1E.

Outputs for Sample Values –

```
Official: For N = 0, train error = 0.501969611705121, validation error = 0.5073157006190209

Official: For N = 1, train error = 0.4501969611705121, validation error = 0.4805852560495217

Official: For N = 2, train error = 0.32386043894203714, validation error = 0.4113674732695554

Official: For N = 3, train error = 0.0025323579065841305, validation error = 0.31429375351716377

Official: For N = 4, train error = 0.0, validation error = 0.28081035453010694

Official: For N = 5, train error = 0.0, validation error = 0.27096229600450195

Official: For N = 6, train error = 0.0, validation error = 0.2771525042205965

Official: For N = 7, train error = 0.0002813731007315701, validation error = 0.27490151941474394

Official: For N = 8, train error = 0.0005627462014631402, validation error = 0.2923466516601013

Official: For N = 9, train error = 0.0008441193021947102, validation error = 0.31035453010692177

Official: For N = 96, train error = 0.27293190770962295, validation error = 0.5073157006190209

Official: For N = 97, train error = 0.2771525042205965, validation error = 0.5073157006190209

Official: For N = 98, train error = 0.2819358469330332, validation error = 0.5073157006190209

Official: For N = 99, train error = 0.28559369724254363, validation error = 0.5073157006190209

Official: For N = 100, train error = 0.29009566685424876, validation error = 0.507315700619020
```

Short Paragraph –

I tried the function testValuesOfN(n) with 100 different values of n from 0 – 100. The error rate drastically reduced from 32% at n=2 to 2.5% at n=3. The error rate was 0 for values of n in the range 4 to 6. The error rate started increasing again from n=7 and kept increasing till n=100. Using this data, it would be fair to assume that a value for n between 4 to 6 is the best choice to create an accurate training model.

The lowest error rate for values of n between 4 to 6 might be because in this range, the feature map is able to accurately extract meaningful features from the training data and assign appropriate weights to the extracted features. When the value of n increases from 7 onwards, the features become larger, and it might not accurately understand the patterns of the reviews to perform accurate classification of sentiments.

One Line Review –

“The reason n-grams likely outperforms word function is because it does not care about the format or spellings of the words and focuses more on interpreting the sentiment by purely analyzing the text patterns in the reviews.”