JBoss
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Israel JBoss User Group
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Full Text Search Intro

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Agenda

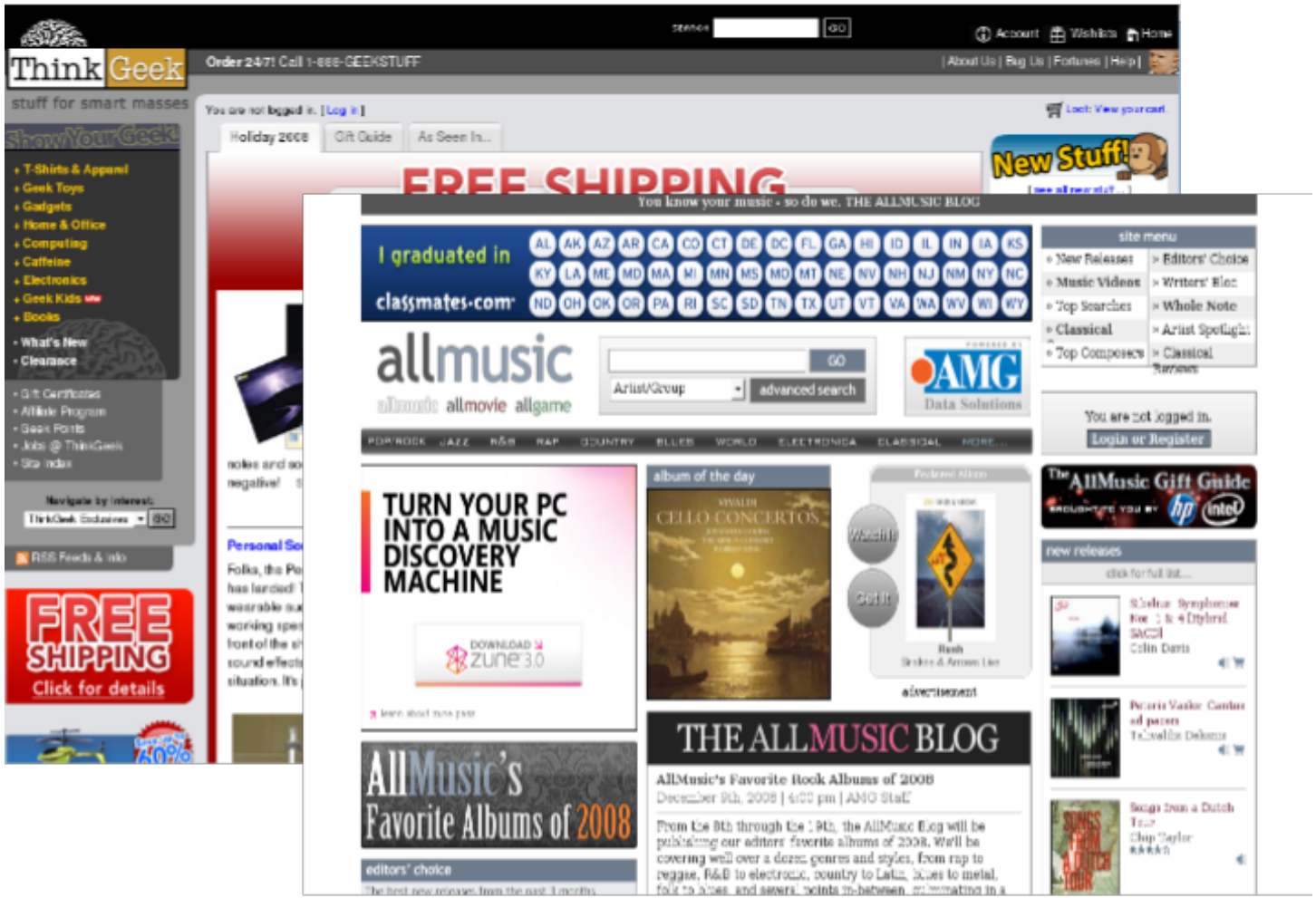
- What is search?
- Where's the need?
- Concepts
- Search in relational databases
- Full text search
- What's next?

