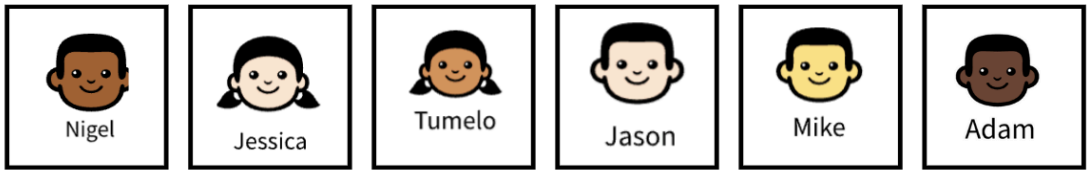
Data Structures

Pre-Practical Activity (Memo)

Exercise 1:

Rearrange the array to be in alphabetic order and show each index swapped:



Find the smallest element (Adam) and swap it with the first element (Nigel):
Swap Index 0 (Nigel) with Index 5 (Adam)
New Array: [Adam, Jessica, Tumelo, Jason, Mike, Nigel]

Find the next smallest element (Jason) and swap it with the second element (Jessica):
Swap Index 1 (Jessica) with Index 3 (Jason)
New Array: [Adam, Jason, Tumelo, Jessica, Mike, Nigel]

Find the next smallest element (Jessica) and it is already in the correct position (Index 3), so no swap needed:
New Array: [Adam, Jason, Jessica, Tumelo, Mike, Nigel]

Find the next smallest element (Mike) and swap it with the fourth element (Tumelo):
Swap Index 3 (Tumelo) with Index 4 (Mike)
New Array: [Adam, Jason, Jessica, Mike, Tumelo, Nigel]

Find the next smallest element (Nigel) and swap it with the fifth element (Tumelo):
Swap Index 4 (Tumelo) with Index 5 (Nigel)
New Array: [Adam, Jason, Jessica, Mike, Nigel, Tumelo]

Final Array in Alphabetical Order: [Adam, Jason, Jessica, Mike, Nigel, Tumelo]

Exercise 2:

Given a stack of bool items in the bag:

1) How many Pops will be required to get the mathematics book?

6

2) What would be the order if all books besides Mathematics and Physics were put back?

[Accounting, Biology, History, English]

3) What would the stack look like if Mathematics and then Physics were put in?

[Physics, Mathematics, Accounting, Biology, History, English]

4) What would happen to the order if the books were moved to another bag?

This will result in a reversed stack.