Task 3 - Analysis

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Looking at the times recorded by stopwatches, generally, the construction of HashSTs is slightly slower than BSTs, but roughly similar.

```
Construction of bustopher: 0.005s
Construction of growltigers: 0.002s
Construction of gus: 0.004s
Construction of macavity: 0.002s
Construction of mr mistoffelees: 0.002s
Construction of mungojerrie: 0.001s
Construction of awefull: 0.002s
Construction of old deuteronomy: 0.001s
Construction of skimble: 0.002s
Construction of ad: 0.001s
Construction of naming: 0.002s
Construction of oldGrumbie: 0.001s
Construction of rum: 0.001s
Construction of song: 0.001s
```

```
Construction of bustopher BST: 0.048s
Construction of growltigers BST: 0.0s
Construction of gus BST: 0.001s
Construction of macavity BST: 0.0s
Construction of mr mistoffelees BST: 0.0s
Construction of mungojerrie BST: 0.001s
Construction of awefull BST: 0.0s
Construction of old deuteronomy BST: 0.0s
Construction of skimble BST: 0.0s
Construction of ad BST: 0.0s
Construction of naming BST: 0.0s
Construction of oldGrumbie BST: 0.0s
Construction of rum BST: 0.0s
Construction of song BST: 0.001s
```

However, looking at the ten search trials, searching for a list of random terms in the HashSTs is significantly faster than searching through the BSTs.

```
HashST Trial Times
Trial 1: 0.048s
Trial 2: 0.038s
Trial 3: 0.049s
Trial 4: 0.04s
Trial 5: 0.033s
Trial 6: 0.042s
Trial 7: 0.04s
Trial 8: 0.045s
Trial 9: 0.046s
Trial 10: 0.041s
```

```
BST Trial Times
Trial 1: 0.088s
Trial 2: 0.088s
Trial 3: 0.095s
Trial 4: 0.075s
Trial 5: 0.069s
Trial 6: 0.086s
Trial 7: 0.073s
Trial 8: 0.096s
Trial 9: 0.085s
Trial 10: 0.1s
```

Although the construction of BSTs is slightly faster than HashSTs, the difference between searching through BSTs and HashSTs is far greater, favoring the search algorithm for HashSTs. Therefore, I believe the company should utilize HashSTs and its search algorithm.