# Linked Stack/Queue Program

This program will implement a linked list that can function as either a queue or a stack of integers. There will be two modes that it can run; one to act as a queue, and one to act as a stack.

# Required Function: Push

This function takes the stack and an integer as arguments. It places the value on top of the stack and returns 0 for success or -1 for failure (stack overflow.)

# Required Function: Pop

This function takes the stack as its argument. It removes the top value from the stack and returns it. It should return a -1 when it fails (Stack underflow.)

# Required Function: Enqueue

This function takes the queue, and an integer as arguments. It places the value at the back of the queue and returns 0 for success, and -1 for failure (queue overflow.)

# Required Function: Dequeue

This function takes the queue as its argument. It removes the front value from the queue and returns it. It should return a -1 when it fails (Queue underflow.)

# Required Function: Peek

This function takes the queue as an argument. It returns the front value but does not remove it. It should return a -1 when it fails (queue empty.)

# Required Function: Print

This function takes the stack as an argument. It prints the stack to the screen or an error message if the stack is empty. (returns no value)

# Required Function: Destroy

This function takes the head pointer as an argument. It deletes all elements of the list; this needs to be called before exiting the program. (returns no value)

# Notes

Push, Pop, etc. must have NO output apart from the return value. (NO couts)

The program needs to display an error message when a function returns an error code.

The program must loop and ask which mode the user wants each time.

The program must be well-commented.

The program must be printed out and turned in with this paper attached. (OTHER SIDE UP)

LSQ Program Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- |
| Criteria | Points Possible | Points Earned |
| Loops when completed to ask if user wants to go again, and which mode | 10 |  |
| Enqueue works | 12 |  |
| Dequeue works | 12 |  |
| Destroy works | 10 |  |
| Pop works | 12 |  |
| Push works | 12 |  |
| Peek works | 12 |  |
| Print works | 10 |  |
| Handles errors from these functions | 5 |  |
| Commented | 5 |  |
| Late | -5 points per day late |  |
| Total: | 100 |  |