

Name: Sena Yevenyo
Date: September 8, 2019
Lab Section: Section 1

A. Introduction

This project required the creation of three classes:

1. RandomStringContainer

This housed a private `ArrayList<String>` object and had several methods to interact with the object, as shown in the source code documentation.

2. RandomIntegerContainer

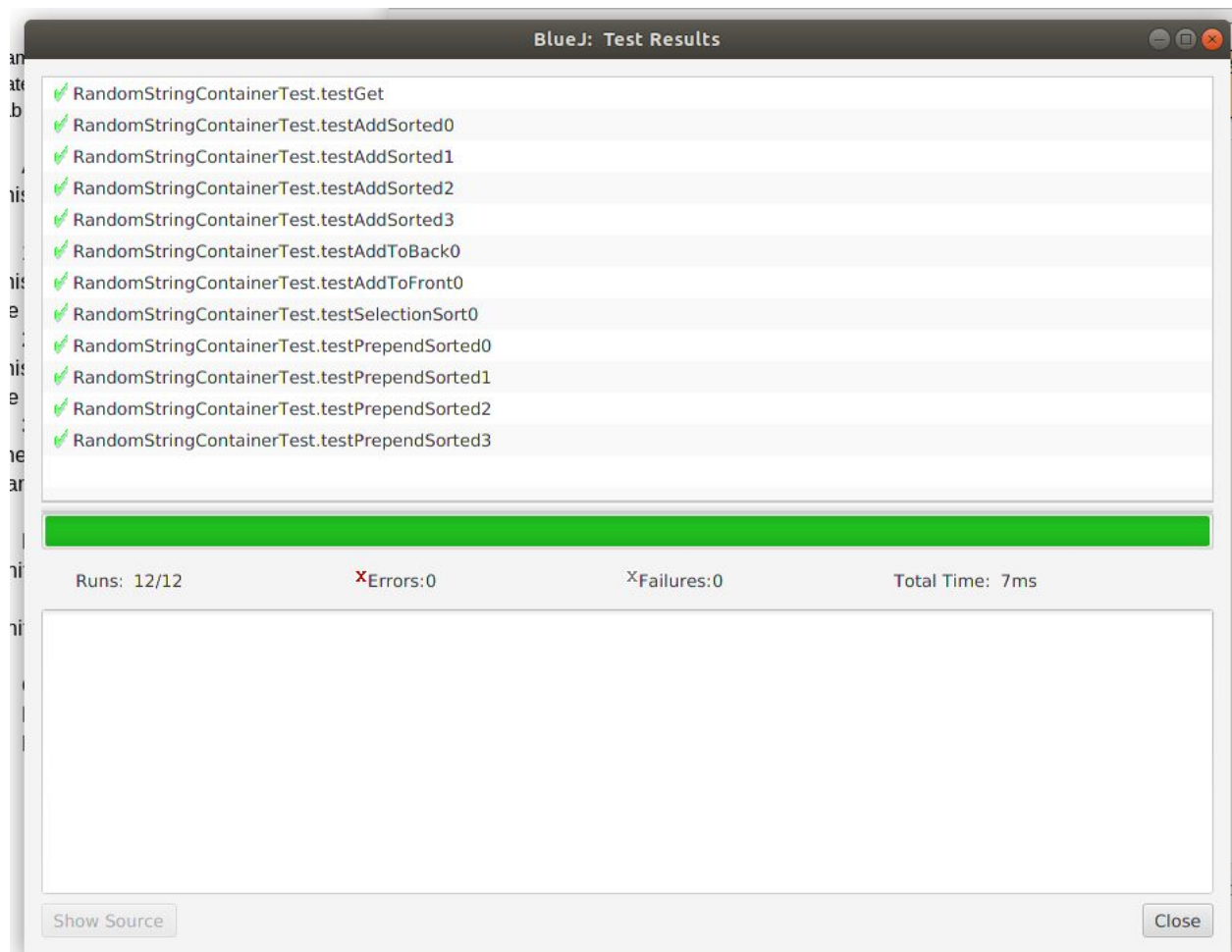
This housed a private `ArrayList<Integer>` object and had several methods to interact with the object, as shown in the source code documentation.

