Lab 7: Search and Retrieval

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1 VSM

1.1 20 search results for the query "James Bond 007":

01. Dr. No (1962) (score: 0.97655)

02. James Bond: Shaken and Stirred (1997) (TV) (score: 0.93868)

03. Casino Royale (1967) (score: 0.88774)

04. The World Is Not Enough (1999) (score: 0.76798)

05. The Living Daylights (1987) (score: 0.74025)

06. Die Another Day (2002) (score: 0.73592)

07. The Making of 'The World Is Not Enough' (1999) (V) (score: 0.70328)

08. Zero Posterity (2006) (V) (score: 0.68285)

09. On Her Majesty's Secret Service (1969) (score: 0.68193)

10. Licence to Kill (1989) (score: 0.66520)

11. True Bond (2007) (TV) (score: 0.66456)

12. The Goldfinger Phenomenon (1995) (V) (score: 0.66218)

13. James Bond: Licence to Thrill (1987) (TV) (score: 0.64977)

14. Ian Fleming on Desert Island Discs (2006) (V) (score: 0.64037)

15. Never Say Never Again (1983) (score: 0.63990)

16. Donna James & Gary (2006) (score: 0.62717)

17. Tomorrow Never Dies (1997) (score: 0.61642)

18. The Last Call (2012/I) (score: 0.61544)

19. Live and Let Die (1973) (score: 0.61257)

20. La faute des autres (1923) (score: 0.59509)

1.2 20 search results for the query Internet Analytics course description and explaination for "Babe(1981)" has a high ranking.

01. Paintbrush (2008) (score: 1.12490)

02. Babe (1981) (score: 0.97120)

03. Have I Shared Too Much? (2011) (score: 0.96333)

04. Eu Odeio o Orkut (2011) (score: 0.82655)

05. I Love Alaska (2009) (score: 0.81054)

06. Death Drives a Wheelchair (2011) (score: 0.80866)

07. The First Measured Century (2000) (TV) (score: 0.79080)

08. System of Units (2004) (score: 0.77668)

09. Caught in the Web (2012) (score: 0.73015)

10. Ladybird Ladybird (1994) (score: 0.71697)

11. IRL (In Real Life) (2007) (V) (score: 0.70784)

12. Koleksiyoncu: The Collector (2002) (score: 0.70378)

13. "The Onion's Extremely Accurate History of the Internet" (2012) (score: 0.69442)

14. War for the Web (2014) (score: 0.68898)

15. Code Red: China's Cyber Civil War (2012) (score: 0.68012)

16. Student Loans (2001) (V) (score: 0.67663)

17. Regards croisés (2009) (V) (score: 0.67580)

18. World Wide Dead (2008) (score: 0.67272)

19. When Hunky Met Dory (2011) (score: 0.67209)

20. Modele (2009) (TV) (score: 0.66905)

For "Babe(1981)", we can find its plot as below:

030873 One thing stands between a successful model and a multi-million dollar inheritance: she has to be married to collect! She searches for Mr. Right, a guy interested ONLY as a business partner so she can quit working. Meanwhile, her modeling agent searches for Mr. Wrong, so as not to lose her agency's top model. They meet in the middle - with surprising results!

We can find that there are some keyword like *model*, *collect* and *search* also appear in the course descprition. And since these words may not often appear in other movies' plots so they weights much thus made the movie have a high ranking.

2 LSI

2.1 20 search results for the query "James Bond 007"

01. La faute des autres (1923) (score: 0.37510)

02. The Last Call (2012/I) (score: 0.37391)

03. True Bond (2007) (TV) (score: 0.37150)

04. Donna James & Gary (2006) (score: 0.36590)

05. Beyond Loch Ness (2008) (TV) (score: 0.36065)

06. One Goal, One Hope (2010) (score: 0.36062)

07. On/Off (2003) (score: 0.35722)

08. Resonance (2011) (score: 0.35111)

09. A Boost of Love (2012) (score: 0.34914)

10. Crystal Jam (2010) (score: 0.34275)

11. Ratcatcher (1999) (score: 0.34053)

12. Casino Royale (1967) (score: 0.34008)
13. Massa'ot James Be'eretz Hakodesh (2003) (score: 0.33933)
14. James (2008) (score: 0.33534)
15. On Her Majesty's Secret Service (1969) (score: 0.33304)
16. The Pursuit (2008/I) (score: 0.33195)
17. James Bond: Licence to Thrill (1987) (TV) (score: 0.33062)
18. Erotic Obsessions (2002) (V) (score: 0.32966)
19. Down the Coast (2011) (score: 0.32904)
20. Ghost Soldier (2006) (score: 0.32773)

