Writeup:

I found that the predefined StringBuilder was more efficient at appending. It had an average run time that was 100 ns quicker than the MyStringBuilder, and 5760 ns quicker than the String. The MyStringBuilder had a run time that was close to the StringBuilder, but slower. The String was not close at all to the StringBuilder.

For removing the first element, the MyStringBuilder was much faster than everything else. The MyStringBuilder average run time was 22.9 ns, while StringBuilder was 683 ns, and String was 3398 ns. The MyStringBuilder was the clear winner.

When inserting to the middle, StringBuilder was fastest at 371 ns on average per insert, String was close, with 549 ns per insert, and MyStringBuilder was clearly slowest at 2087.59 ns per insert.

The StringBuilder implementation is the most efficient from a run-time point of view. It is faster at two of the three operations tested.

Data is based on N = 80,000.