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3. Theory – Purpose of Datastructures

- **What is the main purpose of a priority queue?**

A priority queue presorts its elements by giving each element a priority. Therefore elements with a higher priority are progressed before an element with lower priority. This results in a better performance and possible solutions are likelier to be found faster.

- **What is special about the priority queue provided with the framework?**

The class implements a priority-queue with stable sorting and remembers the order in which elements with the same key have been inserted. Furthermore it returns those elements in that order again.

- **What is special about the stack provided with the framework?**

It has a fast "contain" function, because it uses a HashSet with the classspecific "contain" function. A HashSet has always a O(1) with the function "contain". A ArrayList has for example in the same function O(n). And the "push" and "pop" operations use the set functions "add" and "remove", which are also fast.

- **Which data structure should we choose to implement a "closed list" as it is often called in the literature?**

A Hash Table