

2) (10 pts) ALG (Hash Tables)

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

$\text{hash}(\text{"squiggle"}) = 301$

$\text{hash}(\text{"giggle"}) = 174$

$\text{hash}(\text{"haggle"}) = 431$

$\text{hash}(\text{"gaggle"}) = 263$

$\text{hash}(\text{"straggle"}) = 361$

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).

0	1	2	3	4	5	6	7	8	9	10

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:

$$h \% \text{table_length} \neq \text{hash}(\text{"squiggle"}) \% \text{table_length}$$

$$h \% \text{table_length} \neq \text{hash}(\text{"giggle"}) \% \text{table_length}$$

$$h \% \text{table_length} \neq \text{hash}(\text{"haggle"}) \% \text{table_length}$$

$$h \% \text{table_length} \neq \text{hash}(\text{"gaggle"}) \% \text{table_length}$$

$$h \% \text{table_length} \neq \text{hash}(\text{"straggle"}) \% \text{table_length}$$