## CS163 Test Plan

**Develop the test plan:** *For each member function that you plan to write, think about how to test it – what flow of control exists in the member function and how would you test out all conditions:*

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| **Test Case(s)** | **Expected Result** | **Verified?**  **(yes/no)** |
| **int enqueue(const& data)**  **(!head) empty queue** | **Data will be added to the queue**  **The end of the list** |  |
| **int enqueue(const& data)**  **(head) not empty queue** | **Data will be added to the end of the queue** |  |
| **int enqueue(const& data)**  **(head) duplicate data** | **Data will not be added to the queue** |  |
| **int enqueue(const& data)**  **(head) invalid data** | **Data will not be added to the queue** |  |
| **int dequeue(data& )**  **(!head) empty queue** | **Nothing will be removed**  **Return 0** |  |
| **int dequeue(data& )**  **(head) non empty queue** | **That data will be removed from the front, copied into argument**  **Return 1** |  |
| **int peek(data& )**  **(!head) empty queue** | **Nothing will be retrieved**  **Return 0** |  |
| **int peek(data& )**  **(head) non empty queue** | **Top item will be retrieved and passed into argument**  **Return 1** |  |
| **int isEmpty()**  **(!head) empty queue** | **Return 1 because queue is empty** |  |
| **int isEmpty()**  **(head) non-empty queue** | **Return 0 because queue has data** |  |
| **int display()**  **c** | **Nothing will be displayed**  **Return 0** |  |
|  |  |  |
| **int display()**  **(head) non-empty queue** | **Queue items will be displayed in order**  **Return 1** |  |
| **int push(const data&)**  **(!head) empty stack** | **Data will be pushed to stack, head will be a new node**  **Return 1** |  |
| **int push(const data&)**  **(head) non-empty stack** | **Data will be pushed to the stack**  **Return 1** |  |
| **int pop(data& )** | **Nothing will be popped from the stack**  **Return 0** |  |
| **int pop(data& )**  **(head) non-empty stack** | **Top item in the stack will be popped**  **Return 1** |  |
| **int peek(data&)**  **(!head) empty stack** | **Nothing in stack**  **Return 0** |  |
| **int peek(data&)**  **(head) non-empty stack** | **Top item in stack will be retrieved**  **Return 1** |  |
| **int isEmpty()**  **(!head) empty stack** | **Nothing in stack**  **Return 1;** |  |
| **int isEmpty()**  **(head) non-empty stack** | **Items on the stack**  **Return 0** |  |
|  |  |  |

**Verify correctness:** Using the above test plan, create a test program that tests the interactions of all functions together.