what I have learned

The assignment presented little in terms of gained knowledge simply because the subject matter had already been covered in DTE-2511. But with that said the assignment was a good refreshener on the various data structures. I can definitely see how having done the assignment will leave me better prepared for tackling more advanced and more commonly used data structures that will be touched upon later down the line in the subject.

discussion

As an example of a stack, you have plates. The type you serve food on. Typically, you take the top plate, eat your meal, wash it, and put it back at the top of the stack. This means that a stack of plates, or more commonly used in examples, lunch trays, are a good analog for stacks in computer science. Another example of a stack is a music playlist. If sorted by when the songs were added (default on Spotify and YouTube) and not shuffled. This is typically done because people want to listen to the new song they just found. But it also has the effect of creating a stack.

for queue data struckture you need look no further than, well, a queue. Queues in the real-world work identically to their digital counterparts. Be it at the supermarket or at a burger shop. Its first come. First serve.

As for the emergency room queue data structure, an example would be buss seats. not so much nowadays, but if you go back to the 1900s it was much more common for public transport to be packed to the brim with too many people and not enough seats. This would mean that you would have both a queue of people, but also a priority. A healthy young man would be the last in line and a pregnant woman or elderly disabled would be given seat instead.

Lastly there is the binary search tree. And while in computer science it can be useful. In other contexts, it is simply too specific and impractical. Thus, I cannot provide an example as I cannot pinpoint even one.

sources used:

https://www.geeksforgeeks.org/

https://pypi.org/project/binarytree/

https://pypi.org/project/HeapDict/