

AI Educational Chatbot

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BACHELOR OF ENGINEERING

IN

Computer Science and Engineering (IoT)

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DISCOVER . LEARN . EMPOWER

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Introduction to Project

In a world, ruled by knowledge and one that runs on information, it becomes crucial for a person to know what is happening around him.

But with the abundance of knowledge and information it becomes difficult for a person to keep his own data bank up to date with all the facts flowing around him.

This is where my project comes in. Every piece of knowledge, every bit of information just one question away. Not only that, but it also helps you to keep your data bank up to date with the latest information.

Sure you could just google stuff and get that required bit of data but google is big and the results are crowded. How do you filter out the important parts of the information that is relevant to you ?

How to you personalize it to the area or to the institution that you are in ? With my project, of course. Not only are the results about "your" institute, but it also comes with the relevance that you didn't know you needed.

The results are summarized, directly from your own institute's webpages. The results are personalized to your needs. The results come in a conversational manner. It's like talking to the dean of the college but in a far more friendly and fun way. So now you won't have to go to the poorly designed college webpage. All you need to do is talk to this bot, like you would talk to one of your friends and all the information that you need is given to you. Instantly.

This project solves the problem of FOMO in an elegant way. Thereby, making the world, or at least your world, a better place.

Problem Formulation

- Provide information related to campus activities and placements by compiling different data sources and presenting the data in a elegant and effective layout which is personalized and relevant to different users.

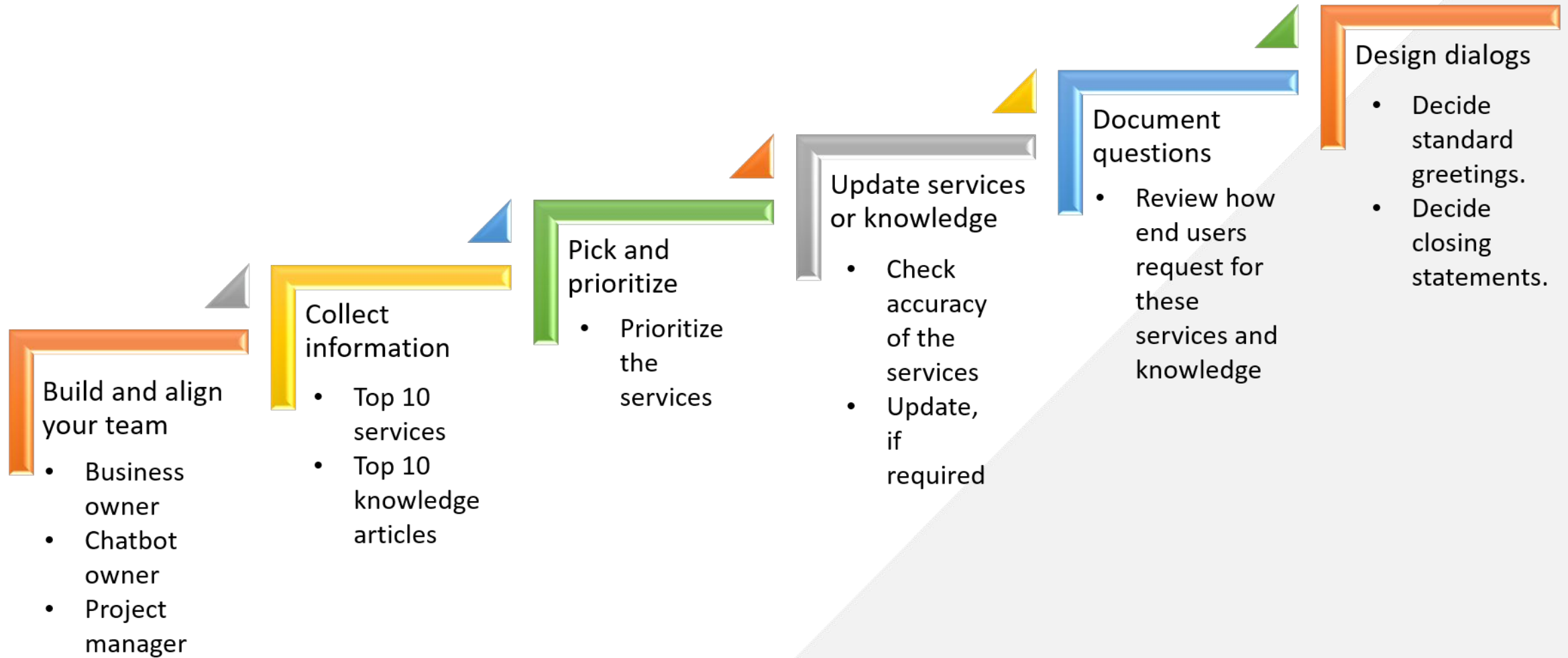
Missing out on this information causes a lot of issues for them such as missing::