What is search?

- Search is vague

What is search?

- Search is also mandatory (!)



What is search?

- Integrating efficient search into your application is not an easy task.

Where's the need?

- Modern information systems give users access to more and more information
- A user that knows precisely **what** to find and **where** to look is an edge case
  - (in this situation there's actually no need for a search)
- Most of the time **what** and **where** are blurry

Where's the need?

- Before knowing where to look, we need to have a decent understanding of what we are looking for.
  (Surprisingly, some users barely know what they are looking for...)
- Users seek
  - Help
  - Guidance
  - Search refinement
  - Relevance

Where's the need?

- Even when the users know precisely what the are looking for, they might not know how to access the information
- Information systems are expected to provide access to data:
  - Efficiently
  - Fast
  - Without pieces of irrelevant information

Concepts

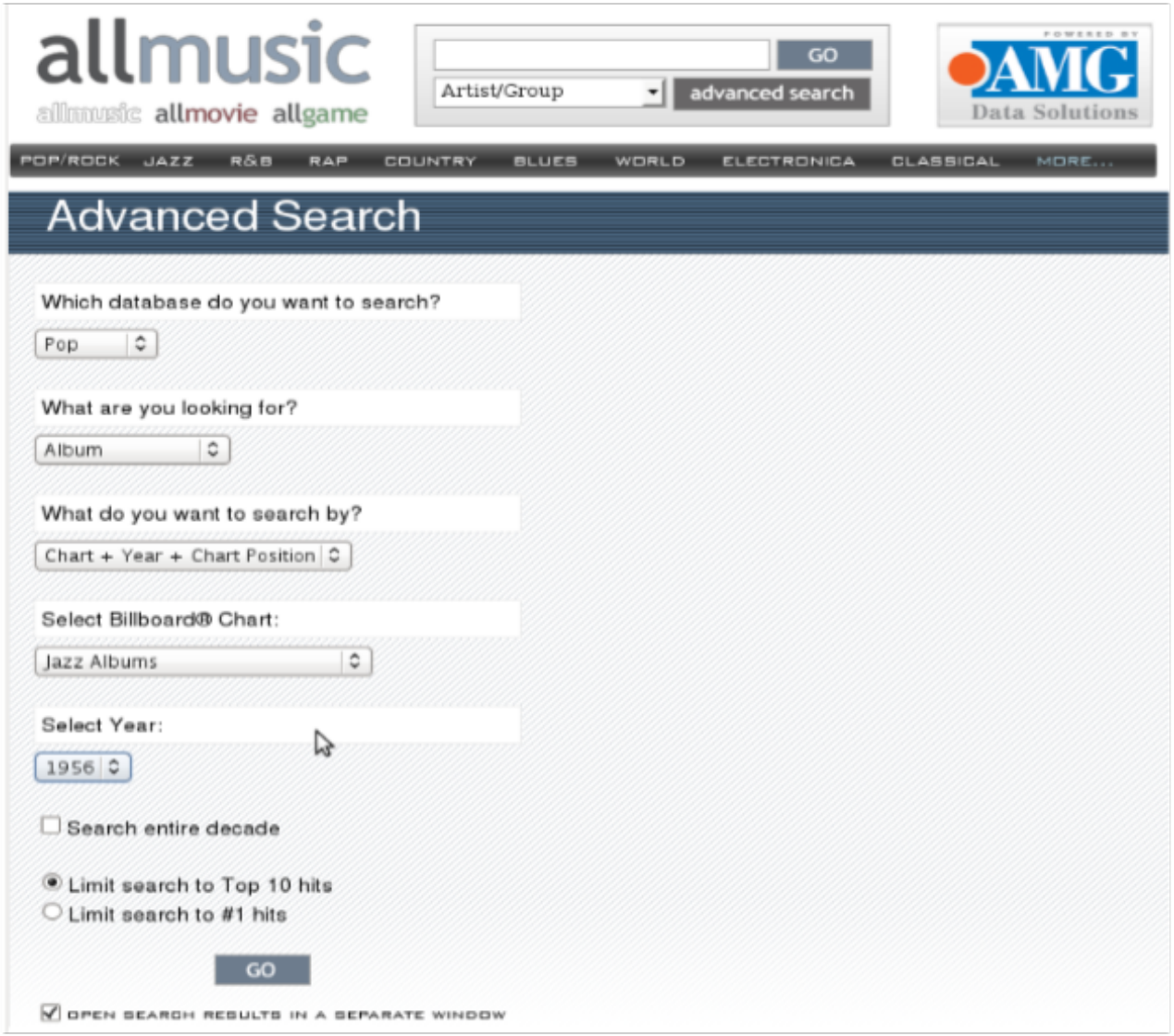
- Refining the **what** can be addressed by:
  - Categorizing information
  - Using a detailed search screen
  - Using a “simple” search box

