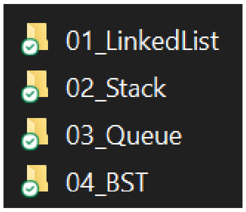
Create eclipse project 2190221_Q1_{yourID}_{FirstName}, for example, **2190221_Q1_6532782021_Adam**

Write code for class Deck that represents a deck of cards in a card game while playing (Each card is just a non-negative integer value). **You must create class Deck from scratch**.

- Choosing existing data structures is important (choose by considering performance).
  - The chosen data structures must ONLY come from the folders below (you can copy it to your project):



01_LinkedList
02_Stack
03_Queue
04_BST

If you use other data structures outside these folders, you get 0 points.

If you create new array or arraylist, you get 0 points.

  - You can **mix files** from the above folders.
  - **JUnit** test file is **in folder Q1**.
- You MUST NOT modify all given data structures files. **You get 0 mark if you do modify it/them**.
- You can write new class(es) that extends from given class(es).

Class Deck stores a deck of cards. Its operations are as follows (All methods MUST NOT throw Exception). Use try/catch to surround the area with potential exception.

- public int draw():
  - If there is no card to remove, return -1.
  - remove a card from the top of the deck. Return the value of that card.
- public int removeNth(int n):
  - remove the nth card (and return its value). The top card is the 0th card. Assume n is always non-negative.
  - If the nth card does not exist, return -1 and do nothing.
- public void putBottom(int n):
  - Put card with value n at the bottom of the deck. This is used to create a deck in the test cases.
- public void reverseTopN(int n):
  - reverse the order of the top n cards (position 0 to position n-1, inclusive). Assume n is positive.
  - If n is too large, just reverse the entire deck. If the deck is empty, do nothing.
  - for example, if the cards are originally:

3
1
6
9
4

reverseTopN(3) will give us:

6
1
3
9
4

Scoring Criteria:

The total score is 25 (will be scaled to 10).

Choosing efficient data structure	5 marks
Minimizing number of iterations in your code	3 marks

Run the given JUnit files (If you do not write your code, you will not get any marks):

testDraw	1 mark
testPutBottom	1 mark
testRemoveNthFirst	1 mark
testRemoveNthOut	1 mark
testRemoveNthLast	1 mark
testRemoveNthGeneric	4 marks
testReverseEmptyDeck	1 mark
testReverseEntireDeck	3 marks
testReverseGeneric	4 marks