When you are satisfied that your program is correct, write a brief
analysis
document. The analysis document is 10% of your Assignment 7 grade.
Ensure that
your analysis document addresses the following.

1. Explain the hashing function you used for BadHashFunctor. Be sure
to discuss
why you expected it to perform badly (i.e., result in many
collisions).

I used the hashing function that returns the length of the string. If
all the strings are of the same length then you can have many
collisions.

2. Explain the hashing function you used for MediocreHashFunctor. Be
sure to
discuss why you expected it to perform moderately (i.e., result in
some
collisions).

I used the hashing function that uses the length of the item and the
hashValue. It reduces on the number of collisions you can have.

3. Explain the hashing function you used for GoodHashFunctor. Be sure
to
discuss why you expected it to perform well (i.e., result in few or no
collisions).

I used the hashing function that uses the length of the item and the
hashValue $* 31$. It reduces on the number of collisions you can have.

4. Design and conduct an experiment to assess the quality and
efficiency of
each of your three hash functions. Briefly explain the design of your
experiment. Plot the results of your experiment. Since the
organization of
your plot(s) is not specified here, the labels and titles of your
plot(s), as
well as, your interpretation of the plots is important. A
recommendation for
this experiment is to create two plots: one that shows the number of
collisions
incurred by each hash function for a variety of hash table sizes, and
one that
shows the actual running time required by various operations using

each hash
function for a variety of hash table sizes.

5. What is the cost of each of your three hash functions (in Big-O
notation)?
Note that the problem size (N) for your hash functions is the length
of the
String, and has nothing to do with the hash table itself. Did each of
your hash
functions perform as you expected (i.e., do they result in the
expected number
of collisions)?

Upload your solution (.pdf only) through Canvas.