Q1. What is the difference between in-place and out-place sorting algorithms?

Ans1.

An **in-place sorting algorithm** sorts the elements in place: that is, it needs only *O*(1) extra space.

An **out-of-place sorting algorithm** needs extra space to put the elements in as it's sorting them. Usually this means *O(n)* extra space.

**Bubble sort** is an example of in-place sorting.

**Merge-sort** is an example of out-of-place sorting.

Q3. Suggest some practical examples of using in-place and out-place techniques.

Ans3.

**Practical examples of in-place techniques:**

Copying and pasting text from one file to another. (cmd + C, cmd + V)

Sorting files in a folder by name.

**Practical examples of Out-place techniques:**

Cutting and pasting text from one file to another. (cmd + X, cmd + V)

Mapping an array returns a new array.