SEMANTIC DOCUMENT CLASSIFICATION

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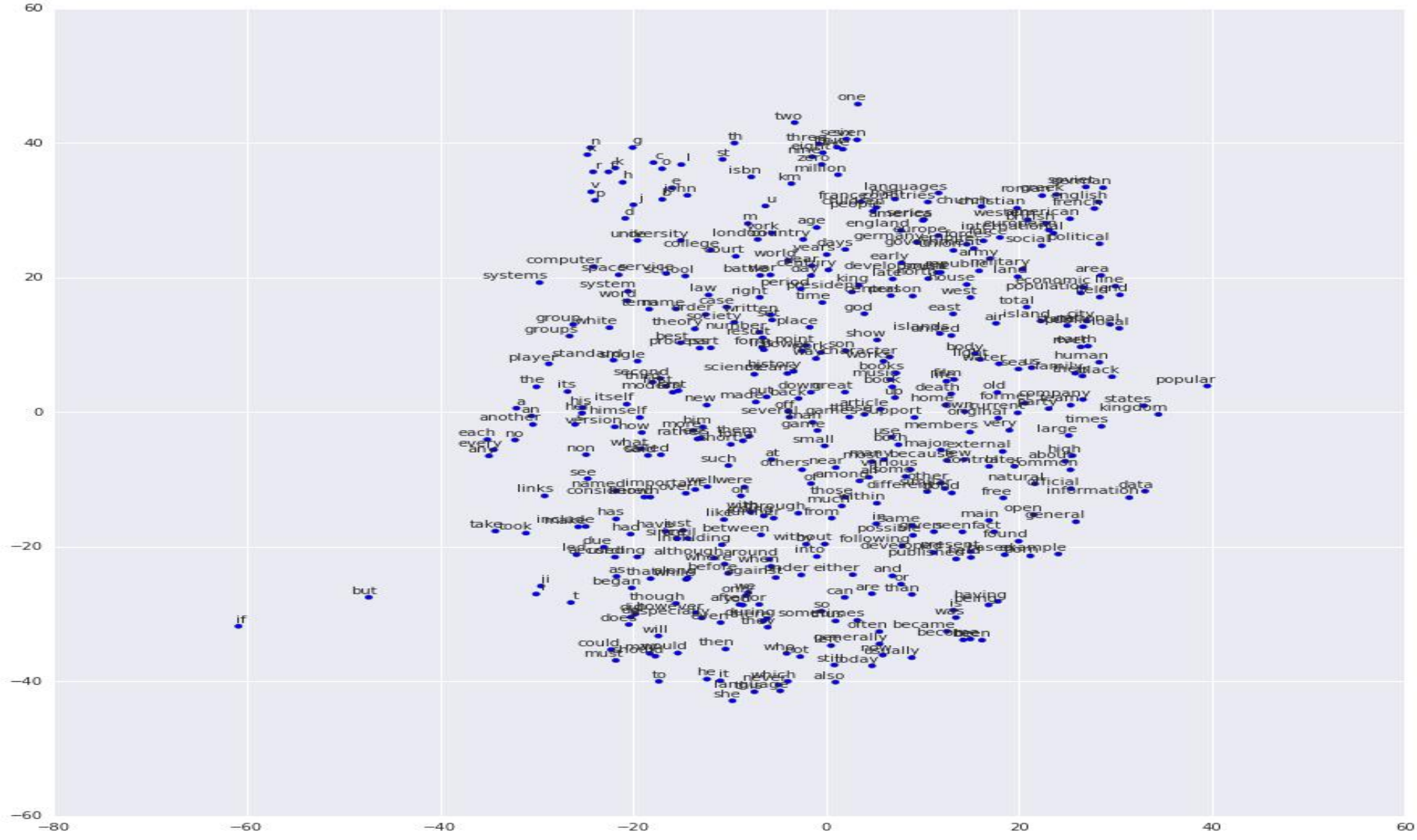
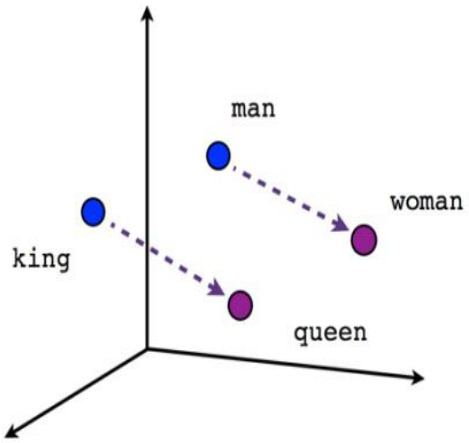
Contents

Motivation

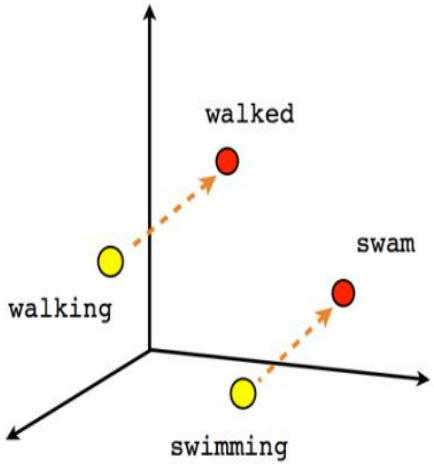
- There are many digital documents everywhere (web, datastore, etc.)
- Automatically classifying and clustering them is an important problem.
  - Example; cluster new articles by their subject category(politics, technology, sports, art, etc.)
  - Example; cluster sports new articles by their category(football, basketball, etc.)
- Data reasoning
- Usage: recommendation systems, digital document processing systems, etc.
- Choose method such as Word embedding, Semantic.