- Placement drives
- Events
- Tests
- Submissions

Objectives

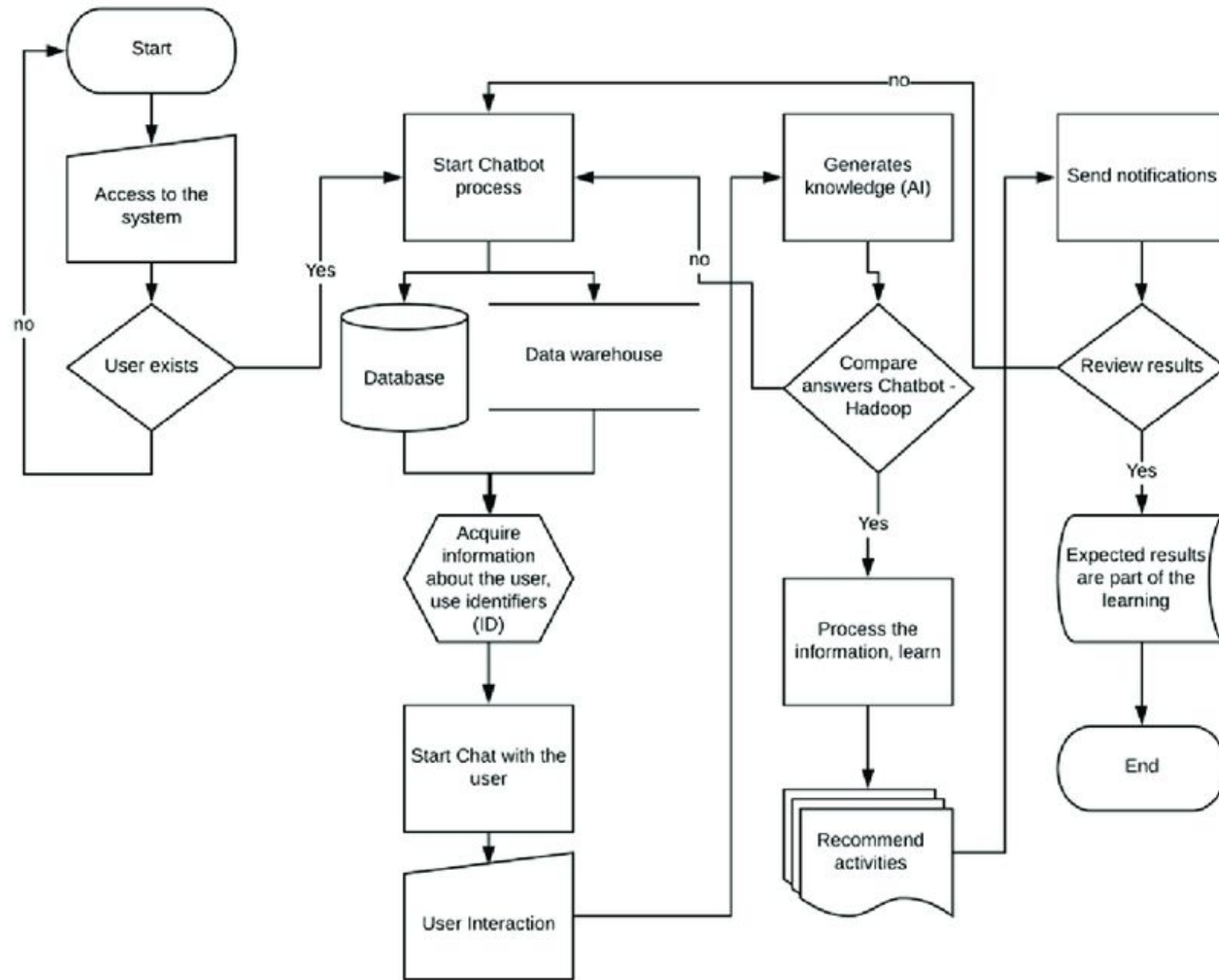
The major tasks include ::

