

Question 5

Complete `MidtermStack.java`, which implements the Stack ADT. Please note all operations must have $O(1)$ time complexity.

Please note we use a nested class `Node` to implement `MidtermStack` using a singly linked list. The list is referenced by storing a pointer to its end (`tail`). Moreover, `Node` has a `prev` reference to point to *previous* node. This implementation is deliberately different from what you've seen in class.

You must not add any other field to `MidtermStack` or `Node` classes. Furthermore, you must not change the constructor of `MidtermStack`. You are allowed to add private helper methods. However, you are not allowed to use Java Collections in your implementation.