NATIONAL UNIVERSITY
OF COMPUTER & EMERGING SCIENCES
PESHAWAR CAMPUS

Problem Set:	Assignment: A03	**Semester**:	Fall 2019
Points:	*10*		
Date Set:	*See Autograder*	**Due Date**:	*See Autograder*
Course:	CS218 - Data Structures	**Instructor**:	Dr. Nauman

1 Linked List

Here is a description of what you need to do:

Create the linked list class as we did during our lecture. All the operations should be implemented. Make sure your code is bug free – even if we had a bug in the code we discussed in class!

After that, add methods in the class to support the following new operations:

1.1 Length

Add a function called `len` that returns the length of the list i.e. the number of elements in the list. The logic is simple: loop over the whole list and keep track of a counter. At the end, return the counter.

1.2 Index-based Retrieval

Add a function called `get` that takes one parameter – an index – and returns the value at that index. For instance, if we have a list `lst`:

```
[1, 2, 5, 4, 2]
```

and we call `lst.get(2)`, it should return `5`. If the function is given an index that does not exist (i.e. is beyond the limit of the list), the function should *raise* an `IndexError` type exception. For instance, calling `get(10)` on the list above should result in an `IndexError` exception with a meaningul message.

The logic for the retrieval is again quite simple: loop over the whole list and keep track of a counter. When the counter reaches the desired value, simply return the value at that position. If we reach the end of the list, it means we have an `IndexError`.

2 Submission

Use `python run.py local` to ensure all tests are passing and then submit your assignment using `python run.py remote`

If you wish to request an extension, use the autograder UI to do so. Each student gets a maximum of 3 extension days per semester.