Dylan Mohsen

DS 210

HW 10

parse_graph: This function reads a file named "pagerank_data.txt" and parses it into a vector of vectors, where each sub-vector represents a list of vertices connected from a given vertex. The function assumes all lines and formats are correct and will panic otherwise.

simulate_random_walks: Simulates random walks on the graph. Each vertex is used as a starting point, and from each vertex, 100 random steps are taken. The function records how often each vertex is visited, outputting a vector of visit counts.

compute_pagerank: Computes an approximate PageRank based on the visit counts obtained from the random walks. The PageRank for each vertex is calculated as the proportion of total visits it receives, and vertices are ranked by their PageRank values.

Output: The program prints the top five vertices with the highest PageRank scores, formatted to show each vertex and its corresponding PageRank value

Output Results:
(base) dylanmohsen@crc-dot1x-nat-10-239-197-146 question_1 % cargo run

  Compiling question_1 v0.1.0
(/Users/dylanmohsen/Desktop/DS210/ds210/hw10/question_1)

  Finished dev [unoptimized + debuginfo] target(s) in 0.17s

   Running `target/debug/question_1`

vertex 603: approximate PageRank 0.0019

vertex 596: approximate PageRank 0.0016

vertex 755: approximate PageRank 0.0015

vertex 606: approximate PageRank 0.0014

vertex 981: approximate PageRank 0.0014