

a) Done

b) Done, ascii histograms are included in attached file (b_hists.text)

c)

1. $h1(x)$ returns the same hash for the same value
2. $h1(x)$ has no randomness factor
3. $h1(x)$ is not uniform, values are not distributed evenly over available buckets
4. $h1(x)$ does not and cannot minimize collisions with its current implementation

d)

Names length, (h1 collisions, h2 collisions)

11099 (194, 10)

22199 (387, 14)

44399 (753, 21)

The length of the longest chain increases when the number of names increases

(h1 collisions, h2 collisions)

[(44388, 44383), (44388, 44241), (44388, 44086), (44388, 43924)]

Collisions decrease when the number of buckets increase