*CSE 102*

**Collections - III**

**(Stack and Queue)**

1. Write a function which takes a Stack<Integer> as parameter, returns the second element (from top) without changing the stack at the end.
2. Consider a group of kids forming a queue to shoot a basket in the schoolyard. All kids begin with 0 point, and each successful basket accounts +1 point. The kid in the front of the queue shoots (potentially more than once) until she fails to score a basket, after which she enters the queue from the back again. Each kid has 30% probability of shooting a successful basket each time. The game continues until one of the kids reaches 10 points. Write a program to simulate this game. Experiment with different values for the total number of kids and try to see how it affects the average number of turns a game takes from beginning to end.
3. Write a function which takes two string stacks of equal size and interleaves them into a single stack and returns it.

e.g. interleave([1,2,3], [a,b,c]) returns [1,a,2,b,3,c]

1. Write a function which takes two stacks of sorted integers and dumps their content in a new stack in such a way that the resulting stack is again sorted but in reverse direction.
2. Write a function which takes a stack and returns the bottom-most element without changing the stack in the end.
3. Imitate a queue using two stacks.