Categorizing Information

Categorizing Information

- Done by business experts during data insertion.
- Cons:
  - Might not match the mindset of the users
  - Almost impossible when there is too much information
- Pros:
  - Beneficial if the user has no predefined idea
  - A system for navigating the application

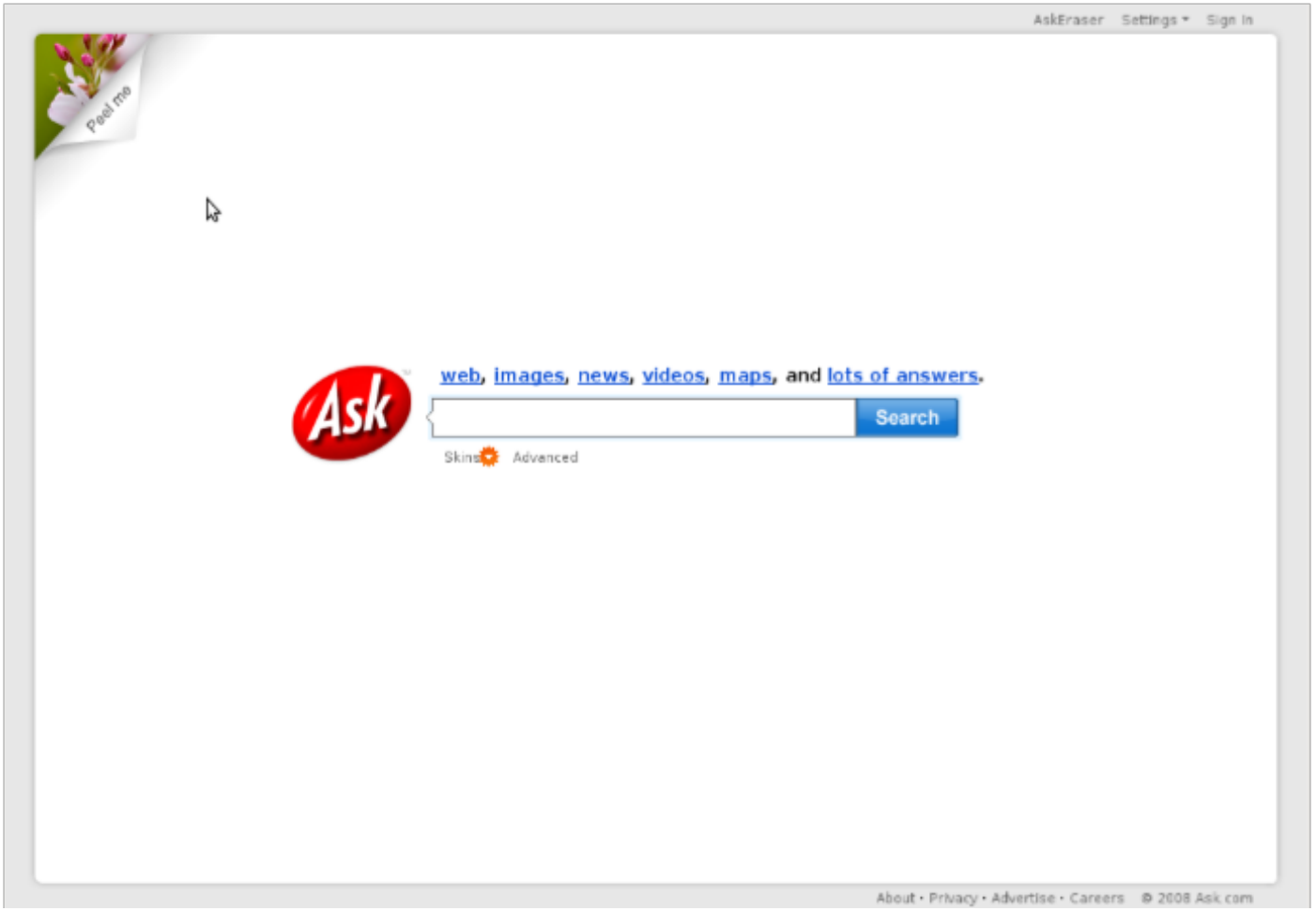
Detailed search screen



Detailed search screen

- Cons:
  - Not friendly to beginner users
- Pros:
  - Very efficient when the user knows what to look for
    - Expert users can fine-tune their search
  - Gives an idea of what to search for, in a “simple” search box
  - Easier to implement

A “simple” search box



A “simple” search box

- Cons:
  - Hard to implement
    - Make the user use the language of the system
- Pros:
  - Best user experience for beginners (when properly implemented)

