

# PA3

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Ryan McCullough

## WeightedQ

I used a self made linked list because it was the only way i could think to guarantee FIFO order for items of the same weight.

## Crawler

```
q.add(seed)
hashmap.set(seed, true)
max--
while(q.head != null && max > 0)
    while(visited.contains(url = q.pop()))
        for(link in read(url))
            q.add(link)
            if(hashmap.get(link) == null)
                max--
            hashmap.set(link, true);
        visited.add(url)
        requestCount++
        if(requestCount%10 == 0)
            sleep(2000)
```

We ensure that we get exactly max vertices by setting the url strings in a hashmap then counting the number of keys in the hashmap.

## MyWikiRanker

Ran with seed="/wiki/Tennis" keywords={"tennis", "grand slam"} max=400 top=10 sensitive=true  
top out degree:

```
{ /wiki/Racket_sport, /wiki/Disraeli, /wiki/Tennis_ball, /wiki/Line_call, /wiki/Birmingham,
/wiki/Australian_Open, /wiki/Types_of_tennis_match#Doubles, /wiki/Tennis_racket,
/wiki/Types_of_tennis_match#Singles, /wiki/Tennis_court, }
```

top in degree:

{ /wiki/Racket\_sport, /wiki/Types\_of\_tennis\_match#Singles,  
/wiki/Types\_of\_tennis\_match#Doubles, /wiki/Tennis\_racket, /wiki/Tennis\_ball,  
/wiki/Tennis\_court, /wiki/Olympic\_Games, /wiki/Wheelchair\_tennis, /wiki/Birmingham,  
/wiki/England, }

top rank .01 .85:

{ /wiki/Racket\_sport, /wiki/Women%27s\_Tennis\_Association, /wiki/Lleyton\_Hewitt,  
/wiki/John\_McEnroe, /wiki/Australian\_Open, /wiki/Margaret\_Court, /wiki/Ball,  
/wiki/Electronic\_line\_judge, /wiki/Tennis\_Australia,  
/wiki/Tennis\_at\_the\_Summer\_Olympics, }

top rank .005 .85:

{ /wiki/Racket\_sport, /wiki/Women%27s\_Tennis\_Association, /wiki/Lleyton\_Hewitt,  
/wiki/John\_McEnroe, /wiki/Australian\_Open, /wiki/Margaret\_Court, /wiki/Ball,  
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/wiki/Tennis\_at\_the\_Summer\_Olympics, }

top rank .001 .85:

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## Page Ranker

I could not find a copy of that text file on canvas so i did the ranking with this graph file

100

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/wiki/Tennis /wiki/Types\_of\_tennis\_match#Singles  
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/wiki/Tennis /wiki/Pneumonia  
/wiki/Tennis /wiki/Pleurisy  
/wiki/Tennis /wiki/Charles\_V\_of\_France  
/wiki/Tennis /wiki/Louvre\_Palace  
/wiki/Tennis /wiki/French\_language  
/wiki/Tennis /wiki/Interjection  
/wiki/Tennis /wiki/Henry\_VIII\_of\_England  
/wiki/Tennis /wiki/Lawn\_mower  
/wiki/Tennis /wiki/Harry\_Gem  
/wiki/Tennis /wiki/Augurio\_Perera  
/wiki/Tennis /wiki/Racquets\_(sport)  
/wiki/Tennis /wiki/Basque\_pelota  
/wiki/Tennis /wiki/Leamington\_Spa  
/wiki/Tennis /wiki/Walter\_Clopton\_Wingfield  
/wiki/Tennis /wiki/Greek\_language  
/wiki/Tennis /wiki/Nantclwyd\_Hall  
/wiki/Tennis /wiki/Llanelidan  
/wiki/Tennis /wiki/Agronomist  
/wiki/Tennis /wiki/All\_England\_Lawn\_Tennis\_and\_Croquet\_Club  
/wiki/Tennis /wiki/Mary\_Ewing\_Outerbridge  
/wiki/Tennis /wiki/Staten\_Island\_Cricket\_Club  
/wiki/Tennis /wiki/Staten\_Island  
/wiki/Tennis /wiki/I.\_F.\_Hellmuth  
/wiki/Tennis /wiki/United\_States\_Tennis\_Association  
/wiki/Tennis /wiki/Newport\_Casino  
/wiki/Tennis /wiki/Newport,\_Rhode\_Island  
/wiki/Tennis /wiki/Philadelphia  
/wiki/Tennis /wiki/Glossary\_of\_contract\_bridge\_terms#grandslam  
/wiki/Tennis /wiki/Grand\_slam\_(baseball)  
/wiki/Tennis /wiki/International\_Tennis\_Federation  
/wiki/Tennis /wiki/World\_Grass\_Court\_Championships  
/wiki/Tennis /wiki/World\_Hard\_Court\_Championships  
/wiki/Tennis /wiki/World\_Covered\_Court\_Championships  
/wiki/Tennis /wiki/Jimmy\_Van\_Alen