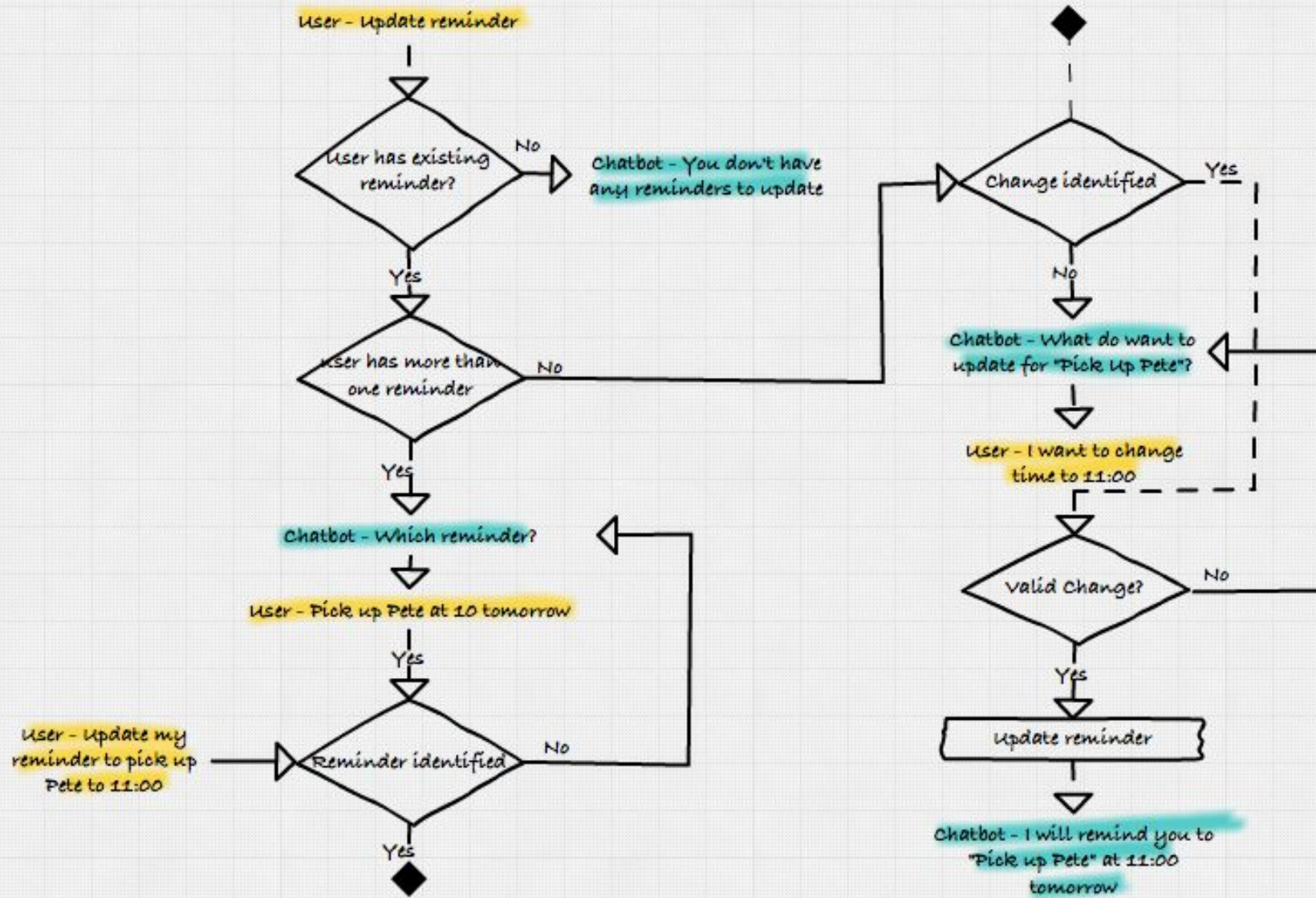
- Generating a data-bank using institute's site
- Generating a data-bank using institute's noticeboards
- Regularly updating the data-bank
- Providing a user-friendly way to convey this information to the relevant people.
- Providing a way to personalize the information to the user.

