

News content will be collected exclusively by web-scraping major outlets (BBC News, CNN, The Guardian, 24ur) as well as regional RSS feeds to ensure broad topical coverage. Each script retrieves full article text and metadata (title, author, publication date, URL) and stores the raw content for processing. A preprocessing pipeline then performs HTML parsing, text normalization, duplicate removal, and formatting. Cleaned articles are converted into vector representations and indexed

in a vector database to enable efficient semantic retrieval. This approach produces a continuously updated, semantically organized corpus of both current and historical news articles, supporting rapid access to relevant documents for the conversational agent.

0.1 Database

The system uses a PostgreSQL schema with two tables: `onj.articles` for storing article metadata (e.g., title, URL, publication date, section) and `onj.article_pieces` for holding individual content fragments (paragraphs, captions, tables) along with their embeddings. This design cleanly separates high-level article information from the textual pieces used for semantic search, enabling efficient storage, maintenance, and retrieval of news content.

Pipeline

We selected `rtvslo.si` for initial testing because it offers robust filtering by category and date. For this phase, we focus exclusively on sports news. We use the following parameters when querying the `rtvslo.si` API:

- `q`: the search query string
 - `s`: section filter (e.g., 3 for sports, null for all)
 - `sort`: sort order (1 = newest first, 2 = most popular)
 - `a`: time range (1 = all time, 2 = last 24 h, 3 = last week, 4 = last month, 5 = last year)
 - `per_page`: number of results to return per page
 - `group`: content type group (1 = news, 15 = video, 16 = audio)
1. **Receive user query:** The system accepts a natural-language question or request from the user.
 2. **Extract keywords from the query:** Three complementary methods identify salient terms:
 - *Stop-Word Filtered Token Extractor*: tokenizes the lowercased question, filters for alphanumeric tokens, and removes Slovene stop words.
 - *Part-of-Speech Keyword Extractor*: uses a spaCy NLP model to collect tokens tagged as PROP (proper noun), ADJ (adjective), or NOUN.
 - *Named-Entity Extractor*: uses spaCy to extract named entities (e.g., persons, organizations, locations).
 3. **Perform web-scraping to discover relevant articles:** Using the extracted keywords, the scraper queries selected news pages to retrieve potentially relevant articles. Since `robots.txt` is not provided by the site, we enforce a 1 s timeout between requests to avoid overwhelming the server.

4. **Parse and collect article metadata and content:** Each fetched page is parsed to extract structured metadata, such as title, author, publication date, and URL and the main text body. Figure and image captions are retrieved, and any tables are converted to plain text. Boilerplate elements (navigation menus, advertisements, footers) are removed to clean up the content. The full article is stored in the `articles` table, while individual components (paragraphs, captions, tables) are stored in `article_pieces`.

5. **Generate embeddings and store in the vector database:** The cleaned text is chunked into passages of optimal length (e.g., 384 tokens) and fed into a pre-trained embedding model to produce high-dimensional vectors. These vectors, along with their metadata, are indexed in a vector store (e.g., FAISS or Pinecone) to enable efficient semantic retrieval during real-time queries.

Equations

You can write equations inline, e.g. $\cos \pi = -1$, $E = m \cdot c^2$ and α , or you can include them as separate objects. The Bayes's rule is stated mathematically as:

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}, \quad (1)$$

where A and B are some events. You can also reference it – the equation 1 describes the Bayes's rule.

Lists

We can insert numbered and bullet lists:

1. First item in the list.
2. Second item in the list.
3. Third item in the list.

- First item in the list.
- Second item in the list.
- Third item in the list.

We can use the description environment to define or describe key terms and phrases.

Word What is a word?.

Concept What is a concept?

Idea What is an idea?

Random text

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Figures

You can insert figures that span over the whole page, or over just a single column. The first one, Figure 1, is an example of a figure that spans only across one of the two columns in the report.

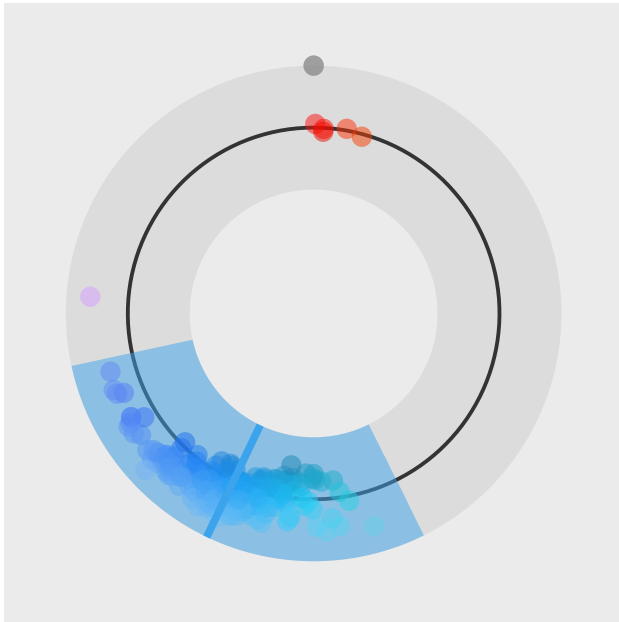


Figure 1. A random visualization. This is an example of a figure that spans only across one of the two columns.

