2) (10 pts) DSN/ALG (Hash Tables)

Consider the following strings and their corresponding hash values, which have been generated by some hash function:

hash("squiggle") = 301

hash("giggle") = 174

hash("haggle") = 431

hash("gaggle") = 263

hash("straggle") = 361

a) (7 pts) Insert the strings above into the following hash table using **quadratic probing**. In doing so, insert them in the order given above (i.e., starting with "squiggle", then "giggle", and so on). Note that the hash table's length is **11** (not 10).

		haggle		squiggle			straggle		giggle	gaggle
0	1	2	3	4	5	6	7	8	9	10

Grading:

+3 pts for getting "straggle" in index 7
+4 pts for all the rest being correct (1 pt per item)

b) (3 pts) What is one hash value, *h*, between 100 and 500 (inclusively) that would cause a collision to occur in your final table from part (a) of this problem, but which also satisfies all of the following additional restrictions:

h % *table_length* != hash("squiggle") % *table_length*

h % *table_length* != hash("giggle") % *table_length*

h % *table_length* != hash("haggle") % *table_length*

h % *table_length* != hash("gaggle") % *table_length*

h % *table_length* != hash("straggle") % *table_length*

Any value *h* such that *h* % 11 = 7 will do the trick (e.g., 106, 117, 128, and so on).

Grading: +3 pts for a correct value. 0 otherwise.