

# NLP Trained Digital Assistant for Asset Management (Fund Industry)

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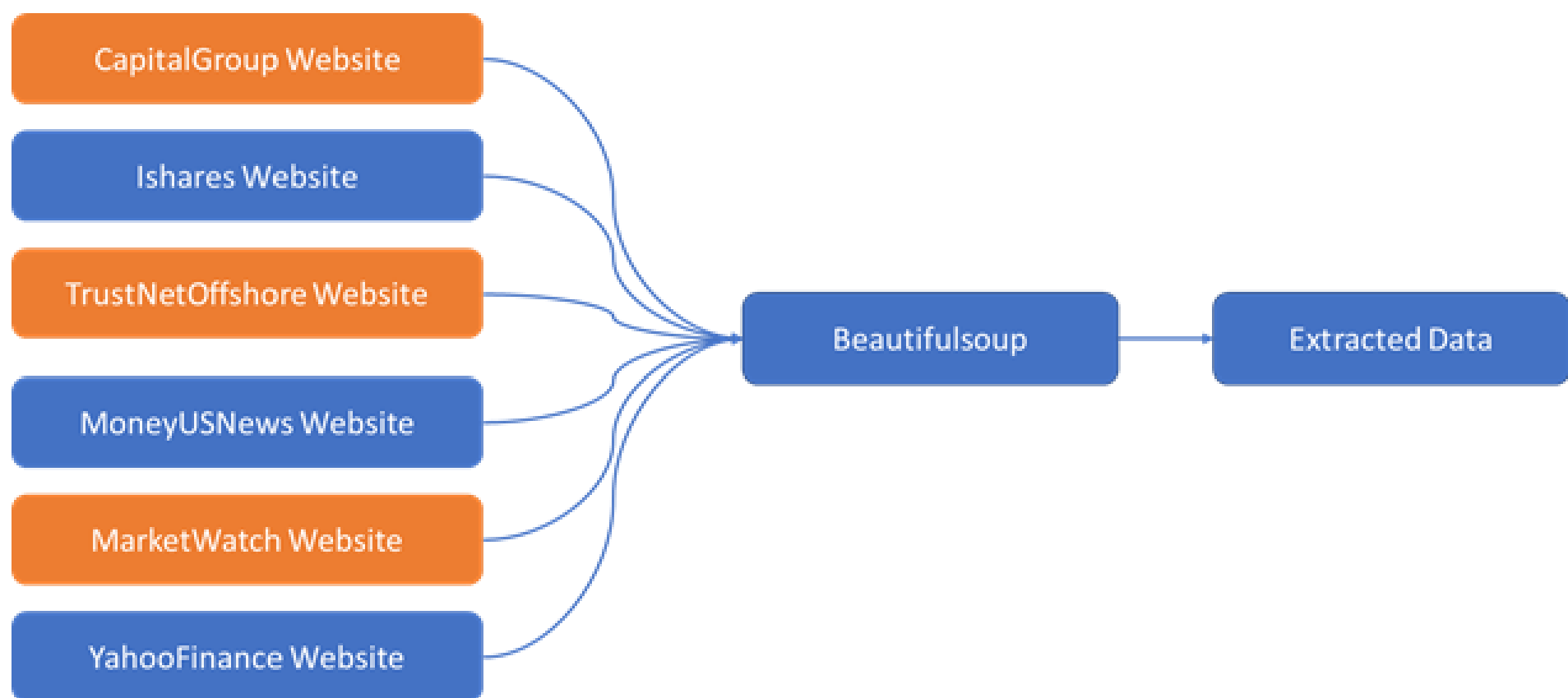
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## Objective

While I was at UBS during the period 2018-2020, I had an opportunity to work on some exciting projects. One of the project was building a Digital platform for fund industry that brings Fund Providers and Fund Distribution Partners on to the worlds 2nd biggest B2B Fund Platform called UBS Fund Navigator. The aim of the project was to provide worlds first class digital services to Fund Providers and Fund Distribution Partners. Some of the services include: (a) a cutting edge fund search for portfolio managers and research specialists, (b) advanced visualizations to simulate the fund and portfolio performance, (c) analytics for VAR calculations etc.

## Data & Technology

**Data** Using the BeautifulSoup web-scraping library, the publicly available fund documents such as: prospectus, KIID, KYC, Annual/Semi-annual, Audit Reports, etc.) are downloaded for 750+ from various finance and investment related websites.