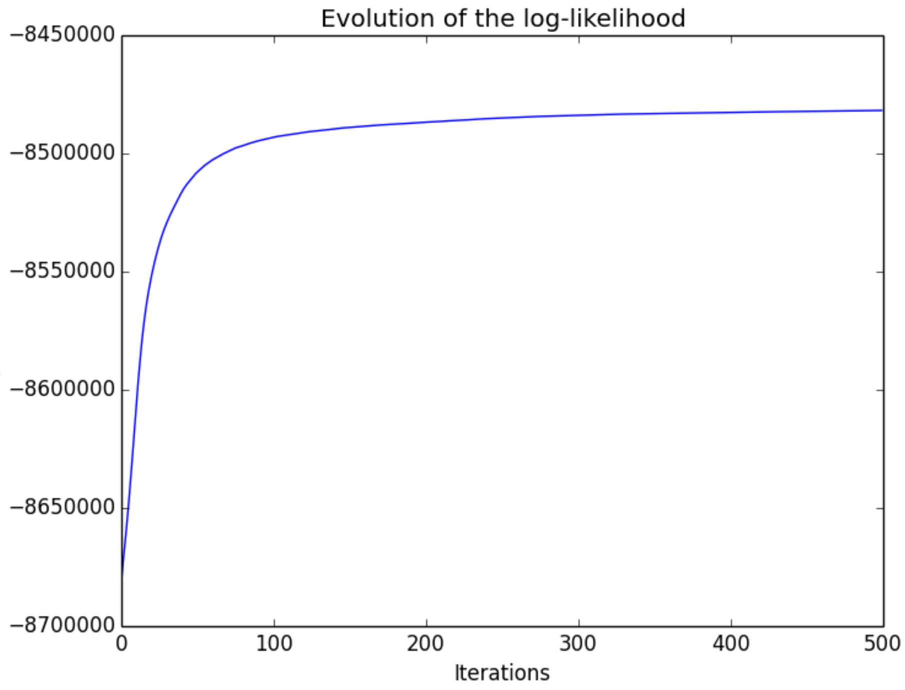
2.2 The terms that have extremal values along the first dimension uncovered by the SVD

dimension 1 - terms with lowest values:
bathi birodalmaiban hazajaban irodalmar kalandjat kepzelet legkulonosebb tudomani londonban misztikum nazzaro martoni licli lectual suspi standabl horri pointment onstrat gler enc cial cion canniti benefi celebra boarderless antiqui sadduce kerkerinck trutelink korteboldt lambertikirch prescib prinzipalmarkt osnabruck 1530s aquina unboyish ungrac vassilova nomic rangnagar pathless villagairosa sherdeman gainsvil 29s liebenberg peddlar

dimension 1 - terms with highest values:
follow back first want own while wife how help where mother meet go us wai home peopl show you becom come t through work old woman dai father make time girl take what them friend two world year new famili get stori live young find love man film life him

3 pLSI

3.1 Plot of the log-likelihood at each iteration



500 iterations are enough since the log-likelihood doesn't change much after 350+ iterations.
The way to be sure the algorithm has converged is to set a maximum delta for log-likelihood between 2 iterations.

3.2 Top 20 words for each topic

topic 000: percent said million year market price new trade compani billion stock rate dollar down bank report share increas cent sale

topic 001: said polic two peopl year kill charg fire report offic citi state offici arrest three dai mile court death prison

topic 002: said i t year you new bush peopl dukaki go time school what presid do campaign dai get like work

topic 003: said state year feder hous court new us senat bill plan program t d presid depart administr time govern case topic 004: said soviet govern u state presid parti offici unit nation new countri leader report year militari forc minist peopl union

3.3 Latent meaning of each one of the topics

topic 000: **economy**
topic 001: **justice**
topic 002: **life**
topic 003: **career**
topic 004: **high level**

3.4 A way of adapting the clustering algorithm of the previous lab to automatically cluster documents based on their topic distribution

Using TF-IDF-weighted vectors and cosine similarity.