On the other hand, Figure 2 is an example of a figure that spans across the whole page (across both columns) of the report.

Tables

Use the table environment to insert tables.

Table 1. Table of grades.

Name		Grade
First name	Last Name	
John	Doe	7.5
Jane	Doe	10
Mike	Smith	8

Code examples

You can also insert short code examples. You can specify them manually, or insert a whole file with code. Please avoid inserting long code snippets, advisors will have access to your repositories and can take a look at your code there. If necessary, you can use this technique to insert code (or pseudo code) of short algorithms that are crucial for the understanding of the manuscript.

Listing 1. Insert code directly from a file.

```
import os
import time
import random

fruits = ["apple", "banana", "cherry"]
for x in fruits:
    print(x)
```

Listing 2. Write the code you want to insert.

```
import (dplyr)
import (ggplot)

ggplot (diamonds,
        aes(x=carat, y=price, color=cut)) +
  geom_point() +
  geom_smooth()
```

Results

Use the results section to present the final results of your work. Present the results in a objective and scientific fashion. Use visualisations to convey your results in a clear and efficient manner. When comparing results between various techniques use appropriate statistical methodology.

More random text

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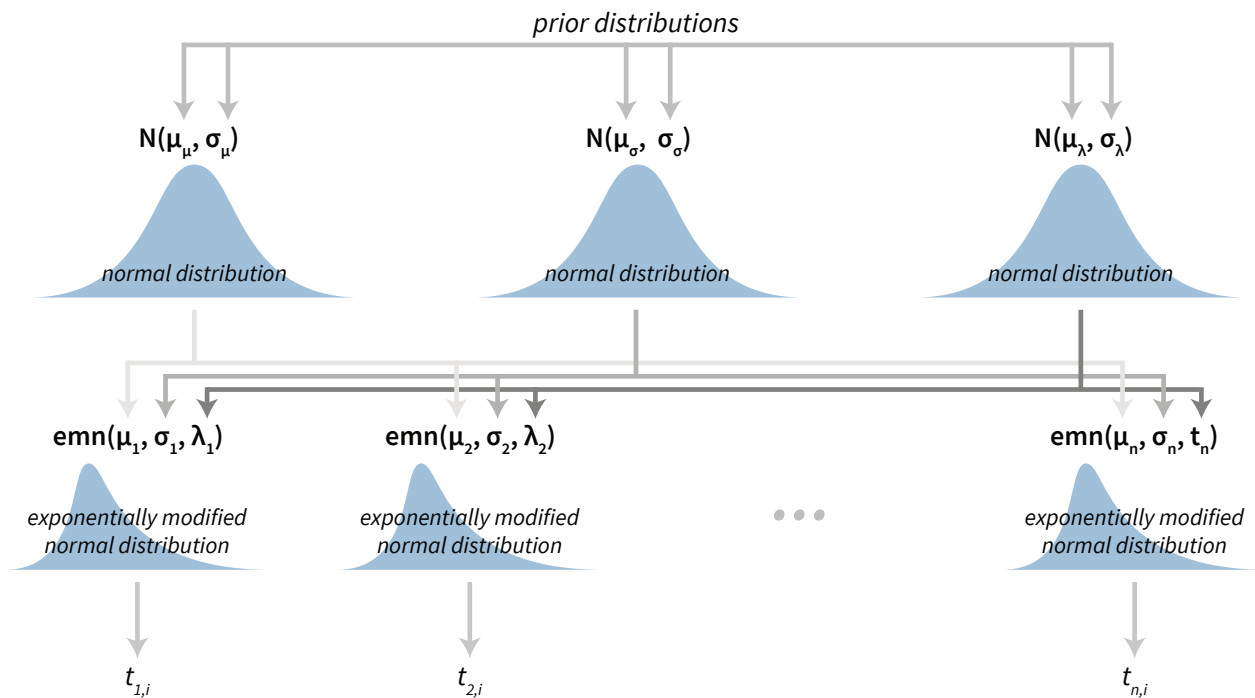


Figure 2. Visualization of a Bayesian hierarchical model. This is an example of a figure that spans the whole width of the report.

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Discussion

Use the Discussion section to objectively evaluate your work, do not just put praise on everything you did, be critical and exposes flaws and weaknesses of your solution. You can also explain what you would do differently if you would be able

to start again and what upgrades could be done on the project in the future.

Acknowledgments

Here you can thank other persons (advisors, colleagues ...) that contributed to the successful completion of your project.

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