



SOFE 3950U / CSCI 3020U: Operating Systems

TUTORIAL #8 Solutions: POSIX Threads

Group 7 Team Members

Kavinaa Uthayachandran	100566729
Angelie Kennedy	100506702
Anjali Shah	100555990

Conceptual Questions

1. What is an Abstract Data Type (ADT)?

An Abstract Data Type is a type that describes its data items and operations involved on those data items. It does not contain any implementation of the operations only how the data is stored.

2. Explain the difference between a queue (FIFO) and a stack (LIFO).

A queue employs FIFO, which means first in first out. The first data item entered into the queue will be the first data item that leaves the queue. A stack employs LIFO, which means last in first out. The last data item entered into the stack will be the first data item to be removed from the stack. The first data item entered into the stack will be the last data item to be removed from the stack.

3. Name and briefly explain three types of data structures.

A Bag, an ADT, is a collection of items in no order that may contain duplicate items.

A List, an ADT, is an ordered sequence of items that may contain duplicate items.

A Set, an ADT, is a collection of items in no order that cannot contain duplicate items.

4. Explain what a binary tree is, what are some common operations of a binary tree?

A binary tree is a data structure where each node can have a maximum of two child nodes. Common operations include inserting a node as either the left child or the right child of the parent node, Deleting nodes and Traversing through the tree.

5. Explain what a hash table (dictionary) is, what are common operations of a hash table?

A Hash Table is a data structure organized as an array that maps keys to values. It uses a hash function that takes the key as an input and outputs the index value in the hash table associated with that key to find the value. Common operations include putting a new key value pair in the hash table, removing a key from the hash table, get lists containing all values and keys of hash table.

LINK TO SOURCE FILES

git@github.com:kuthayachandran/Tutorial8.git