3. ExperimentController

The main program of this class returned the runtime of all the methods of `RandomStringContainer` class

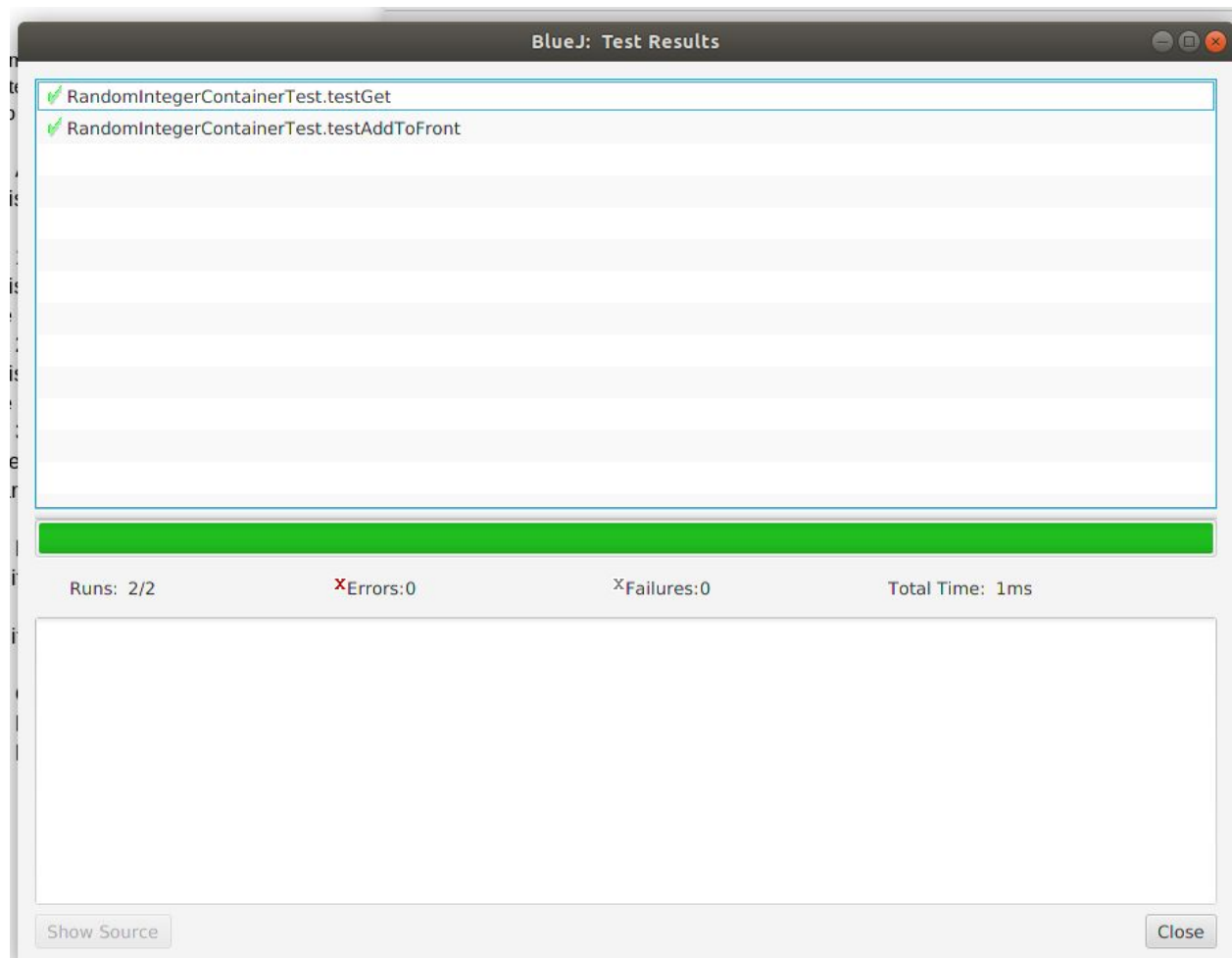
B. Unit Tests

Unit test for `RandomStringContainer` is shown below:



