

Quote-Therapist

Quote-Therapist is an AI chatbot providing personalised, inspirational and nuanced content regarding user proposed problems in natural language.

Inspirational Content: Web-harvested quotes and images

User data collected for personalisation: User conversation with modified Eliza chatbot

Personalised, Inspirational Content: Quotes and images filtered using the collected user data

App infrastructure

Flask

The app was built using the flask framework and is started by running (/app/main.py). It can then be accessed through port 5000 (type localhost:5000 into your browser after 10-15 seconds).

Front-end

The front-end's HTML and JavaScript can be found in (/app/templates/session.html).

Back-end

Web-Harvesting scripts

Quote scrapers

Three scrapers (/app/scrapers/) were built to harvest quotes from the websites; *wiseoldsayings.com*, *famousquotesandauthors.com* and *quoteland.com*.

The scrapers store the quotes in JSON format (/app/quotes/).

Image scraper

The image scraper (/app/scrapers/scrapper_images.py) finds images for each quote and stores them in (/app/static/images/). Before starting the function checks if the quote already has images downloaded by checking for an image attribute in the quote's JSON entry.

If not present the quote is decomposed into keywords which are used to query google images with safe search enabled. The scraper stores the images on the hard disk and adds their location as an attribute called *image* in the quote's JSON entry.