Word Embedding

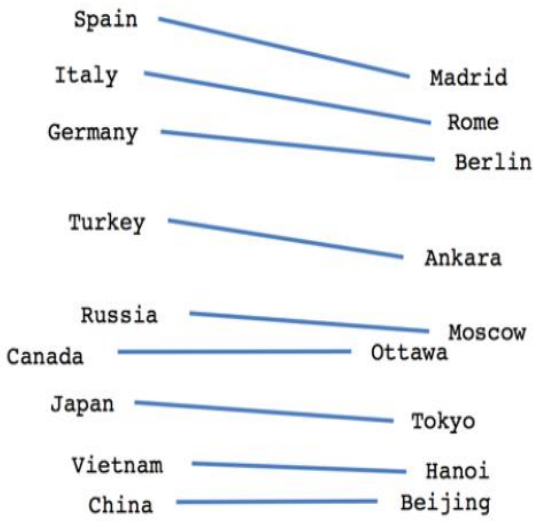




Male-Female



Verb tense

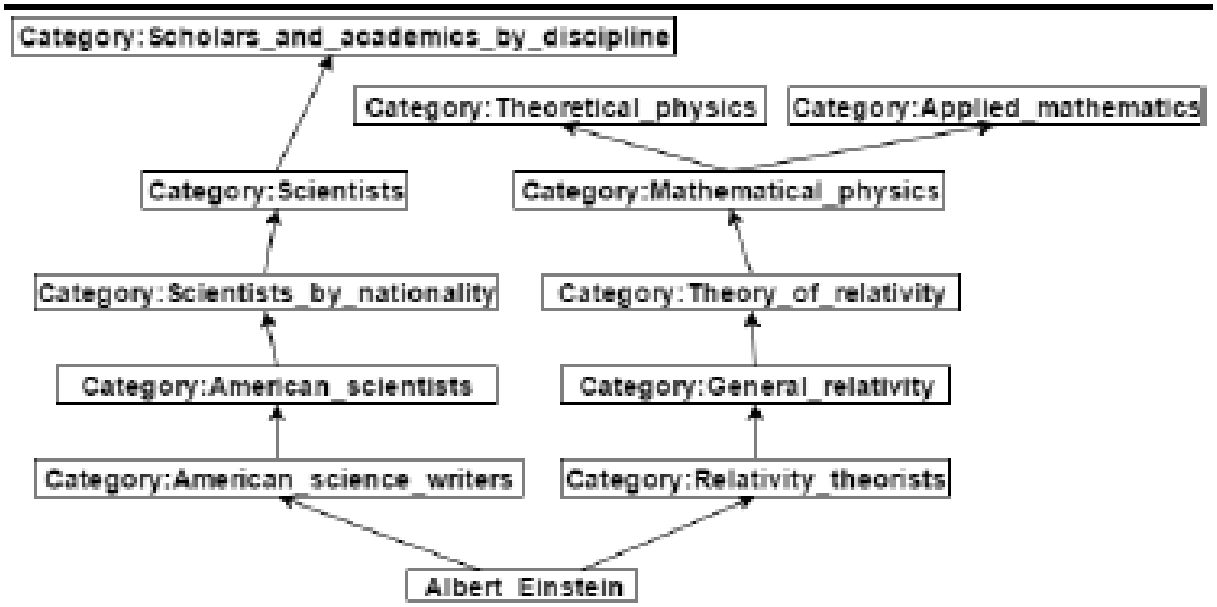


Country-Capital

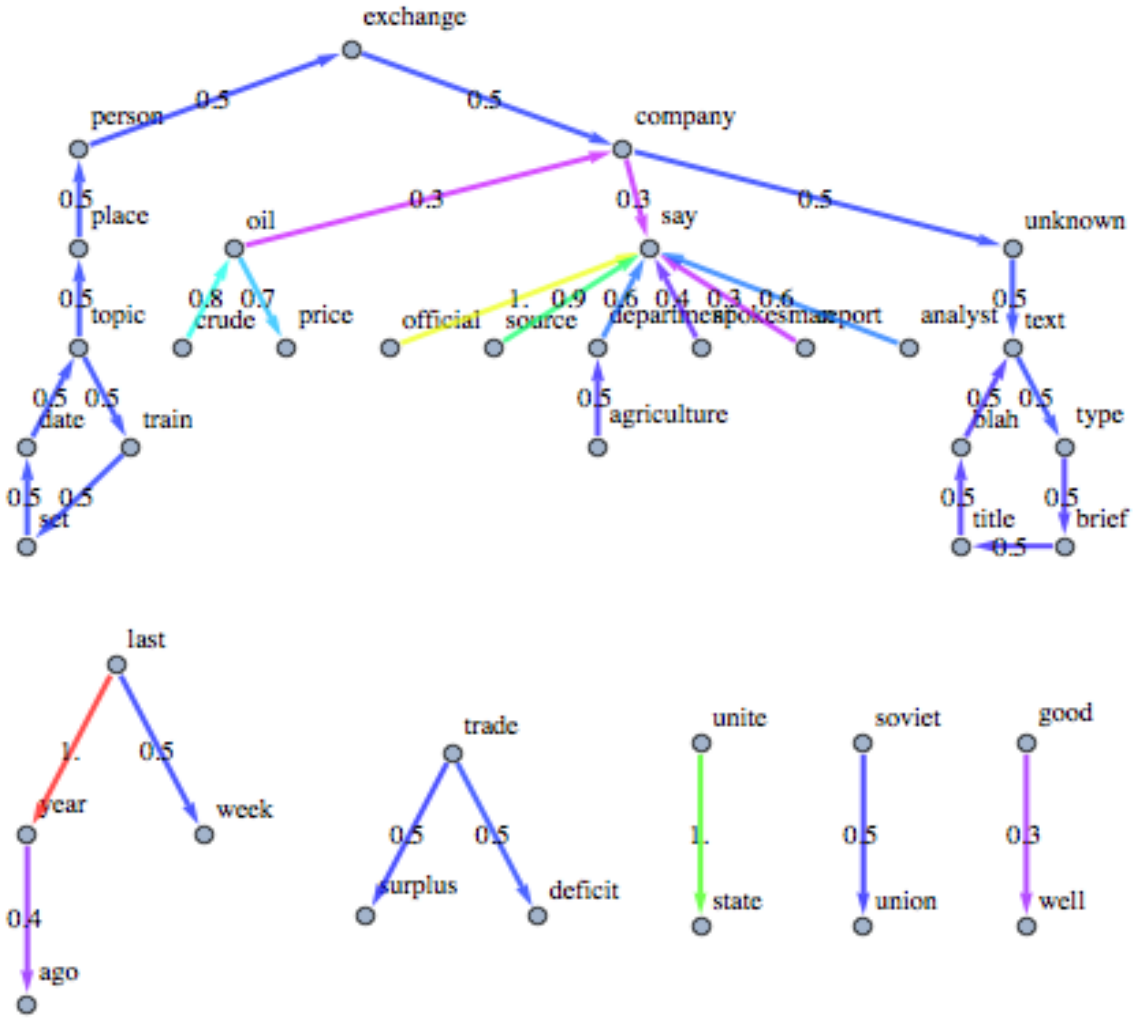
- induced vector space
- semantic relationships.
- male-female,
- verb tense
- even country-capital relationships between words.

Semantic

- Classify using semantic approach
- Ability to extract concepts from within content and generate the metadata
- Relations between the words are grouped.



- Categorize the words.



Definition of Problem

- Classify/Cluster documents automatically by their content (topic, subject, etc.)
- Many methods exist.
- Test, improve existing methods and develop new methods to cluster documents
- Existing approaches: Word embedding-based
- New approach: Semantic- based using knowledge bases
- Develop a web- based application to automate the process

Analysis

- WordNet relationships.
- Named-entity recognition (NER)-based entity matching techniques.
- Word-embedding.

Solution

Which technologies will we use in this project?

