1. Problem 1

```java
int[] arrays(int n) {
        int[] arr = new int[n];
        for (int i = 0; i < n; ++i) {
                arr[i] = 1;
        }
        for (int i = 0; i < n; ++i) {
                for (int j = i; j < n; ++j) {
                        arr[i] += arr[j] + i + j;
                }
        }
        return arr;
    }
```

Solution: The first for loop takes $O(n)$. The second (nested) for loop requires $O(n^2)$. Asymptotic running time: $O(n) + O(n^2) = O(n^2)$.