Assignment 1: Basic Data Structures

Question

Q1. Implement conversion of Infix Expressions to Prefix.

Q2. (a) Implement the Queue ADT and all the operations, using a list such that the rear of the queue is at the end of the list.
(b) Design and implement an experiment to do benchmark comparisons of the two queue implementations. What can you learn from such an experiment?

Q3. Another example of the parentheses matching problem comes from hypertext markup language (HTML). In HTML, tags exist in both opening and closing forms and must be balanced to properly describe a web document. This very simple HTML document:

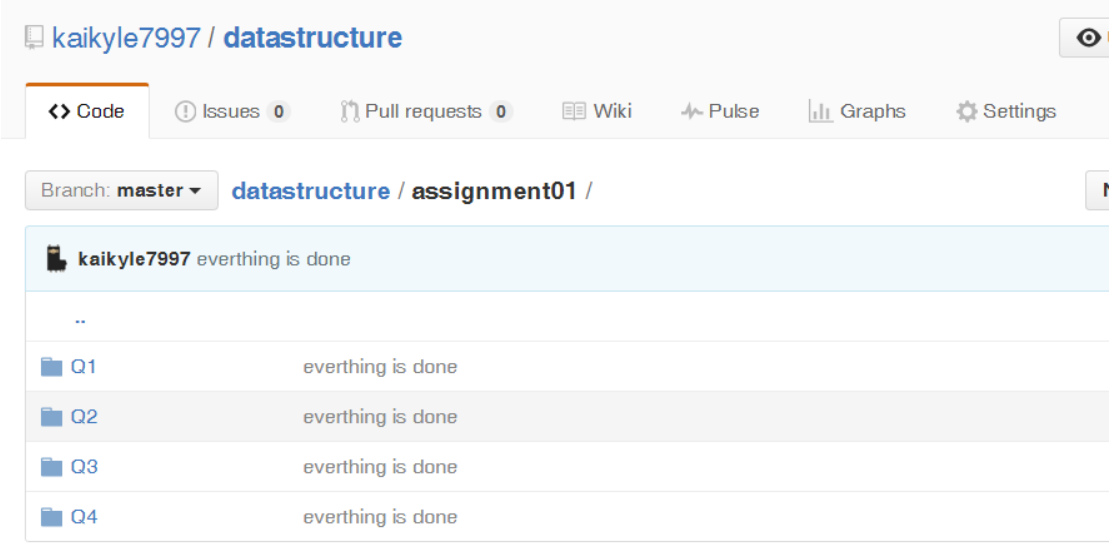
```
<html>
    <head>
        <title>
            Example
        </title>
    </head>
    <body>
        <h1>Hello, world</h1>
    </body>
</html>
```

is intended only to show the matching and nesting structure for tags in the language. Write a program that can check an HTML document for proper opening and closing tags.

Q4. Implement *UnorderedList* ADT and all the operations, i.e., add(item), remove(item), search(item), isEmpty(), size(), append(item), index(item) , insert(pos,item), pop(), pop(pos)

Way to hand over

1. Push your source codes onto https://github.com/ as figure where each question has respective folder.



2. Log in the link via User: ds / Pwd: ds to download the file -103360xxx.docx- and give reply to all questions, and then upload the word file naming with your ID as: 103360xxx.docx
   Word http://140.124.73.38:8000/datastructure/assignments/01/103360xxx.docx
   Upload http://140.124.73.38:8000/datastructure/assignments/01/upload/