COMP 550
Algorithms and Analysis
Spring 2020
Homework 6
Due Thursday, March 19, 2020

1. Consider a hash table of size m = 1000 and a corresponding hash function $h(k) = \lfloor m(kA \bmod 1) \rfloor$ for $A = (\sqrt{5}-1)/2$. Compute the locations to which the keys 71, 72, 73, 74, 75, and 76 are mapped.

880, 498, 116, 734, 352, 970

2. Consider a hash table of size $m = 2^n$ and the hash function $h(k)$ defined as the last n bits of k. Assume that all values k have at least n bits. What problems might this hash function have?

Unless we know that all low-order n-bit patterns are equally likely, we are better off designing the hash function to depend on all the bits of the key.
[or answers along this line]

For this homework you may work in groups of up to four people and groups are encouraged to turn in only one paper with everyone's names in the group on it. This will make the work of the grader easier. However, people in different groups may not collaborate.

Those who want to be part of a group and can't find others may meet in the front after class and form groups, if you desire to. You may also send email to the TA and he will assign people to groups.