Search in relational DB

- RDBMS and SQL are great tools.
- Can they answer our search needs?
- A quick example:

Search in relational DB

- A user is looking for a CD on riaa-fans.com
  - riaa-fans.com use SQL to answer search queries
  - Users are provided with simple search box
- The user query
  - “a collection cd of jez music”

Search in relational DB

- The CD table:
  - `ID` bigint(20) NOT NULL auto_increment,
    `TITLE` varchar(50) NOT NULL,
    `DESCRIPTION` varchar(250) NOT NULL,
    `GENRE` varchar(50) NOT NULL,
- A possible query:

```
select cd.id
from CD cd
where cd.TITLE = ? OR cd.GENRE = ? OR cd.DESCRIPTION like ? OR...
```

Search in relational DB

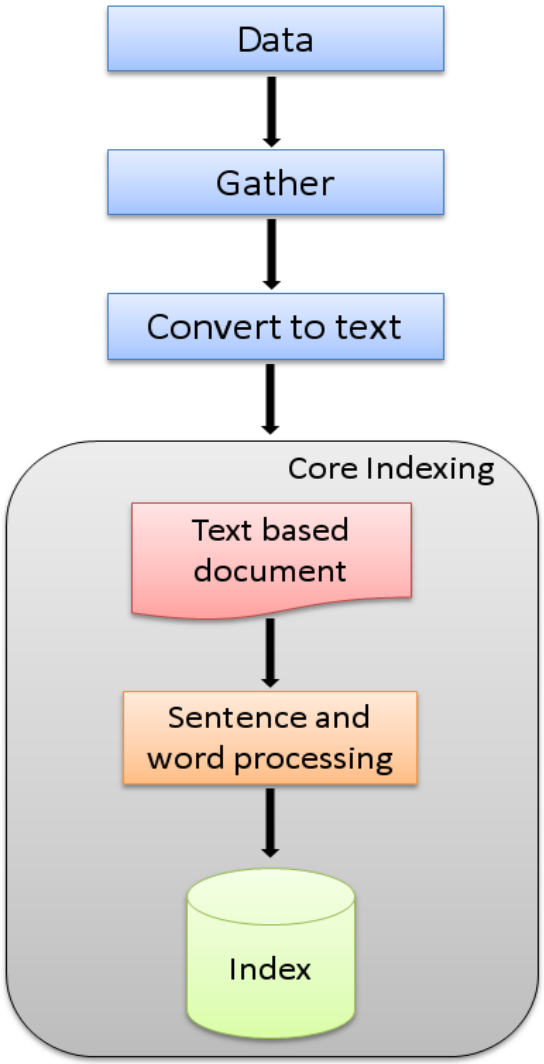
- We're searching **words**, not **columns**
- What about spelling mistakes (“jez”)?
- Search words from the same family
- Relevance...

