Matt McKillip #28
mamckill@iastate.edu
4/10/14

CPRE 310 PROJECT: PAGERANK

2014

An application of graphs and probability

TABLE OF CONTENTS

Contents

ALGORITHM

Algorithm

I used two algorithms for determining PageRank, Power Iteration Method and Monte Carlo Simulation Method.

PR(A) = (1-d) + d(PR(t1)/C(t1) + ... + PR(tn)/C(tn))

Implementation

To implement the two algorithms I chose to use Java. I chose Java because I have the more experience and am more comfortable using Java. I also saw an opportunity to use object oriented programming. The way I implemented the two algorithms, I used an ArrayList containing the object that I called Page.

A Page object in my design has the following attributes

- Number
- NumOfIncomingPages
- NumOfOutgoingPages
- IncomingPageArray
- OutgoingPageArray
- PageRank

Using these attributes, I was able to create an efficient graph of pages using an ArrayList.

Testing

Following test cases

Limitations

There are several limitations with my program. Some of the limitations are listed as:

- Can only read in a specific file format
- N can only be so large
- P is set at .15 and can't be changed via input
- Alpha is set to .01 and can't be changed via input

Interesting Observations

During my programing and testing….