1- Please write a function (using a comprehensible pseudocode syntax) that searches for a sub-string in a main string and returns whether the sub-string is found. Calculate the worst case time complexity of the function and show the result using big-O notation. Signature of the function would be:

```
public boolean search(String mainString, String subString) {
...
}
```

2- Please write a function (using a comprehensible pseudocode syntax) that implements the **depth-first search** algorithm for a three structure without using **recursion**. Calculate the worst-case time complexity and present the final complexity using bigO notation. (You can consult to https://github.com/bahadrzeren/aa/tree/main/src/w04search)

3- Please study on the time complexities of sorting functions (Selection, Buble, Insertion, Heap, Merge, Quick).