/wiki/Tennis /wiki/Philippe\_Chatrier  
/wiki/Tennis /wiki/Juan\_Antonio\_Samaranch  
/wiki/Tennis /wiki/Davis\_Cup  
/wiki/Tennis /wiki/Fed\_Cup  
/wiki/Tennis /wiki/C.\_C.\_Pyle  
/wiki/Tennis /wiki/Vinnie\_Richards  
/wiki/Tennis /wiki/Suzanne\_Lenglen  
/wiki/Tennis /wiki/Open\_Era  
/wiki/Tennis /wiki/International\_Tennis\_Hall\_of\_Fame  
/wiki/Tennis /wiki/Racket\_(sports\_equipment)  
/wiki/Tennis /wiki/Wikipedia:AUDIENCE  
/wiki/Tennis /wiki/Vulcanized\_rubber  
/wiki/Tennis /wiki/Felt  
/wiki/Tennis /wiki/Deformation\_(engineering)  
/wiki/Tennis /wiki/United\_States  
/wiki/Tennis /wiki/Europe  
/wiki/Tennis /wiki/Far\_East  
/wiki/Tennis /wiki/Labour\_costs  
/wiki/Tennis /wiki/Foot\_(length)  
/wiki/Tennis /wiki/Stick%C3%A9  
/wiki/Tennis /wiki/Hourglass  
/wiki/Tennis /wiki/Hardcourt  
/wiki/Tennis /wiki/Artificial\_turf  
/wiki/Tennis /wiki/Serve\_(tennis)  
/wiki/Tennis /wiki/Tennis\_score#Game\_score  
/wiki/Tennis /wiki/Point\_(tennis)  
/wiki/Tennis /wiki/Tennis\_score#Set\_score  
/wiki/Tennis /wiki/Tennis\_score#Match\_score  
/wiki/Tennis /wiki/Longest\_tennis\_match\_records  
/wiki/Tennis /wiki/Referee  
/wiki/Tennis /wiki/Tennis\_score#Scoring\_a\_tiebreak\_game  
/wiki/Tennis /wiki/Canadian\_doubles  
/wiki/Tennis /wiki/Electronic\_line\_judge  
/wiki/Tennis /wiki/Cyclops\_(computer\_system)

.85 caused 18 iterations

.25 caused 5 iterations

## Spam Farm

Using the same graph from before i ran a converter that i made to turn all the string nodes into a numerical representation. Since both the page rank and spam farm were instructed to parse integer based files. After running the Pank ranker i get these ranks, since there was only one page read before it hit the limit of 100 nodes most of the nodes are identical.

node: 1 in: 0 out: 99 Rank: 0.009936386601562435

node: 2 in: 1 out: 0 Rank: 0.00996118548887304

node: 3 in: 1 out: 0 Rank: 0.00996118548887304

node: 4 in: 1 out: 0 Rank: 0.00996118548887304

node: 100 in: 1 out: 0 Rank: 0.00996118548887304

sum of ranks: 0.9960937499999931

It converts the string nodes to numbers but its clear 1 is tennis and every other node is identical so i can pick any of them for the farm. After running the farm on index 2 I get these ranks

node: 1 in: 0 out: 99 Rank: 0.008836896306818201

node: 2 in: 11 out: 0 Rank: 0.03070910920282362

node: 3 in: 1 out: 0 Rank: 0.008858967157369167

node: 4 in: 1 out: 0 Rank: 0.008858967157369167

node: 98 in: 1 out: 0 Rank: 0.008858967157369167

node: 99 in: 1 out: 0 Rank: 0.008858967157369167

node: 100 in: 1 out: 0 Rank: 0.008858967157369167

node: 101 in: 0 out: 1 Rank: 0.008836896306818201

node: 102 in: 0 out: 1 Rank: 0.008836896306818201

node: 103 in: 0 out: 1 Rank: 0.008836896306818201

node: 104 in: 0 out: 1 Rank: 0.008836896306818201

node: 105 in: 0 out: 1 Rank: 0.008836896306818201

node: 106 in: 0 out: 1 Rank: 0.008836896306818201

node: 107 in: 0 out: 1 Rank: 0.008836896306818201

node: 108 in: 0 out: 1 Rank: 0.008836896306818201

node: 109 in: 0 out: 1 Rank: 0.008836896306818201

node: 110 in: 0 out: 1 Rank: 0.008836896306818201

sum of ranks: 0.9960937499999994

Creating and increase of 0.02074792371 from before.