CPSC 340 - Assignment 6

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1 PageRank

1. Hand in your code implementing the random walk algorithm.

```
function [ranks] = pagerank(X, alpha, t)
n = rows(unique(X));

adj = zeros(n,n);
ranks = zeros(n,1);

for i = 1:rows(X)
  adj(X(i,1),X(i,2)) = 1;
  adj(X(i,2),X(i,1)) = 1;
end

current = ceil(rand()*n);
for i=1:t
  if rand < alpha
    current = ceil(rand()*n);
  else
    candidates = find(adj(current,:)==1);
    current = candidates(ceil(rand()*columns(candidates)));
  end
  ranks(current) += 1;
end

ranks = ranks./ sum(ranks);
end
```

Code used for answering the questions below:

```
load arrowhead.mat

alpha = 0.1;
ranks = pagerank(X, alpha, 1000000);
[largest, i] = max(ranks)
largest = names(i)
med = median(ranks)

names(64)
ranks(64)
```

2. Who is the person with the largest PageRank?

The person with the largest page rank is “Golub with a rank of 0.088345.

3. If you normalize the PageRanks so that they sum up to 1, what is the median PageRank value?

The median page rank is 0.0077470.

4. What is the (normalized) PageRank of the inventor of Matlab?

The page rank of Moler is 0.018057.

2 Neural Networks

Changes made:

- None