int target = 2, count = 0;
for (int num : arr) {
    if (num == target) count++;
}
System.out.println("Frequency: " + count);
```

Problem 5: Reverse a String

```
Write a Java program to reverse a given string.

Example:
Input: "hello"
Output: "olleh"

Solution:

String str = "hello";
StringBuilder sb = new StringBuilder(str);
sb.reverse();
```

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```
System.out.println(sb.toString());
```