

Information Retrieval Analysis

Any query that directly had a president's name in it worked well because we made sure that if the a query word was in the title, then it showed up as a top result. Since the scoring function was based on frequency of occurrence, certain words caused all documents to rank relatively close to each other. An example of such a word is "president." This made a query to find presidents that had been vice presidents difficult to resolve.

Lincoln, taft, johnson, nobel prize, patent, bush, adams, harrison, assassinated, all returned the right results. Abraham lincoln born returned the right result but the program is only capable of returning president names so it didn't return the date but the president name. War time president returned some right and some questionable results. The probably reason is explained below.

Died in office, vice president, authored declaration of independence, and founding father have all returned the same results. Oxford scholar has returned a result very similar to the last 9 results in the answers to queries containing title words. All these results are wrong. This is probably because the BM25 score is heavily influenced by some numbers and the query comparison doesn't make much difference to the scores. It seems from these results like the BM25 would be more suited to comparing results in documents with equal (almost equal length). Also, maybe a different value for k_1 and b in BM25 would have performed better. Issued emancipation proclamation returned the wrong result and was different from all the other wrong results.

Appendix

1. Expected: lincoln -> Lincoln
Obtained:
Top 10 search results
 1. Abraham Lincoln
 2. Millard Fillmore
 3. Zachary Taylor
 4. James K Polk
 5. William Henry Harrison
 6. James Buchanan
 7. Benjamin Harrison
 8. James Monroe
 9. Rutherford B Hayes
 10. Chester A. Arthur

2. taft -> Taft
Top 10 search results
 1. William Howard Taft
 2. Millard Fillmore
 3. Zachary Taylor
 4. James K Polk
 5. William Henry Harrison
 6. James Buchanan
 7. Benjamin Harrison
 8. James Monroe
 9. Rutherford B Hayes
 10. Chester A. Arthur

3. nobel prize -> Teddy Roosevelt, Wilson, Carter, Obama
Top 10 search results
 1. Jimmy Carter
 2. Barack Obama
 3. Theodore Roosevelt
 4. Woodrow Wilson
 5. Bill Clinton
 6. Ronald Reagan
 7. Calvin Coolidge
 8. Abraham Lincoln
 9. John Quincy Adams
 10. Andrew Jackson

4. patent -> Lincoln
Top 10 search results
 1. Abraham Lincoln
 2. Millard Fillmore
 3. Zachary Taylor
 4. James K Polk
 5. William Henry Harrison
 6. James Buchanan

7. Benjamin Harrison
 8. James Monroe
 9. Rutherford B Hayes
 10. Chester A. Arthur
5. oxford scholar -> Clinton
Top 10 search results
1. Millard Fillmore
 2. Zachary Taylor
 3. James K Polk
 4. William Henry Harrison
 5. Benjamin Harrison
 6. Rutherford B Hayes
 7. Chester A. Arthur
 8. Calvin Coolidge
 9. Grover Cleveland
 10. Franklin Pierce
6. war time president -> Jefferson, Madison, Monroe, Jackson, Polk, Pierce, Lincoln, Grant, Cleveland, Harrison, McKinley, Wilson, Franklin Roosevelt, Truman, Eisenhower, Lyndon Johnson, Nixon, George H. W. Bush, Clinton, George W. Bush, and Obama
Top 10 search results
1. George H W Bush
 2. George W Bush
 3. Barack Obama
 4. John F. Kennedy
 5. Ronald Reagan
 6. Franklin D. Roosevelt
 7. Lyndon B Johnson
 8. Dwight D. Eisenhower
 9. Theodore Roosevelt
 10. Thomas Jefferson
7. johnson -> Andrew Johnson, Lyndon B. Johnson
Top 10 search results
1. Andrew Johnson
 2. Lyndon B Johnson
 3. Millard Fillmore
 4. Zachary Taylor
 5. James K Polk
 6. William Henry Harrison
 7. James Buchanan
 8. Benjamin Harrison
 9. James Monroe
 10. Rutherford B Hayes
8. bush -> George H. W. Bush, George W. Bush
Top 10 search results
1. George W Bush
 2. George H W Bush

