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1. What do TSV files use to separate their data? **1 / 1 point**

- ○ Types
- ○ Topic
- ◉ Tabs

Correct
That's correct. The TSV are Tab Separated Values.

2. Arrays are always stored on the stack? **1 / 1 point**

- ◉ Yes, but only through making a deep-copy.
- ○ No
- ○ Yes, but only through making a shallow-copy.

Correct
Correct. While one can make a shallow copy of an array, the actual array itself is not copied. Making a deep copy creates a new instance of an array with the same values but that exists in its own space in memory.

3. What happens when you try to retrieve a value using a number greater than the index size? **1 / 1 point**

- ○ It would return a warning and a message indicating the issue.
- ○ Nothing. There would be nothing to retrieve so it would return null.
- ◉ It would throw an error.

Correct
That's correct. Accessing the array outside of the index range throws an out-of-bounds error.

4. In relation to computer science, what is a class? **1 / 1 point**

- ○ It is the thing from which arrays are build.

- ○ An object that has functionality.
- ◉ It is a blueprint for an object.

Correct
That's correct. How the class is coded is what characteristics the object will embody.

5. In relation to objects, what are instance variables? **1 / 1 point**

- ◉ Characteristics of the class.
- ○ An attribute that has an immediate impact when compiled.
- ○ Attributes that can take on many forms.

Correct
That's correct. Variables are the characteristics or attributes associated with a class.

6. How many children can a node in a binary tree have? **1 / 1 point**

- ○ 1
- ◉ 2
- ○ 4

Correct
That's correct. As the name suggests it can have two children nodes, one larger and one smaller.

7. Which of the following uses a FIFO approach. **1 / 1 point**

- ○ Stacks
- ◉ Queues
- ○ Lists

Correct
That's correct! A queue works much like its namesake. The first one to arrive is the first one to be served.

8. In relation to data structures what does synchronization mean? **1 / 1 point**

- ○ It is something to do with swimming.
- ○ Relates to a measured way of increasing the size of an object.
- ◉ Making a class thread safe.

Correct
That's correct. Synchronizing an object means that only one thing can access it at a time.

9. Why do you need to implement a comparator when storing objects on a tree? **1 / 1 point**

- (●) As a means of comparing objects so the tree knows which node to store an object on.
- ( ) To ensure that values don't clash when being added to a tree.
- ( ) So that the compiler can know to keep the tree balanced by comparing a number of nodes.

Correct
That's correct. The implementation of some trees requires that objects are stored relative to one another. Enabling a comparator allows you store objects of different types in relation to one another.

10. Why are heaps called heaps? **1 / 1 point**

- ( ) Because they store a selection of different data types.
- ( ) The organization of their data is done in a very loose way, so it is said that the elements are heaped together.
- (●) The order of importance is determined by where in the data structure the information is found.

Correct
Correct. A heap will place the most important element at the top. This can be the highest or lowest depending on implementation. The design of this approach is that one would only take the top value and not try and retrieve one in the middle.