Full text search

- A promising solution
- How?
  - Indexing
  - Searching

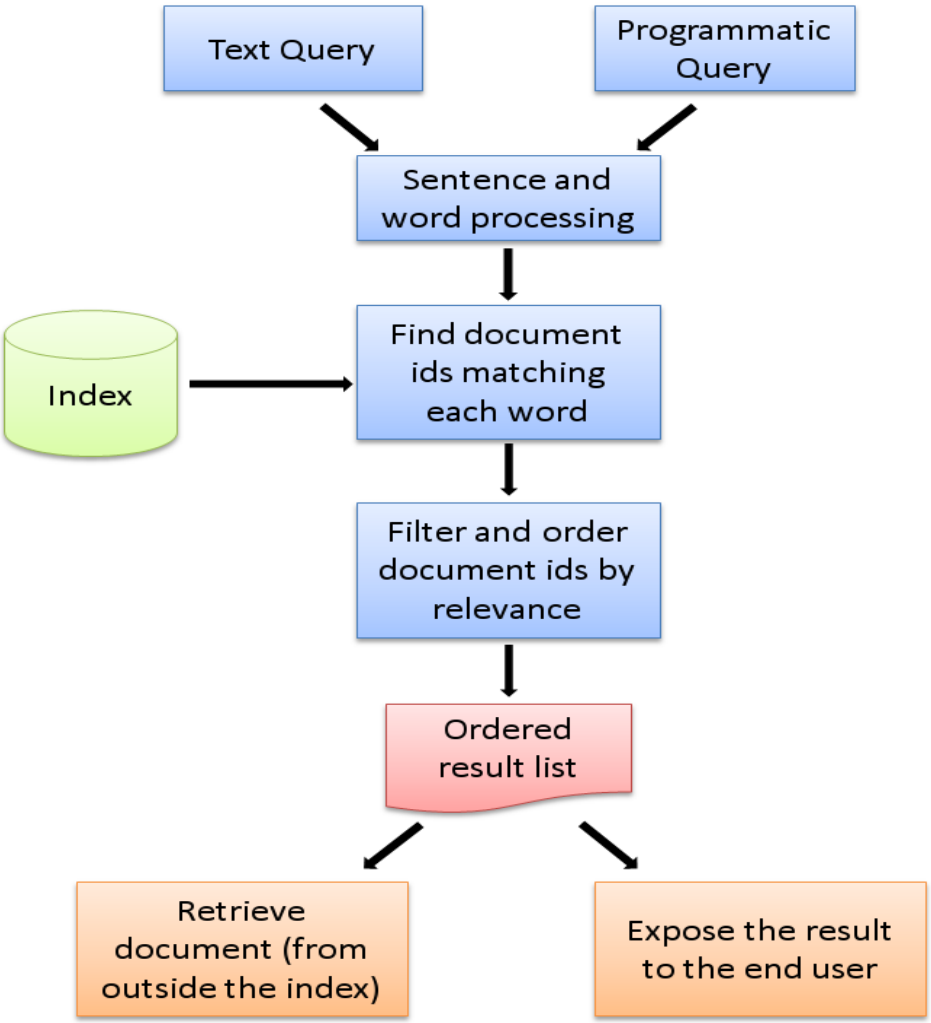
Full text search

- Indexing



Full text search

- Searching

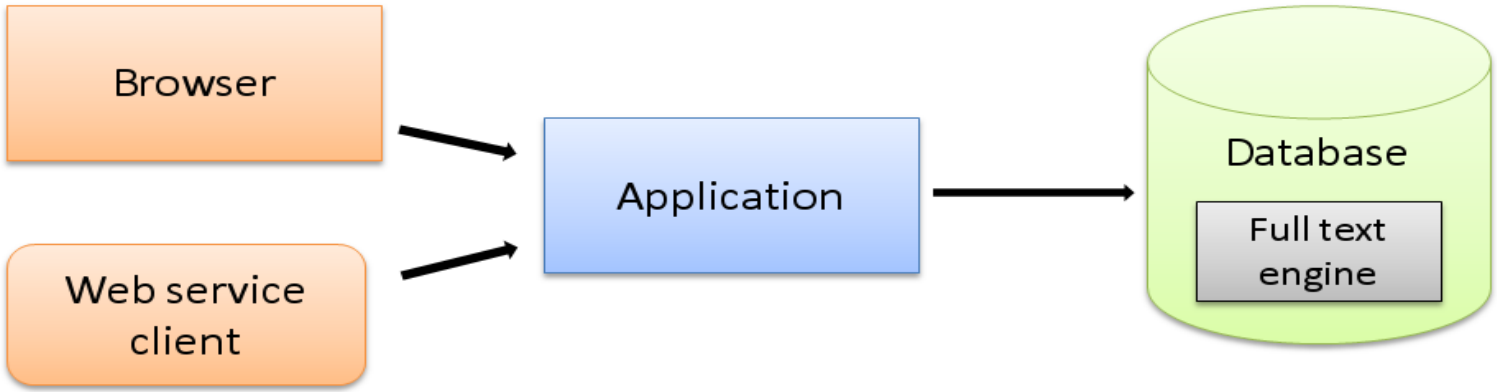


Full text search

- Solutions
  - An integrated full-text search in the relational database engine
  - A black box server providing the full-text service
  - A library providing a full-text engine implementation