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Unit test for RandomIntegerContainer is shown below:



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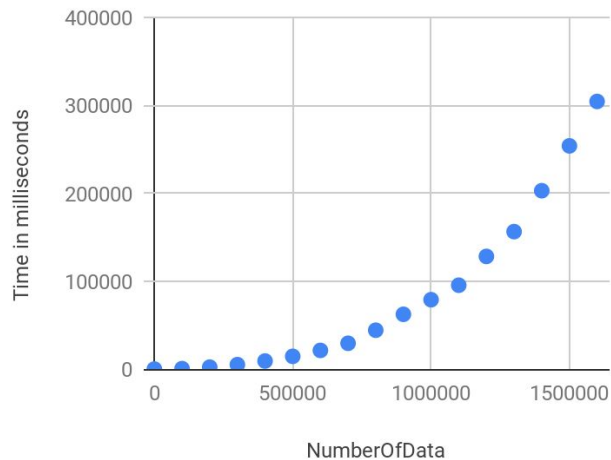
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C. Required Output

Graphs of the average runtime of all the methods of RandomStringContainer as shown below.

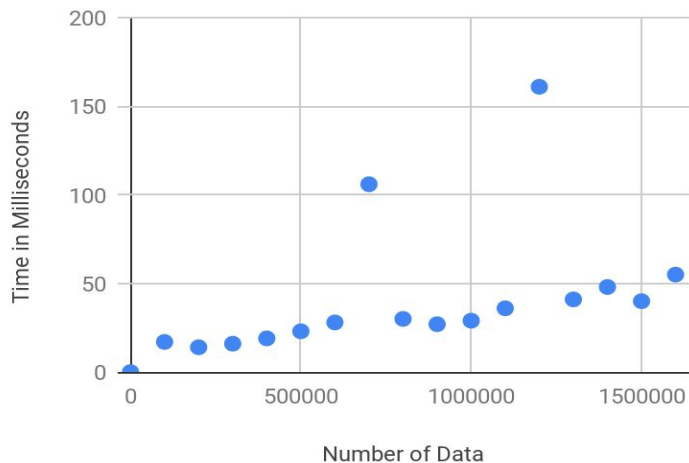
1. Graph of timeAddToFront()

Time in milliseconds vs.
NumberOfData for timeAddToFront



2. Graph of timeAddToBack()

Time in milliseconds vs. NumberOfData
for timeAddToBack



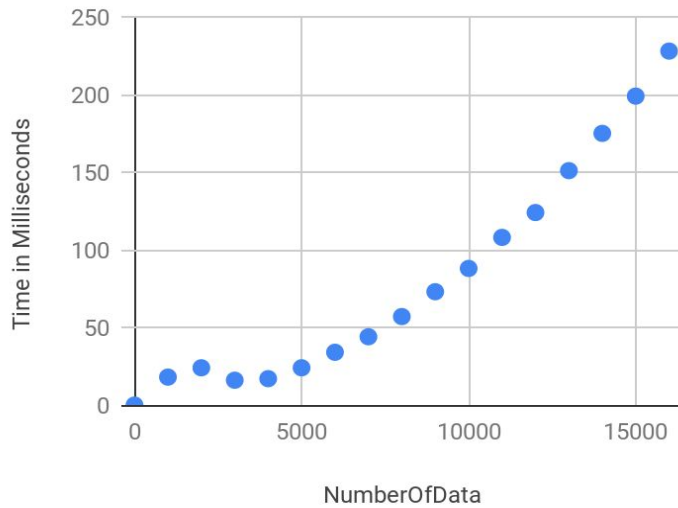
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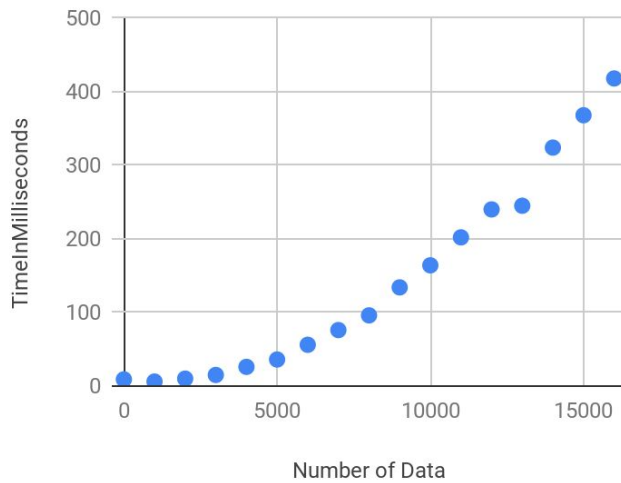
3. Graph of timeAddSorted()