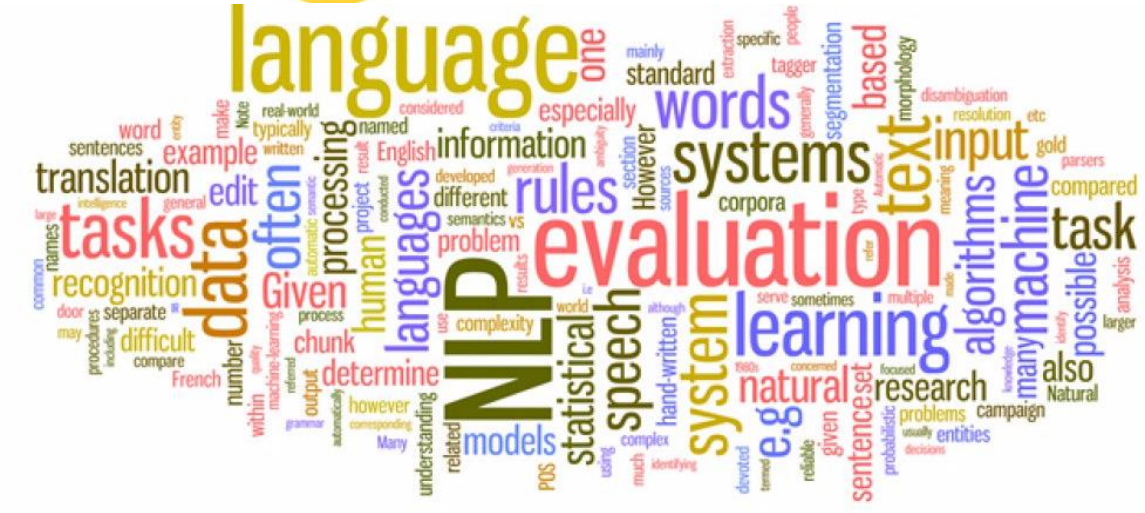
- We use vektor space model and k-means clustering