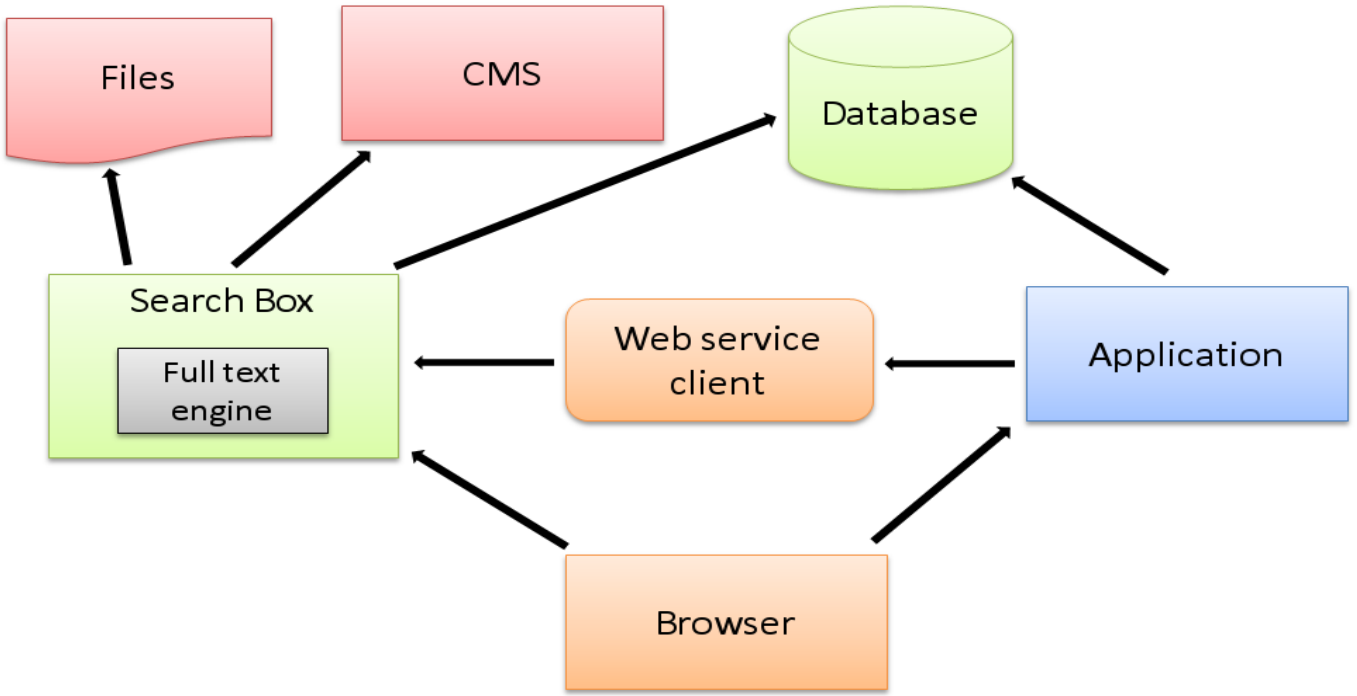
Full text search

- An integrated full-text search in the relational database engine



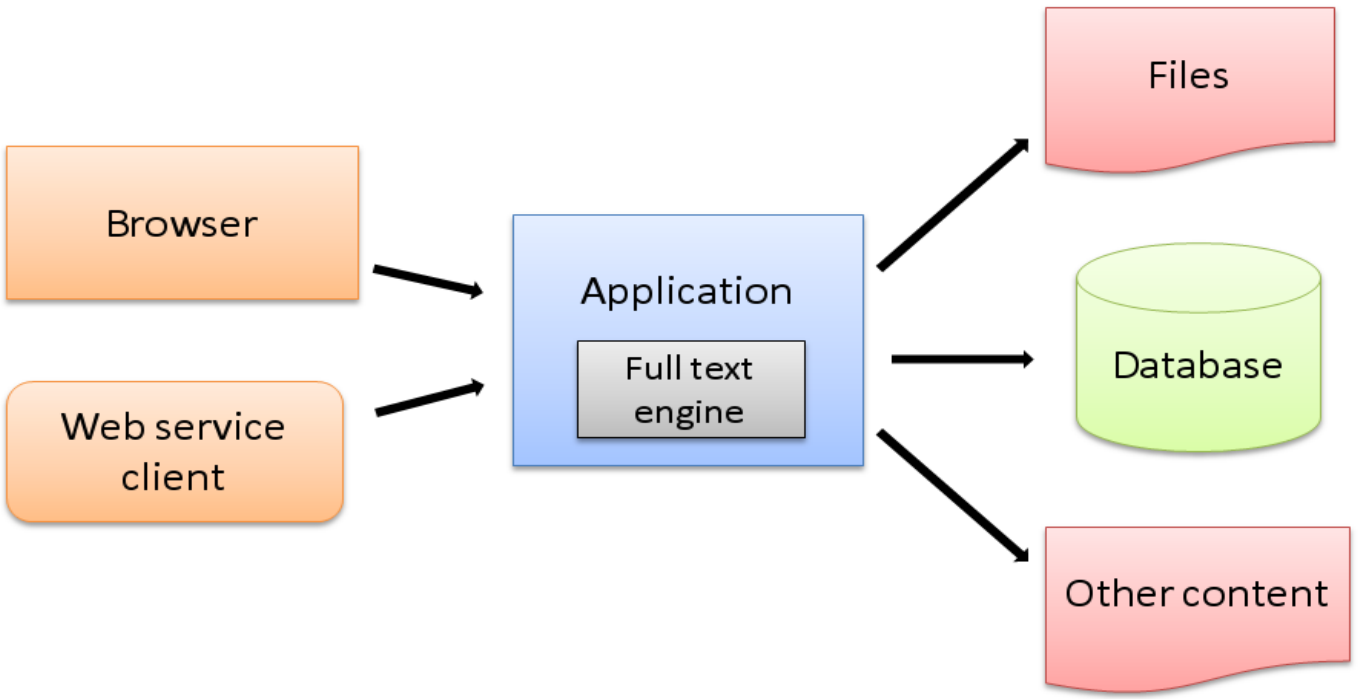
Full text search

- A black box server providing the full-text service



Full text search

- A library providing a full-text engine implementation



What's next?

- Hibernate Search and Compass
  - Use a Library
    - Lucene

What's next?

- Lucene
  - Open-Source library (Java)
  - Library - Not Application
  - Simple API
  - +George -eat, Apple –pie +Tiger, animal:monkey AND food:banana

Q&A