**Technology** I decided to use the following technology components and platform to build the Digital Assistant for Fund Industry:

- Technology
- Python
  - NLTK & Spacy for Language Pre-Processing
  - Dialogflow to Capture Conversation
  - Google Cloud Platform
  - Beautifulsoup 4 (Fund Documents)

**Digital Intents** The main purpose of the Digital Robot is to provide help to the following people: (a) fund specialists who are looking for fund documents, (b) Operational staff who are providing support to the platform users such as (login issues, password reset, etc.), (c) Portfolio Managers who wants to asses the markets in terms of best performing funds by region. The Digital Assistant was trained to assist the users with the following intents.

- Intents
- Intent for serving fund documents
  - Intent for serving fund manager and their background
  - Intent for serving fund performance statistics
  - Intent for serving fund metrics by AUA, Geography
  - Intent for serving latest fund news
  - Intent for serving password related queries
  - Intent for serving data feeds related queries
  - Intent for general help

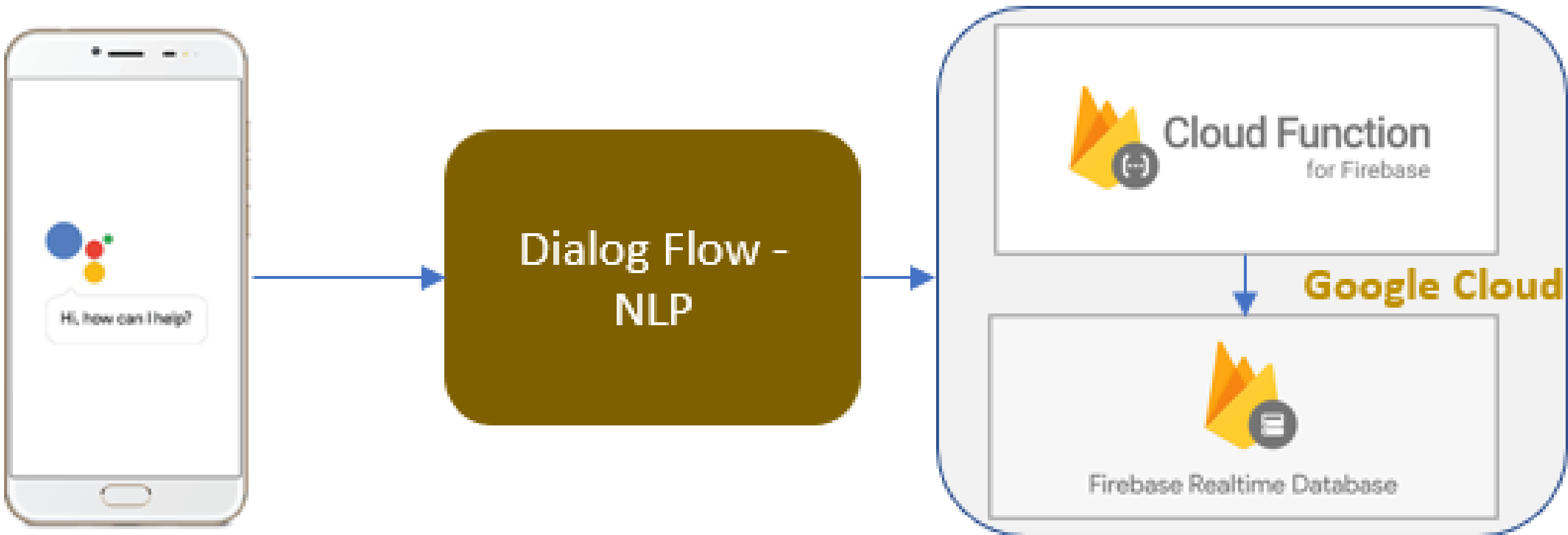


Figure 1:Fund Navigator Digital Assistant Architecture

## Approach

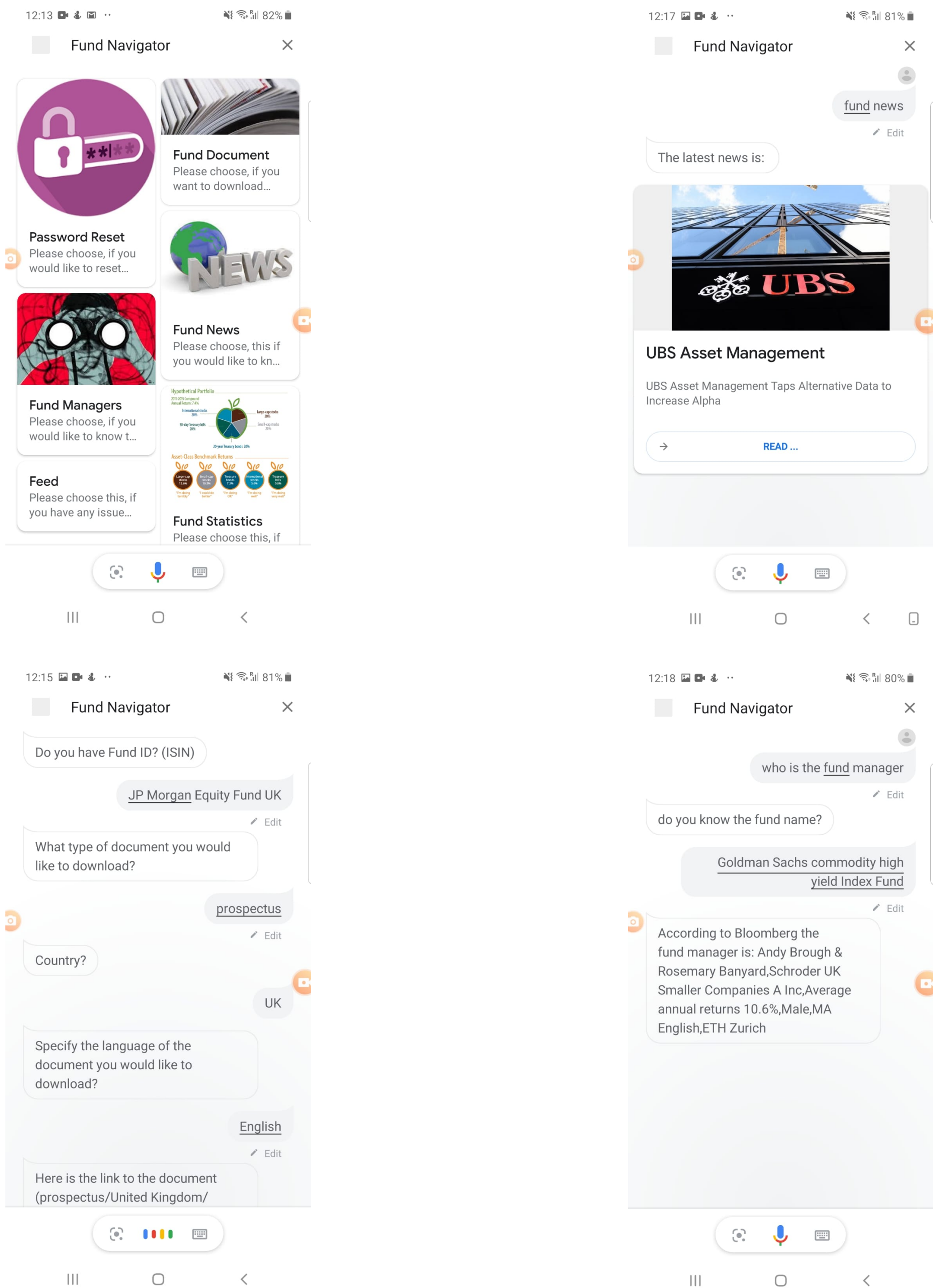
The end to end architecture of the Fund Navigator Digital Assistant is shown on your left hand side bottom figure. The Architecture mainly has three components:

- An android or apple or PC or Desktop to start the conversation.
- The conversation is stream is received by the NLP model deployed on Dialog Flow. The trained NLP models interprets the conversation and invokes the write intent function.
- All the intent functions mentioned in the table on left hand side are Google Cloud Functions deployed on the Google Cloud Platform.
- The intent functions talk to the backend database (Google Realtime DB) to retrieve the fund details, fund statistics, etc.

## Results Conclusion

Few screen prints of the conversation between the human and the Digital Assistant is shown below. The top left hand corner of the image shows the intents the assistant can help; the figure on the top right hand shows the latest fund news, where the user can tap on the screen to view the results. The two images at the bottom shows the user speech in the form of text to retrieve the fund document and fund manager details.

**Next Steps** - I would like to extend the application to integrate the search engine to retrieve funds based on linguistic/semantic meaning.



## Contacts & Links

For implementation details, source code and other useful information, please visit to my GitHub link below. A short video of the Linguistic Search Engine is also available on YouTube (link below).

- fam281@g.harvard.edu
- Github:<https://github.com/mohammed-fakruddin/NLPDigitalAssistantForFundSpecialists>
- YouTube Video:<https://youtu.be/fMIS9kvW1eQ>