DBpedia

python

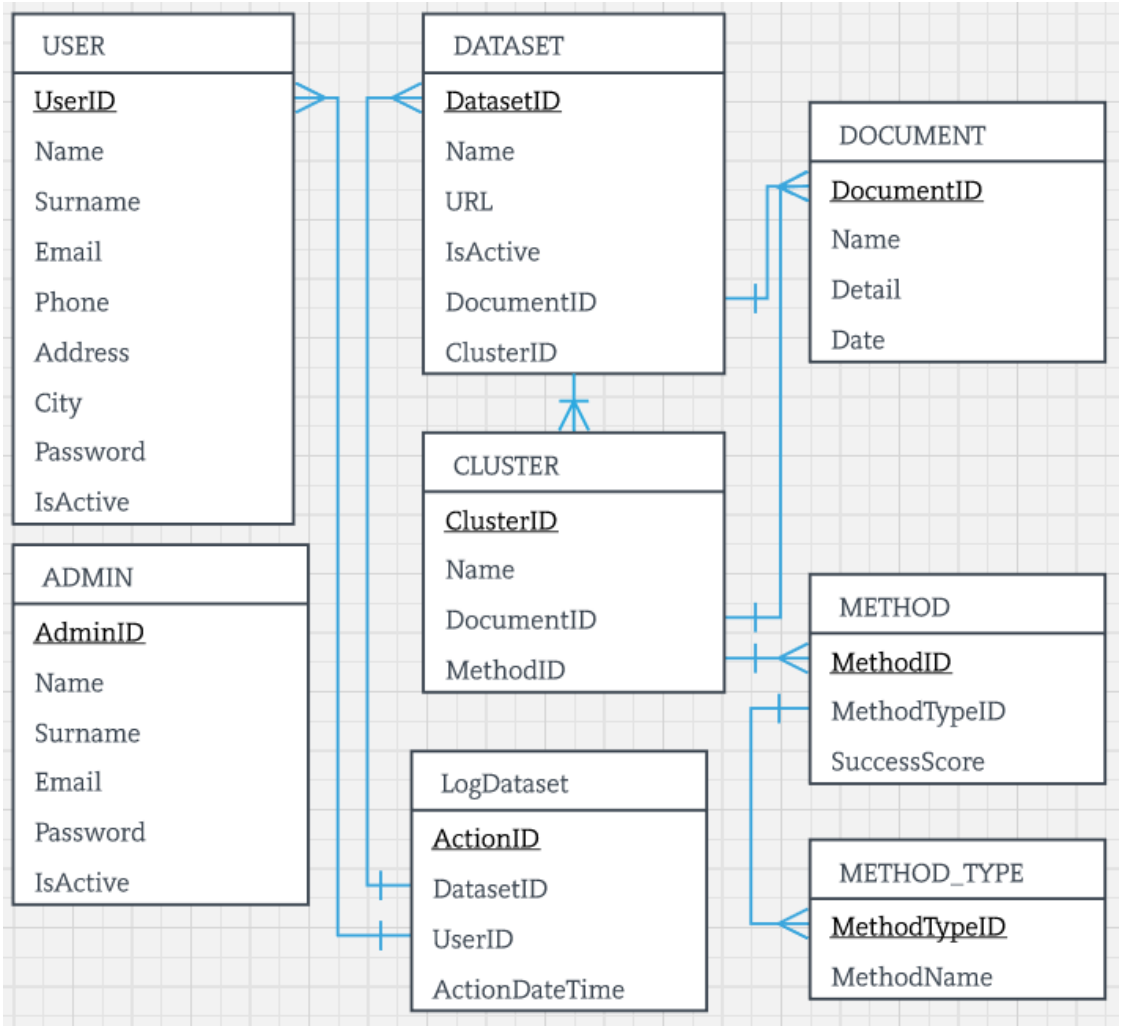
Microsoft SQL Server

Visual C#

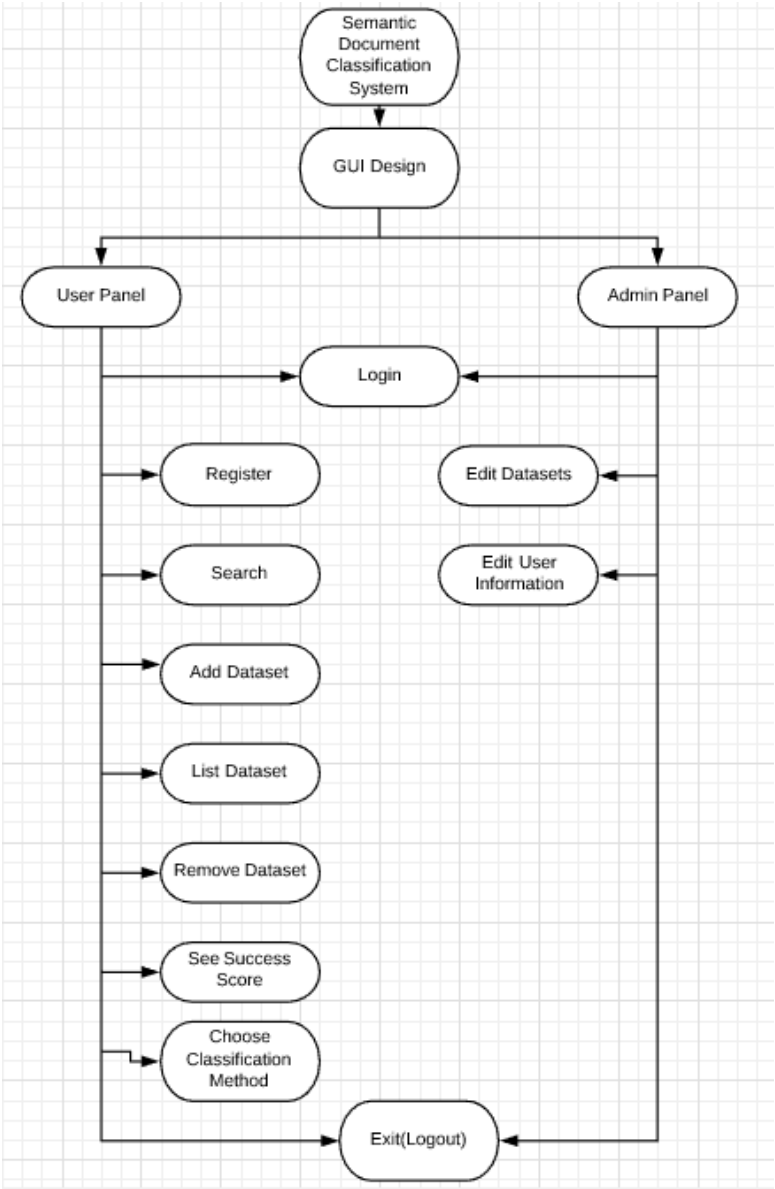


Database Design

- We will use MSSQL for database in this project with this way, user's information will be stored.

