60-256 – Assignment 5

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Linked List of “Circles”, Nodes contain two queues (one queue is for “CircleMembers” and the other for “Tweets”).

2D Array of Users with flag indicating if they’ve made their one allotted circle or not.

Additional method “inCircle(userID, circleID)” to check if a user is in a circle or not.

“posting” calls inCircle to check that a user can post a message to the given circle, if so, store the message in the “Tweets” queue. When the queue reaches size 10, dequeue the first (oldest) element and enqueue the new tweet.

“getMessages” calls inCircle to check that a user can see the recent tweets, if so, store the current “Tweets” queue in a temporary stack, then as you move them back to the original queue, print each tweet (this will print the tweets from most recent to least recent). Repeat without printing to place the queue in proper order. (InitialQueue—>TempStack—(Print)—>InitialQueueReversed—>TempStack—>InitialQueue)

Additional method “isOwner(UserID, CircleID)” to check if a user is the owner of a circle or not, i.e. first in queue (allowing adding/removing privileges).

Additional methods “isFull(CircleID)” to check if a circle already has ten members and “isOne(CircleID)” to check if a circle has only a single member.

“joinCircle” calls isOwner to check if current user is the owner of the circle, if so, call “isFull” to see if there is room for a new circle member, if so, add the member to the queue “Circle.”

“leaveCircle” calls isOwner to check if leaving member is the owner, if so, dequeue, allowing each member to move one forward in queue. Next, call “isOne” to see if the leaving member is the last member, if so, delete the node from the linked list (deleting the empty circle). Else, a member from the middle of the queue is leaving, so delete the member from the queue “CircleMembers” and move forward the other members that are most recent so there is no gap in the queue.