Time in milliseconds vs.
NumberOfData for timeAddSorted



4. Graph of timePrependSorted()

Time in milliseconds vs.
NumberOfData for timePrependSorted



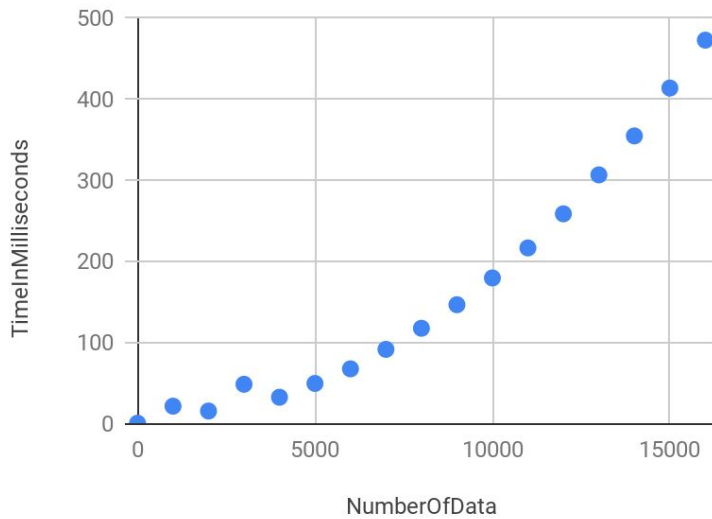
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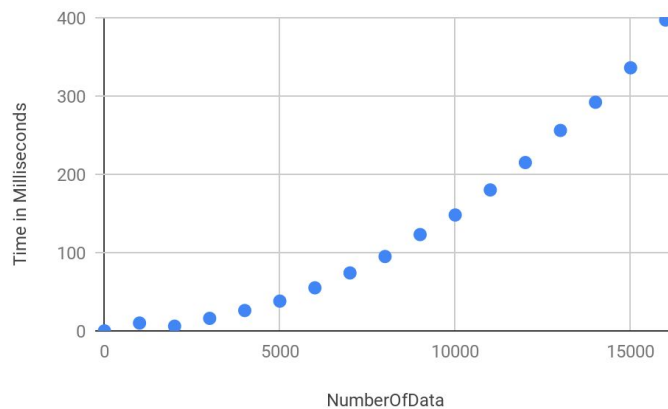
5. Graph of timeSortofUnsortedList()

Time in milliseconds vs. NumberOfData for



6. Graph of timeSortofSortedList()

Time in milliseconds vs. NumberOfData for
timeSortofSortedList



Attached to Project Files is the spreadsheet containing data of times.

Google Sheet URL:

<https://docs.google.com/spreadsheets/d/1Mj1PLZM3-4xafZF74cEuwAXisDxpN6L8rxpji7KIQb4/edit?usp=sharing>

D. Troubleshoot Report

No error was encountered in code

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E. References

Selection Sort Algorithm, Section 4.2, Data Structure Essentials by Zybooks.