|  |  |  |
| --- | --- | --- |
|  | doublerAppend | doublerInsert |
| extraLargeArray | 4.8932 ms | 1.2529245 s |
| largeArray | 1.1752 ms | 14.4067 ms |
| mediumArray | 216.8 μs | 247.8 μs |
| smallArray | 150 μs | 65.1 μs |
| tinyArray | 135.1 μs | 53.4 μs |

4. The doublerAppend has a time complexity of O(1) because the function only needs to execute one operation (.push) . The doublerInsert has O(n) time complexity because all of the elements have to increase their index +1 and then add a new item to the front of the array. The scale of the doublerInsert increased significantly between the mediumArray and the largeArray and then again from largeArray to extraLargeArray. The doublerAppend function executed in μs to ms from the tinyArray to extraLargeArray whereas the doublerInsert started at μs execution and increased to seconds when the extraLargeArray was passed in.

5. The doublerInsert function is slower because .unshift() has to increase all of the indexes in the current array whereas doublerAppend only has to add another index to the end of the array. It takes longer to increase all of the indexes and then add an element to the beginning of an array.