

Prelab 5 Spring 2025

For this prelab you are to implement a LinkedList ADT, using linked lists, that supports the following functions:

1. This function returns an empty LinkedList object, i.e., this must be called before operations are performed on the list. The parameter is a reference to an error code. 0 signifies the operation was performed correctly, 1 means there was insufficient memory available to initialize the linked list.

```
LinkedList* initializeLinkedList(int*);
```

2. This function inserts the int object of the first parameter at the head of the linked list. The last parameter is an error code (0 implies success, 1 implies insufficient memory). Returns pointer to updated list if there is no error; otherwise returns the given list without change.

```
LinkedList* insertAtHead(int, LinkedList*, int*)
```

3. This function returns the int object at the index location (starting at 1 for the head) of the first parameter.

```
int getAtIndex(int, LinkedList*)
```

4. This function returns the number of objects in the linked list.

```
int getLinkedListLength(LinkedList*)
```

5. This function frees all memory allocated for a linked list and returns NULL.

```
LinkedList * freeLinkedList(LinkedList*)
```

Here's the struct you will use for your linked list nodes:

```
typedef struct linkedListStruct {  
    int object;  
    struct linkedListStruct* next;  
} LinkedList;
```