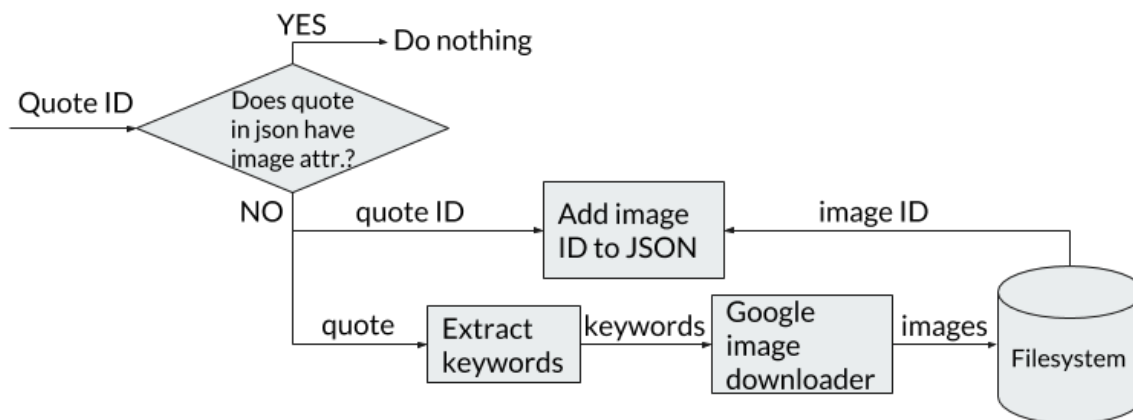


Image Scraping Process

Collecting user data

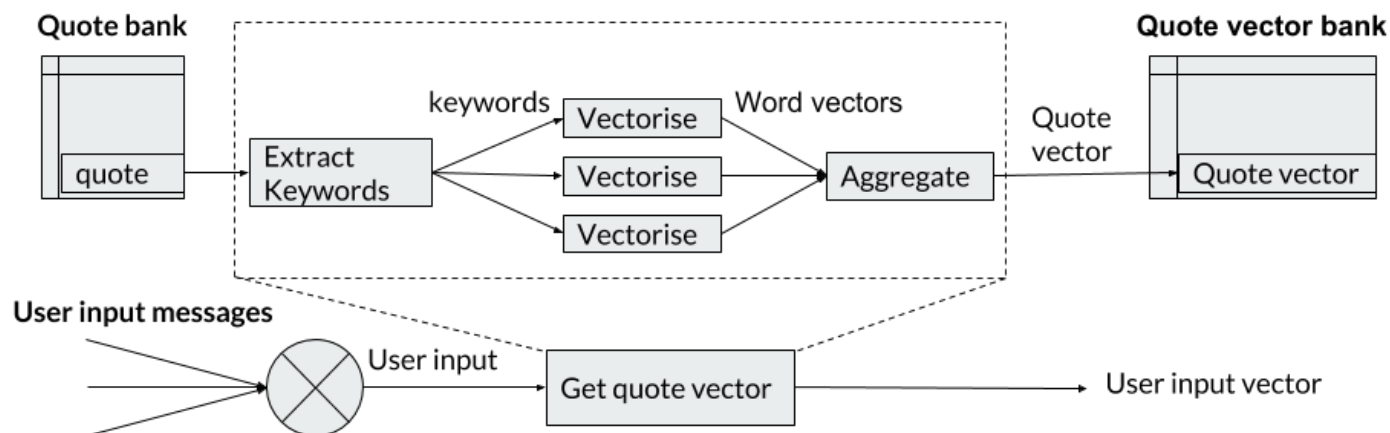
User data is collected to personalise the harvested quotes and images. (data is only stored as long as the connection is open, and deleted after every quote, image pair is displayed on-screen).

The user has a short conversation with an Eliza chatbot [1] which we modified to be more questioning and to trigger on the second half of 'double sentences'. The user messages are then used to filter the inspirational content for the user. Therefore the inspirational content will be relevant to the conversation and to the user's current thoughts.

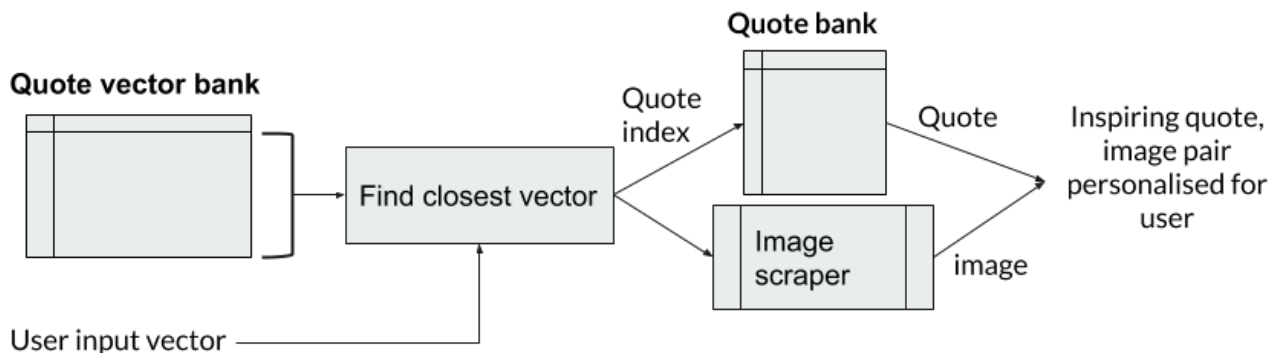
Besides our modified Eliza bot (/app/eliza.py) originally by Jez Higgins [2]. We tried a faithful python porting of the original MIT Eliza [1],[3] but it performed worse for getting the user to elaborate on topics.

Filtering the inspirational content

The quotes and user input were first changed to vector representations (Figure 2). The user input was then compared to the quote vectors to find the closest quote. This quote and one of its images is then returned to the user (Figure 3). All the functions are found in (/app/quote_mappers/), (app/quote_functions/get_keywords)



Filtering the inspirational content for the user (part 1)



Filtering the inspirational content for the user (part 2)

Notes

The word vectors are the pre-trained embeddings from GloVe by Stanford. [4] (/app/glove/) The document vector bank is actually created in advance, unless it has been deleted (/app/models/docvectors.p)

[1] <https://web.stanford.edu/class/linguist238/p36-weizenbaum.pdf> [2] <https://github.com/jezhiggins/eliza.py> [3] <https://github.com/wadetb/eliza> [4] <https://nlp.stanford.edu/pubs/glove.pdf>