Practical Lab Session: Week 3

For this practical lab session, please first ensure you have viewed the **Week 3** video sessions **3.1, 3.2**, **3.3** and **3.4**. Within these sessions, you should attempt the development exercises presented as **Challenges** during this lab session. Please ensure you complete the set of challenges prior to the next lab session and upload screenshots of your results to the Progress Management section on Blackboard as directed.

Session 3.3 Challenge: Infix2Postfix

- In your **LinkedList** project, create the file *Infix2Postfix.java* and implement the class `Infix2Postfix` to house an application that accepts an infix expression from the keyboard as input, converts it to postfix notation, outputs the postfix string and then calculates and outputs the result.
- Use the algorithms for infix to postfix conversion and postfix evaluation found in the **Infix2Postfix Challenge** document found on Blackboard.

- **Note: For simplicity, assume that all integer values entered in the Infix expression are single characters (i.e. in the range 0-9)**

Note: an example of the output from the program is provided in the video session.

Session 3.4 Challenge: Priority Queue

- In your **LinkedList** project, create the file *PQueueInterface.java* and implement the class `PQueueInterface` as an interface for a Priority Queue class.
- Add the file *PQueue.java* and provide the class `PQueue` that implements the Priority Queue interface as a linked list structure
- Add a `main()` method to your `PQueue` class and test your structure by creating a new instance of `PQueue` where the data to be stored in each element is an integer and where larger integers have the highest priority
- Generate and print 10 random integers in the range 1-1000 and add each as a new entry in the priority queue
- Remove and print all elements from the queue, showing that the list of numbers are retrieved in priority order (largest values first)

Note: an example of the output from the program is provided in the video session.