Week 12 Quiz [Fall 2019]

Due Nov 15 at 11:59pm   **Points** 10   **Questions** 10
Available Nov 9 at 12am - Nov 15 at 11:59pm 7 days   **Time Limit** None

Instructions

Submission Guidelines

**Note: 2 of the questions are open-ended this week, and will need to be graded manually. 8 of the points will be automatically graded.**

This assignment has multiple-choice and numeric response questions. Only one submission is allowed, however as long as the quiz is not submitted, it is automatically saved and can be resumed.

Upon submission, make sure you have a record of the submission (with timestamp) on the assignment/quiz page on Canvas. If we do not have your submission in Canvas, you will **not** receive credit.

It is essential to follow these instructions to provide answers for this assignment. **Students who do not follow these guidelines will lose points.**

Attempt History

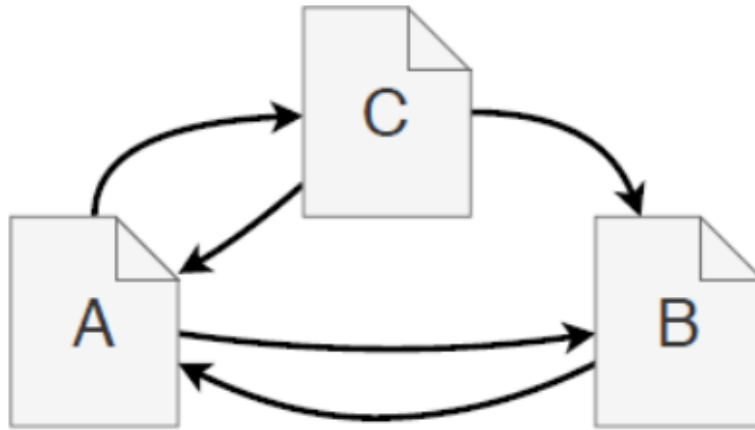|	Attempt	Time	Score
LATEST	**Attempt 1**	1,387 minutes	4 out of 10 *

*Some questions not yet graded

Score for this quiz: **4** out of 10 *
Submitted Nov 15 at 7:36pm
This attempt took 1,387 minutes.

Question 1	0 / 1 pts

Consider the following network

Initialize the PageRank of each page with the value R_0 = 1/3.

Apply the following equation (4.1 from the textbook) without teleportation (set α = 0)

$$R_t(i) = \frac{\alpha}{N} + (1 - \alpha) \sum_{j \in \text{pred}(i)} \frac{R_{t-1}(j)}{k_{out}(j)}.$$

to calculate the values of PageRank in the next iteration (t = 1).

Continue to update the values until convergence — **assume the values have converged**
when there is no change in the third decimal digit of each node's PageRank.

First, what is the final PageRank value for page A?

You may calculate this manually, or write code to do it for you - but keep in mind you may be expected to be able to calculate these values manually for the final exam.

'ou Answered

9.29

orrect Answers   0 (with margin: 0)
                        0 (with margin: 0)
                        0 (with margin: 0)
                        0.44 (with margin: 0)

Question 2   0 / 1 pts

What is the final PageRank value for page B?

'ou Answered

7.58

orrect Answers

0.33 (with margin: 0)
0 (with margin: 0)
0 (with margin: 0)
0 (with margin: 0)

Question 3   0 / 1 pts

What is the final PageRank value for cage C?

'ou Answered

9.29

orrect Answers

0.22 (with margin: 0)
0 (with margin: 0)
0 (with margin: 0)
0 (with margin: 0)

Question 4   **Not yet graded / 1 pts**

In your own words, define topical locality.

Your Answer:

Topical locality (as it pertains to web surfing) is the property of webpages where they are very related to the webpages that they are linked to. It also indicates that the more clicks away from a starting site you get, the less related the content of the site you are currently on is to the initial site.

Question 5   1 / 1 pts

When we talk about the 'core' of a web graph, we mean...

- ○ The largest weakly connected component

- ○ Any part of the graph that is not in the in-component or out-component

Correct!

- ⊙ The largest strongly connected component

- ○ None of the above

Question 6   1 / 1 pts

A web crawler

- ○ Calculates the PageRank of web pages

- ○ Returns search results on a search engine

Correct!

- ⊙ Collects information from web pages

- ○ Calculates Topical Similarity between web pages

Question 7   1 / 1 pts

True or False, PageRank is a type of centrality

Correct!

- ⊙ True

○ False

Question 8

0 / 1 pts

True or False, Sergey Brin and Larry Page were the first to devise the formula commonly known as PageRank

'ou Answered

⊙ True

orrect Answer

○ False

Question 9

1 / 1 pts

We can gain valuable information from the fact that PageRank distribution is very _____, similar to that of ___

○ Normal, In-degree

○ Skewed, Out-degree

○ Normal, Out-degree

Correct!

⊙ Skewed, In-degree

Question 10

Not yet graded / 1 pts

Come up with an example of a network that could be represented as either weighted or unweighted.

Define what you link weights would represent, and what would be the advantage of either representation.

Your Answer:

Weighted Network of Musicians/Artists/Bands where they are connected if they've worked together (production, writing, features)

The link weights between 2 artists could indicate a calculated similarity score between them based on their genres, overlap in musical qualities of some/all of their songs, and who else they've worked with (clustering coefficient).

The advantage of having link weights is having an additional metric to refer to when looking to see how similar 2 artists are. An unweighted graph would be more useful if you just wanted to see which artists have collaborated with each other.

Quiz Score: **4** out of 10