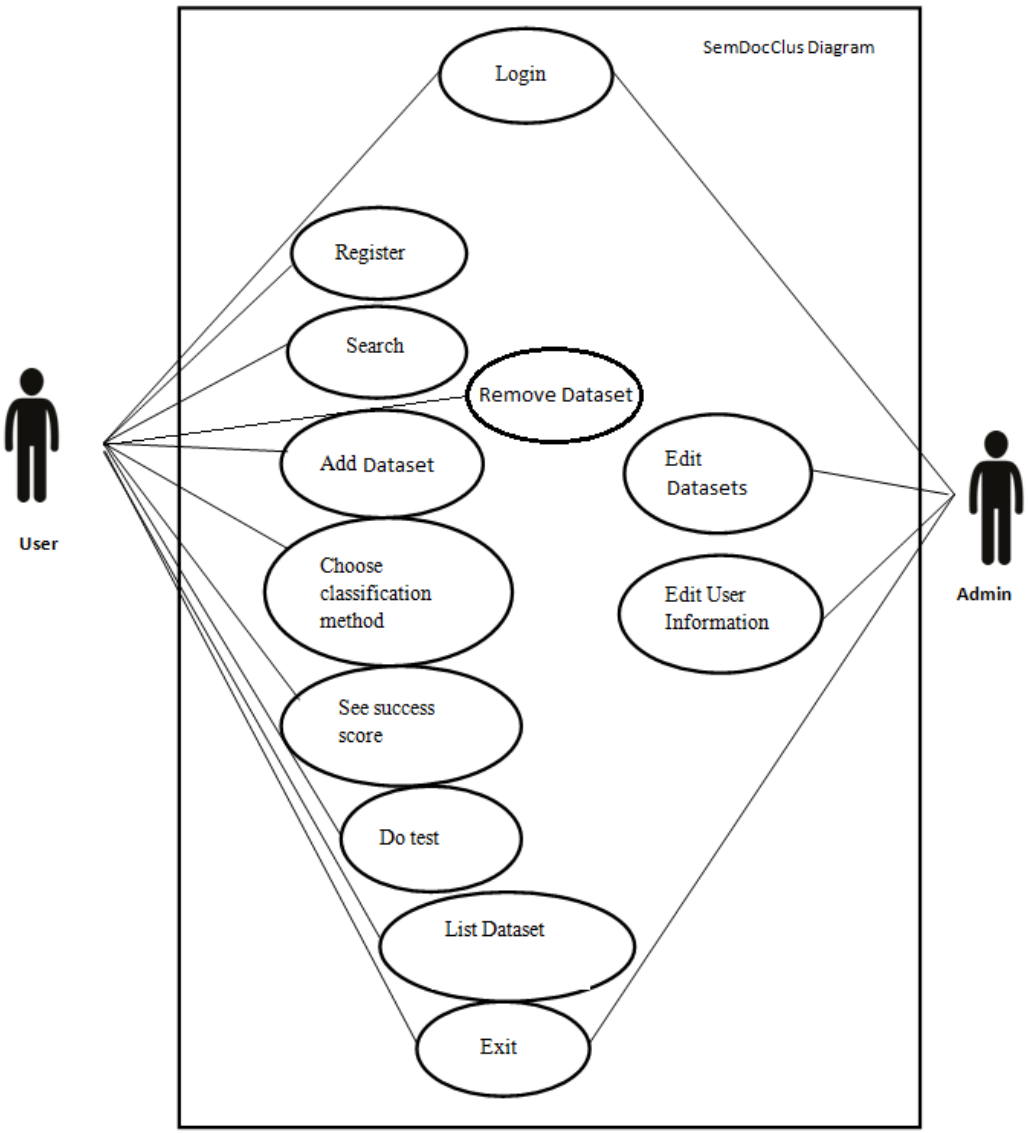


Block Diagram

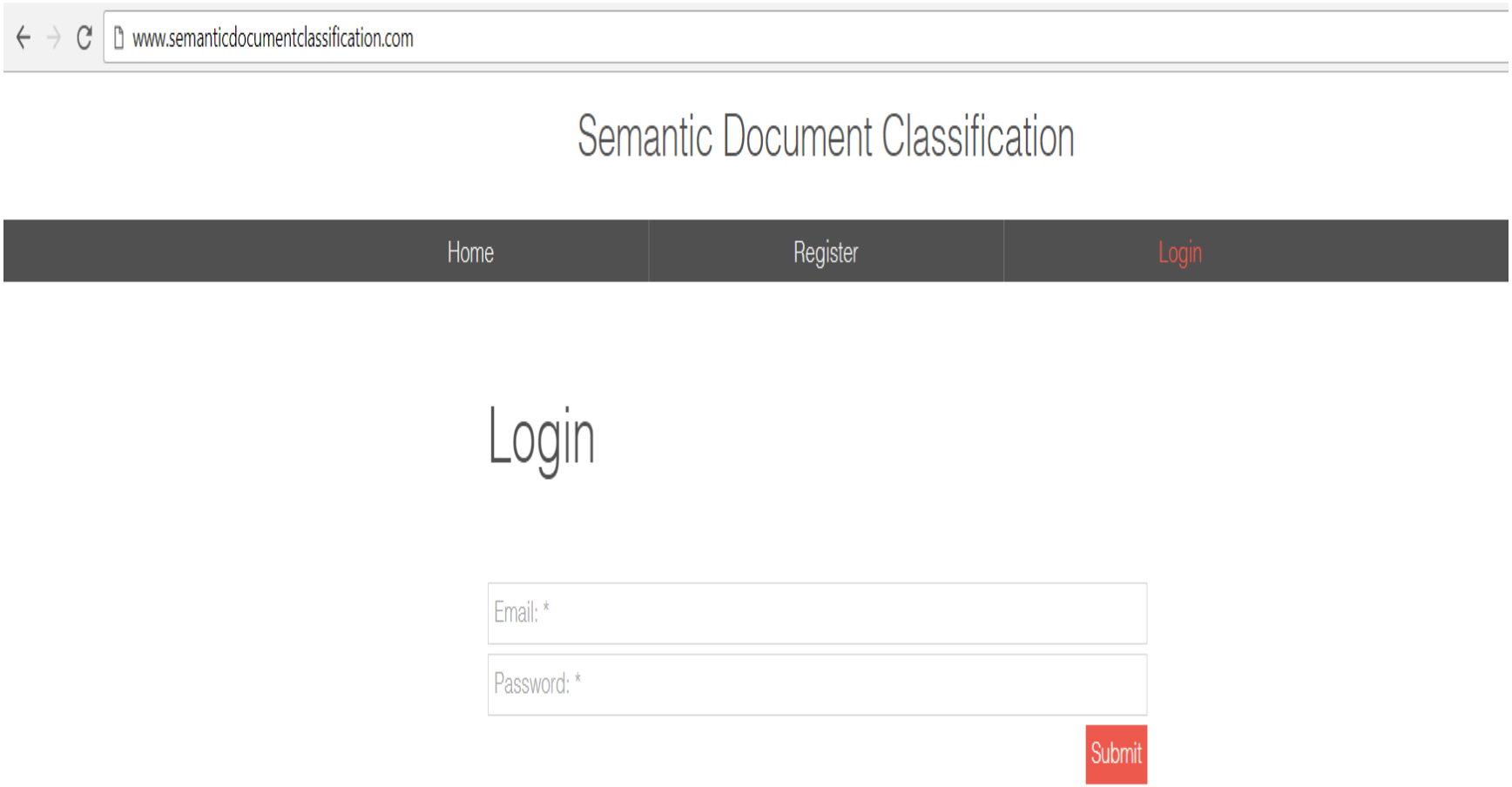


Use Case Diagram

USE CASE DIAGRAM:



Login Page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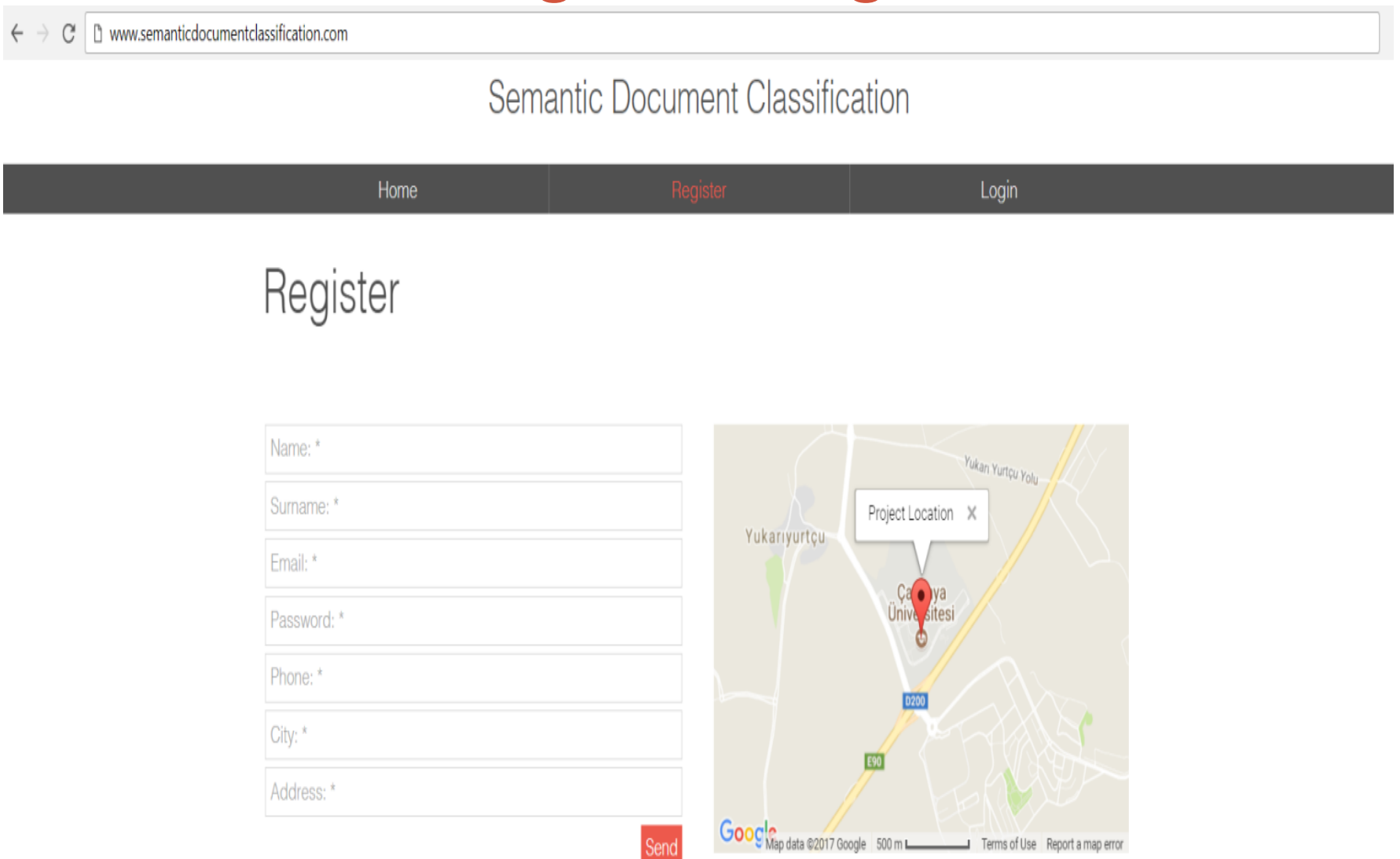
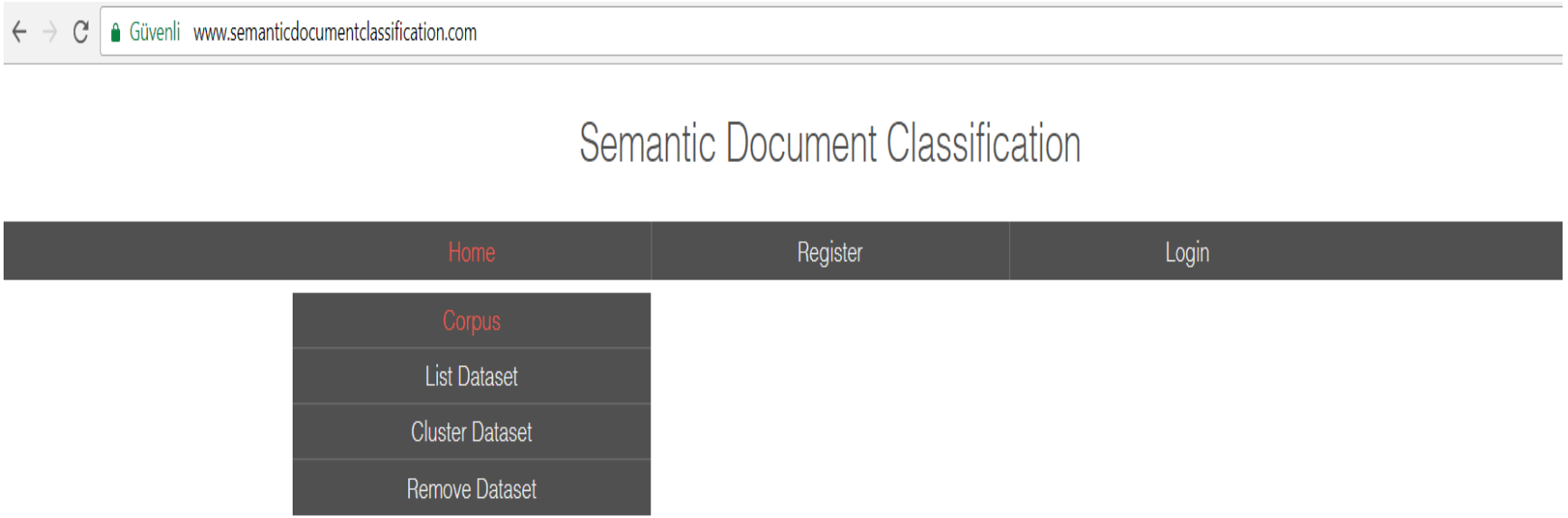