3. Millard Fillmore
4. Zachary Taylor
5. James K Polk
6. William Henry Harrison
7. James Buchanan
8. Benjamin Harrison
9. James Monroe
10. Rutherford B Hayes

9. adams -> John Adams, John Quincy Adams

Top 10 search results

1. John Adams
2. John Quincy Adams
3. Millard Fillmore
4. Zachary Taylor
5. James K Polk
6. William Henry Harrison
7. James Buchanan
8. Benjamin Harrison
9. James Monroe
10. Rutherford B Hayes

10. harrison -> William Henry Harrison

Top 10 search results

1. William Henry Harrison
2. Benjamin Harrison
3. Millard Fillmore
4. Zachary Taylor
5. James K Polk
6. William Henry Harrison
7. James Buchanan
8. Benjamin Harrison
9. James Monroe
10. Rutherford B Hayes

11. vice president -> John Adams, Thomas Jefferson, Martin van Buren, John Tyler, Millard Fillmore, Andrew Johnson, Chester Arthur, Theodore Roosevelt, Calvin Coolidge, Harry Truman, Richard Nixon, Lyndon Johnson, Gerald Ford, George H W Bush

Top 10 search results

1. George H W Bush
2. George W Bush
3. Barack Obama
4. Franklin D. Roosevelt
5. Ronald Reagan
6. John F. Kennedy
7. Lyndon B Johnson
8. George Washington
9. Theodore Roosevelt

10. Dwight D. Eisenhower

12. died in office -> William Henry Harrison, Zachary Taylor, Warren Harding, Franklin Roosevelt

Top 10 search results

1. George H W Bush
2. George W Bush
3. Barack Obama
4. Ronald Reagan
5. John F. Kennedy
6. Franklin D. Roosevelt
7. Lyndon B Johnson
8. Dwight D. Eisenhower
9. Theodore Roosevelt
10. Thomas Jefferson

13. assassinated -> Abraham Lincoln, James Garfield, William McKinley, John Kennedy

Top 10 search results

1. John F. Kennedy
2. James A Garfield
3. William McKinley
4. Abraham Lincoln
5. Millard Fillmore
6. Zachary Taylor
7. James K Polk
8. William Henry Harrison
9. James Buchanan
10. Benjamin Harrison

14. abraham lincoln born

Top 10 search results

1. Abraham Lincoln
2. George H W Bush
3. Ronald Reagan
4. George W Bush
5. Barack Obama
6. Lyndon B Johnson
7. Franklin D. Roosevelt
8. Dwight D. Eisenhower
9. John F. Kennedy
10. Richard Nixon

15. authored declaration of independence -> Lincoln

Top 10 search results

1. George H W Bush
2. George W Bush
3. Barack Obama
4. Ronald Reagan
5. John F. Kennedy
6. Franklin D. Roosevelt

7. Lyndon B Johnson
8. Dwight D. Eisenhower
9. Theodore Roosevelt
10. Thomas Jefferson

16. issued emancipation proclamation -> Jefferson

Top 10 search results

1. Richard Nixon
2. Jimmy Carter
3. Warren G Harding
4. James Madison
5. John Adams
6. Grover Cleveland
7. William Henry Harrison
8. Zachary Taylor
9. George H W Bush
10. Theodore Roosevelt

17. founding father -> John Adams, Thomas Jefferson, James Madison, George Washington

Top 10 search results

1. George H W Bush
2. George W Bush
3. Barack Obama
4. John F. Kennedy
5. Franklin D. Roosevelt
6. Ronald Reagan
7. Thomas Jefferson
8. Lyndon B Johnson
9. Theodore Roosevelt
10. George Washington