

Report Project 1: Conversational Agent with Retrieval-Augmented Generation

Davide Belcastro, Constance Monluc, Ondra Pritel

Abstract

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Keywords

Keyword1, Keyword2, Keyword3 ...

Advisors: Slavko Žitnik

Introduction

The objective of this paper is to develop a chatbot capable of assisting users in selecting travel destinations. A conventional chatbot relies exclusively on pre-trained knowledge, which would be insufficient for travel-related decision-making, as real-time information on weather conditions, local events, and transportation costs is essential. To address this limitation, the proposed chatbot will dynamically retrieve and integrate relevant external data from the web.

Certain factors, such as a country's traditional cuisine or major landmarks, remain constant over time. For these aspects, the chatbot will utilize a precompiled knowledge repository, ensuring reliable and readily accessible information.

Structure

The our chatbot can will recognize three different pattern of questions;

• What to do in (city) for (n) days? or What is the best path to visit (city) for (n) days to start in my hotel that is (here)?

If is possibile (maybe ask at the user) also include lunch and dinner breaks at typical local restaurants, snacks with traditional desserts, and typical dishes.

If the user write a precision point of departure(like hotel or station) it will create a best path from the departure.

Otherwise, it will write a path that start from the best place or in random way (choosen between k best places)

- I'm leaving from (city start) to (city arrive) Could you give me the weather forecast, events, and traditions I might encounter during this period? In this case it will search the argument that the user ask, and maybe can prose at the user to search other.
- I'm thinking of leaving from (city start) to (city arrive) Could you find the best hotels, the best flight/train routes, etc., with a budget of (euro)?
- If the question not is similar at one of this three, it check if the question is similar at "travel" iusses. In this case it will ask on the web.

Otherwise it will write "Sorry, i can answer only for travel iusses".

Warning: If it see that there's rain, it will give suggestions on indoor places to visit.

Methods

Use the Methods section to describe what you did an how you did it – in what way did you prepare the data, what algorithms did you use, how did you test various solutions ... Provide all the required details for a reproduction of your work.

Below are LATeX examples of some common elements that you will probably need when writing your report (e.g. figures, equations, lists, code examples ...).

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:

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

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.

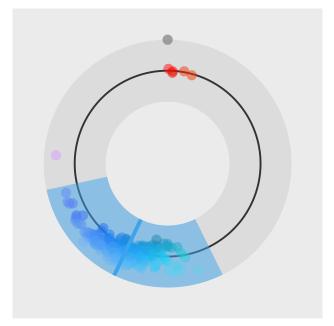


Figure 1. A random visualization. This is an example of a figure that spans only across one of the two columns.

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		
First name	Last Name	Grade
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.

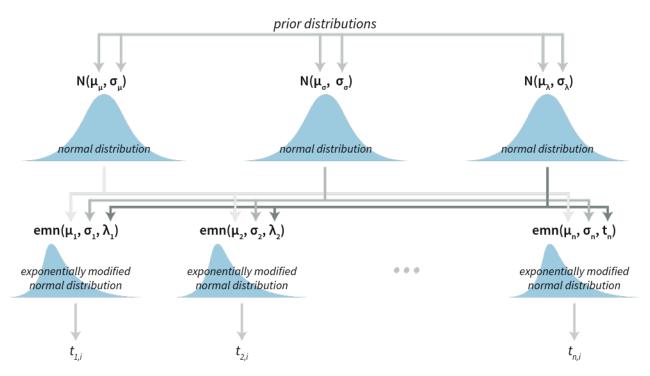


Figure 2. Visualization of a Bayesian hierarchical model. This is an example of a figure that spans the whole width of the report.

```
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.

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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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.

References