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Assignment 02 Write Up

StringBuilder’s implementation of append() was overall the fastest, but MyStringBuilder’s times were somewhat close. String, on the other hand, was far behind in terms of run-times. MyStringBuilder and StringBuilder run 50-250x faster than String with the numbers we tested.

For the delete(0,1) method, MyStringBuilder was the fastest by a decent margin, especially with the higher number of operations. Once again, MyStringBuilder and StringBuilder had comparable runtimes, with String lagging behind by a considerable amount. I found it interesting how significantly MyStringBuilder’s runtimes went down as the number of operations increased.

Finally, my MyStringBuilder implementation of insert() was the slowest by a large amount. It’s likely that this has to do with how I handled the special case in the Assig2B.java file or how I wrote the method itself. StringBuilder’s implementation of insert() was faster than String’s as well, also by a good amount.

I would say that, overall, there is little to no reason to use the String implementation as opposed to either StringBuilder or MyStringBuilder apart from it maybe being easier to write. Whether you would use StringBuilder or MyStringBuilder from a runtime standpoint depends on which operations you will be performing the most often, and how many times. I’d say that if you plan on inserting often, then StringBuilder is the easy choice, but if your focus is on append and delete, MyStringBuilder is preferable because of its significant edge in delete().

Append Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 10000 | 20000 | 40000 | 80000 | 160000 |
| MyStringBuilder | 125 | 85 | 68 | 60 | 49 |
| StringBuilder | 51 | 40 | 47 | 44 | 38 |
| String | 5171 | 4913 | 7620 | 6909 | 8851 |

Delete Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 10000 | 20000 | 40000 | 80000 | 160000 |
| MyStringBuilder | 151 | 125 | 109 | 119 | 50 |
| StringBuilder | 262 | 778 | 456 | 787 | 1349 |
| String | 3348 | 2624 | 4967 | 3913 | 7539 |

Insert Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 10000 | 20000 | 40000 | 80000 | 160000 |
| MyStringBuilder | 10668 | 18112 | 35658 | 108018 | 228475 |
| StringBuilder | 227 | 623 | 417 | 329 | 474 |
| String | 3427 | 5462 | 17238 | 7532 | 14535 |