HomePage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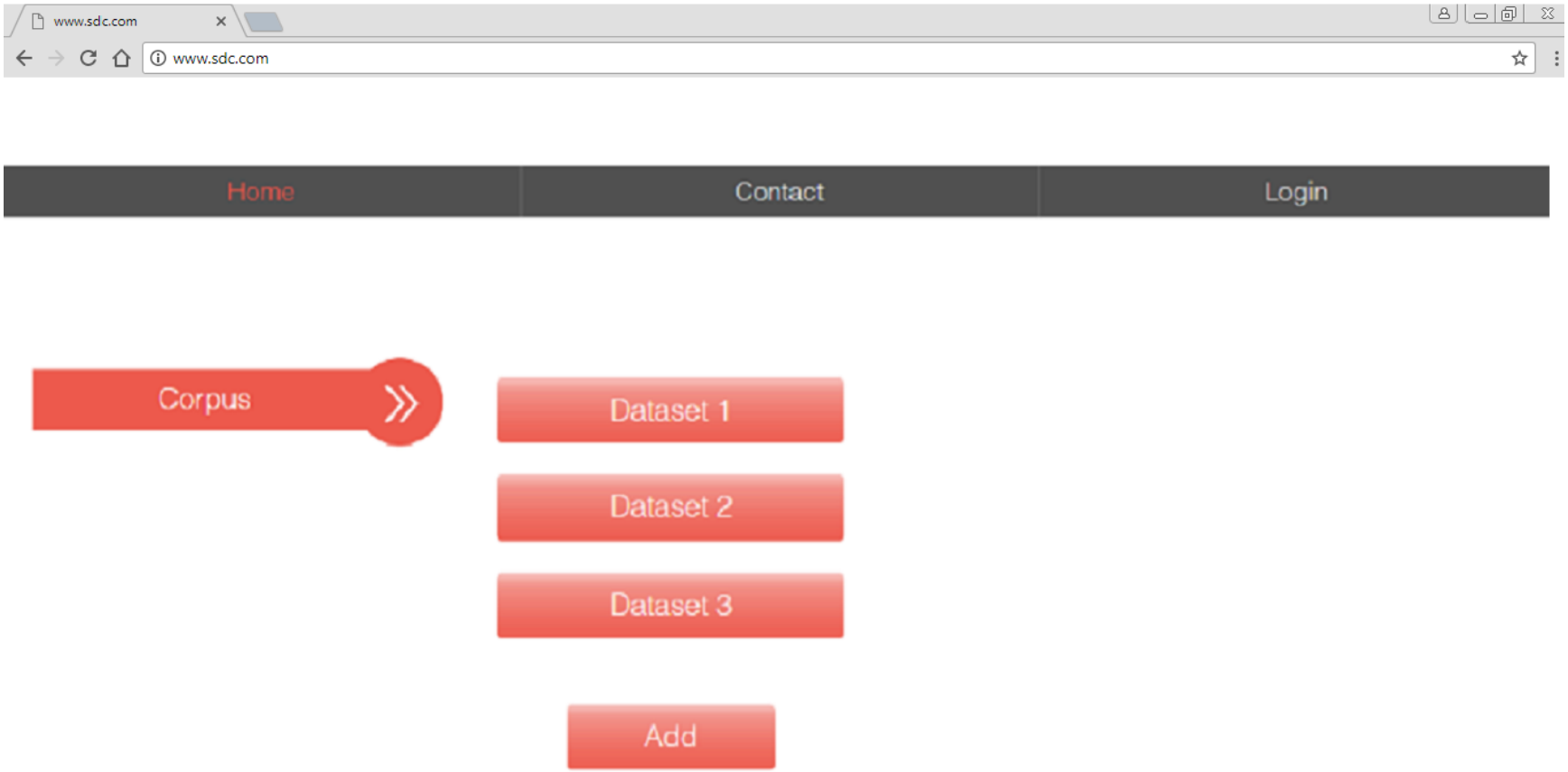
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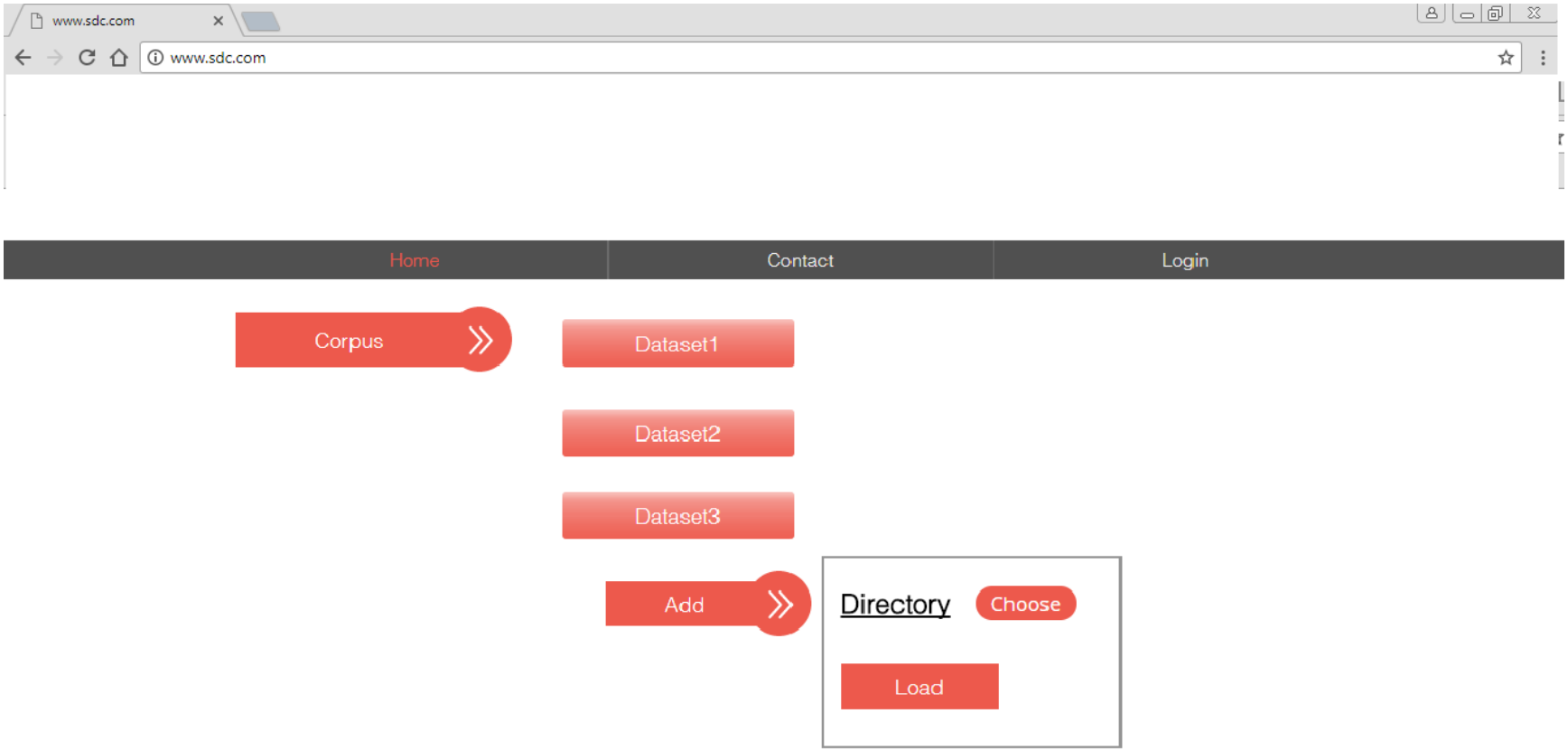
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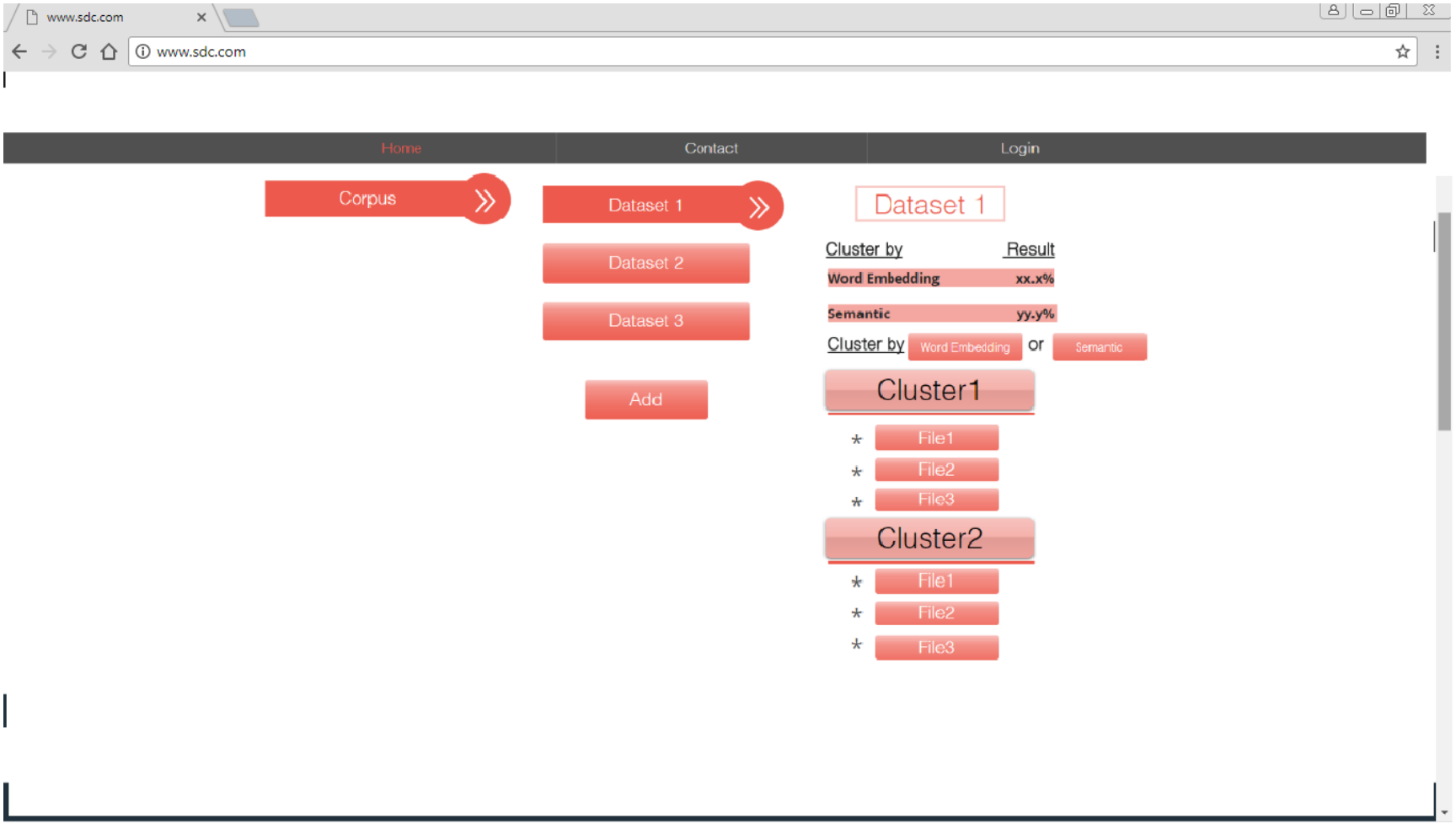
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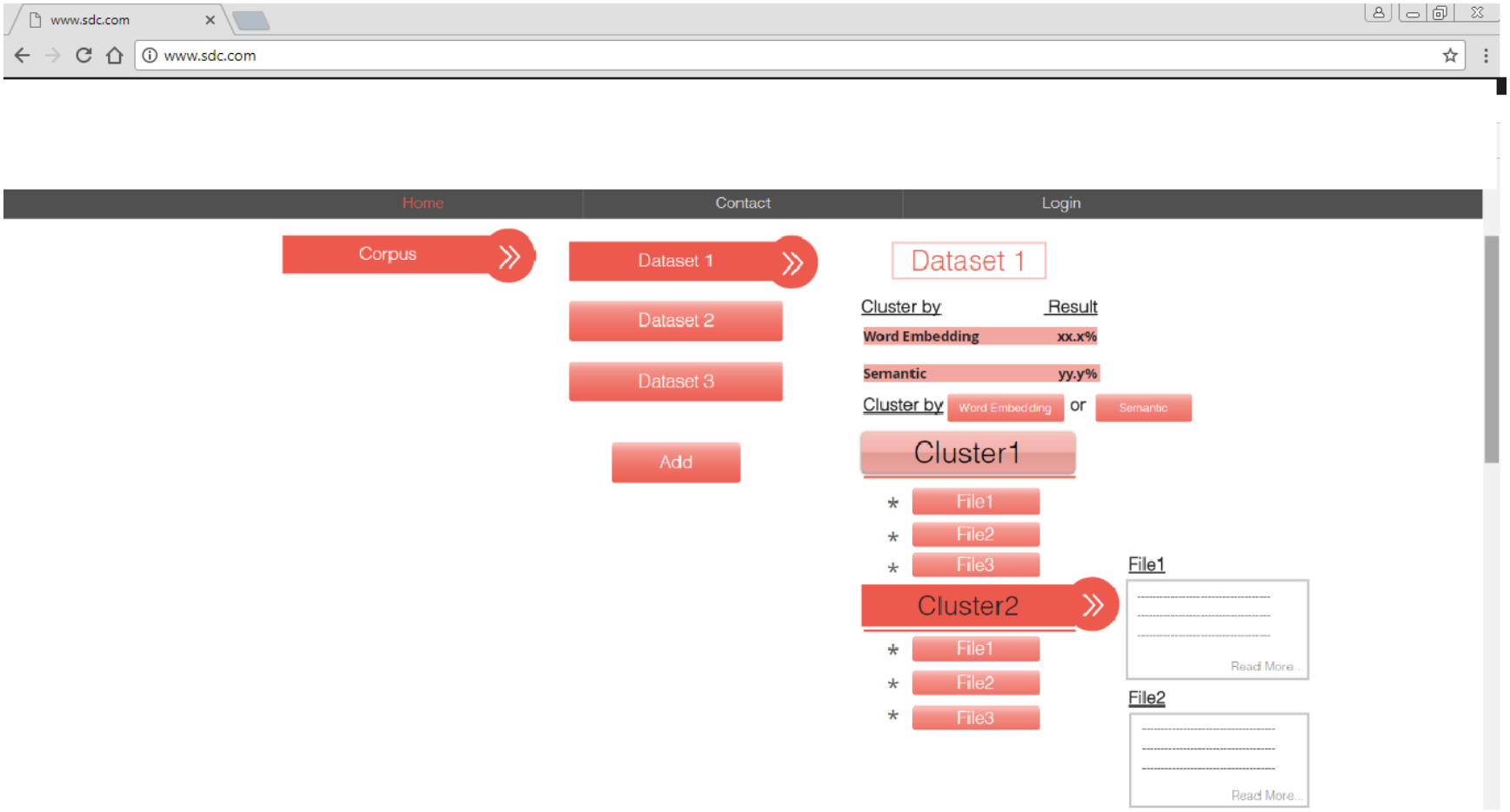
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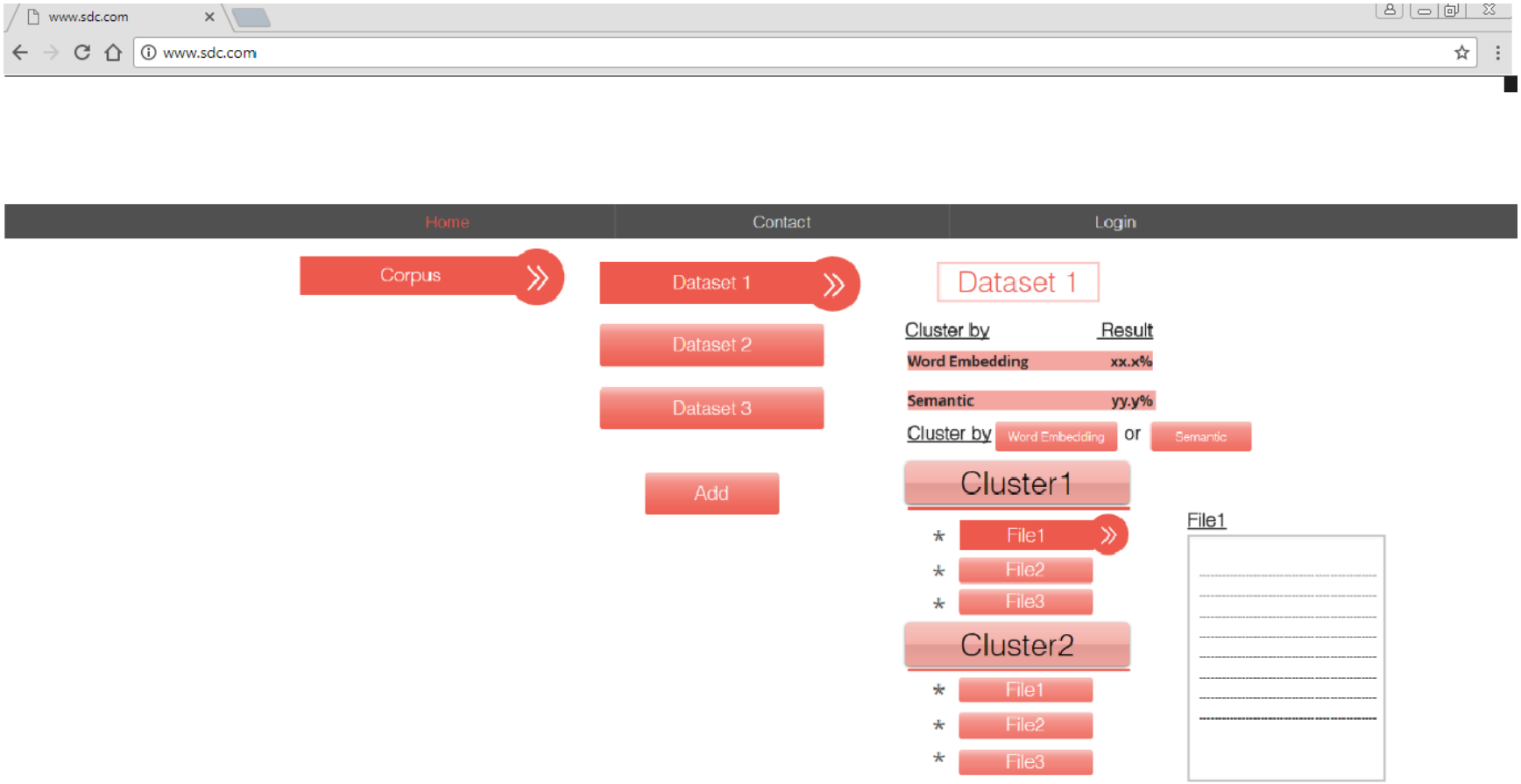
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Results and Conclusions

- Categorize the document set.
- Test and classify documents.
  - *Advantages*
    - Grouping similar features
    - Quick access to classified documents
    - Millions of dataset classifications
  - *Disadvantages*
    - Lack of good test dataset/benchmark

References

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THANK YOU
FOR
LISTENING


Any
Question?