# Homework 4 Stacks

1. Describe why a stack is not a suitable data structure for holding client records at a call centre. Suggest a more suitable data structure and justify why it is suitable. [4]

1. If a stack is implemented as a dynamic data structure, what bounds the number of items that can be pushed? [1]

3. The operation peek() returns the top item of a stack without removing it from the stack.   
What should happen if a peek() is attempted on an empty stack? [1]

1. Complete the following to show the state of a stack after the indicated operations.   
   The stack can only hold 4 items in total. [4]

|  |  |  |  |
| --- | --- | --- | --- |
| **Instruction** | **Stack** | **Front** | **Result** |
| stack = new array(4) | [] | -1 |  |
| push(rabbit) |  |  |  |
| push(fox) |  |  |  |
| push(mouse) |  |  |  |
| peek() |  |  |  |
| pop() |  |  |  |
| pop() |  |  |  |
| push(hedgehog) |  |  |  |
| push(magpie) |  |  |  |
| push(badger) |  |  |  |
| isFull() |  |  |  |
| peek() |  |  |  |
| pop() |  |  |  |
| pop() |  |  |  |
| pop() |  |  |  |
| pop() |  |  |  |
| isEmpty() |  |  |  |

[Total 10 Marks]