

Name:

Section Leader:

ISTA 350 Queues Worksheet

Implement a class called `Queue` that has four methods. As with our `Stack` class, each `Queue` instance will contain an instance variable called `_items` that you will use to implement the ADT. `_items` will be a Python list. The rear of the queue will be `_items[0]`. This is where the next Python data object to be inserted will go. The front of the queue will be the object with the largest index in `_items` (the first object inserted that is still in the queue) – this is the object that will be returned by `dequeue`.

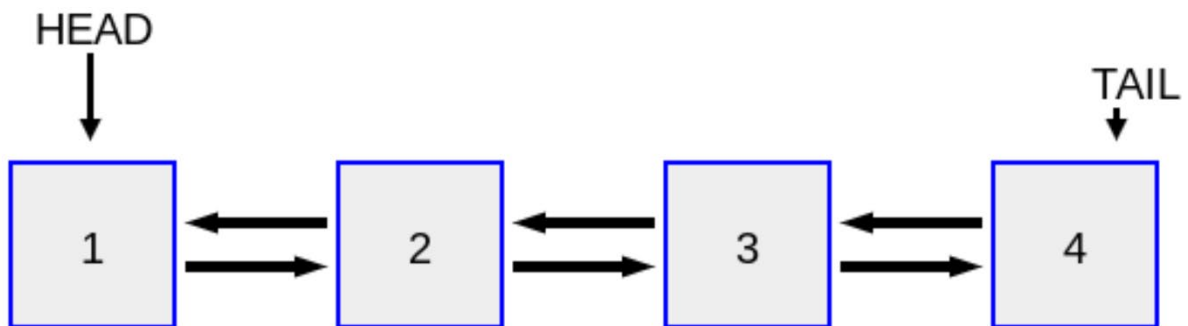
- `__init__` initializes an empty queue.
- `enqueue` adds a new item at the rear of the queue. It returns nothing.
- `dequeue` removes and returns the object at the front of the queue. If the queue is empty, it raises an `IndexError`.
- `peek` returns the object at the front of the queue. If the queue is empty, it raises an `IndexError`.
- `is_empty` returns `True` if the queue has no objects in it, `False` otherwise.

```
class Queue:
```

Method	Big O
<code>__init__</code>	
<code>enqueue</code>	
<code>dequeue</code>	
<code>__len__</code>	
<code>peek</code>	
<code>is_empty</code>	

What is n ?

Here is an illustration of doubly linked list from <https://towardsdatascience.com/doubly-linked-list-why-what-and-how-59aba937abcf>:



Discuss any advantages or disadvantages of using a doubly linked list to implement a queue over our implementation:

Write a function called `keyboard_tokenizer` that takes a `Queue` filled with `KeystrokeEvent` objects and returns a list of tokens (basically words – any sequence of characters that was delimited by whitespace and/or start of line). `KeyStrokeEvent` objects have an attribute called `keycode` that contains the ordinal value of the key pressed. Recall the Python built-in function `chr` that takes an integer and turns it into a character.

Write a function called `palindrome_checker` that takes a string and returns `True` if it is a palindrome (same forwards as backwards) and `False` if not. You must use a `Queue` (hint: use a `Stack` also). Make the function case-insensitive.