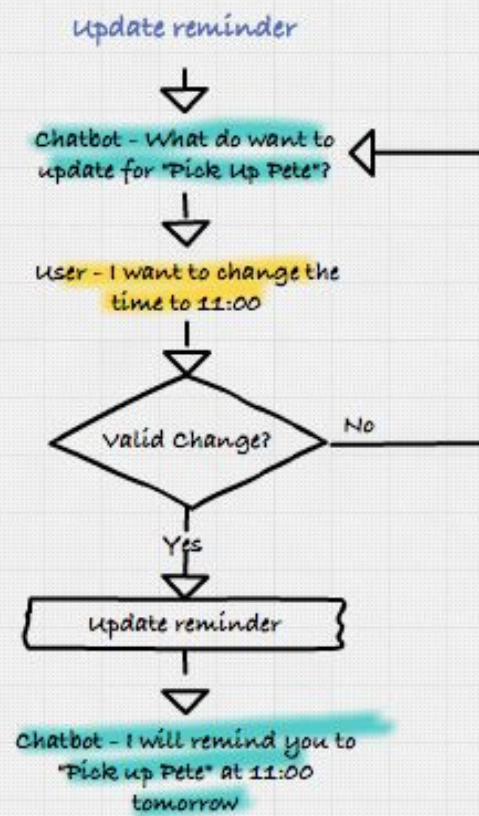


Methodology used









Results and Outputs

```
> chat
> python train.py
2022-11-13 17:29:22.419381: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libcudart.so.11.0'; dlerror: libcudart.so.11.0: cannot open shared object file: No such file or directory
2022-11-13 17:29:22.419431: I tensorflow/stream_executor/cuda/cudart_stub.cc:29] Ignore above cudart dlerror if you do not have a GPU set up on your machine.
2022-11-13 17:29:22.463023: E tensorflow/stream_executor/cuda/cuda_blas.cc:2981] Unable to register cuBLAS factory: Attempting to register factory for plugin cuBLAS when one has already been registered
2022-11-13 17:29:23.312693: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libnvinfer.so.7'; dlerror: libnvinfer.so.7: cannot open shared object file: No such file or directory
2022-11-13 17:29:23.312808: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libnvinfer_plugin.so.7'; dlerror: libnvinfer_plugin.so.7: cannot open shared object file: No such file or directory
2022-11-13 17:29:23.312826: W tensorflow/compiler/tf2tensorrt/utils/py_utils.cc:38] TF-TRT Warning: Cannot dlopen some TensorRT libraries. If you would like to use Nvidia a GPU with TensorRT, please make sure the missing libraries mentioned above are installed properly.
2022-11-13 17:29:24.287466: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libcuda.so.1'; dlerror: libcuda.so.1: cannot open shared object file: No such file or directory
2022-11-13 17:29:24.287529: W tensorflow/stream_executor/cuda/cuda_driver.cc:263] failed call to cuInit: UNKNOWN ERROR (303)
2022-11-13 17:29:24.287588: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc:156] kernel driver does not appear to be running on this host (amadeus): /proc/driver/nvidia/version does not exist
Epoch 1/100
14/14 [=====] - 2s 6ms/step - loss: 3.6224 - accuracy: 0.0615
Epoch 2/100
14/14 [=====] - 0s 4ms/step - loss: 3.5839 - accuracy: 0.1510
Epoch 3/100
14/14 [=====] - 0s 4ms/step - loss: 3.5352 - accuracy: 0.1633
Epoch 4/100
14/14 [=====] - 0s 3ms/step - loss: 3.4695 - accuracy: 0.1622
Epoch 5/100
14/14 [=====] - 0s 3ms/step - loss: 3.3872 - accuracy: 0.1611
Epoch 6/100
14/14 [=====] - 0s 3ms/step - loss: 3.2897 - accuracy: 0.1611
Epoch 7/100
14/14 [=====] - 0s 3ms/step - loss: 3.1815 - accuracy: 0.1700
Epoch 8/100
14/14 [=====] - 0s 3ms/step - loss: 3.0688 - accuracy: 0.1745
Epoch 9/100
14/14 [=====] - 0s 3ms/step - loss: 2.9539 - accuracy: 0.1823
Epoch 10/100
14/14 [=====] - 0s 3ms/step - loss: 2.8386 - accuracy: 0.1857
Epoch 11/100
14/14 [=====] - 0s 3ms/step - loss: 2.7270 - accuracy: 0.1913
Epoch 12/100
14/14 [=====] - 0s 3ms/step - loss: 2.6180 - accuracy: 0.2047
Epoch 13/100
14/14 [=====] - 0s 3ms/step - loss: 2.5114 - accuracy: 0.2271
Epoch 14/100
14/14 [=====] - 0s 3ms/step - loss: 2.4068 - accuracy: 0.2461
Epoch 15/100
```



```
14/14 [=====] - 0s 3ms/step - loss: 0.0232 - accuracy: 0.9933
Epoch 79/100
14/14 [=====] - 0s 3ms/step - loss: 0.0215 - accuracy: 0.9933
Epoch 80/100
14/14 [=====] - 0s 3ms/step - loss: 0.0197 - accuracy: 0.9933
Epoch 81/100
14/14 [=====] - 0s 3ms/step - loss: 0.0183 - accuracy: 0.9944
Epoch 82/100
14/14 [=====] - 0s 3ms/step - loss: 0.0169 - accuracy: 0.9966
Epoch 83/100
14/14 [=====] - 0s 3ms/step - loss: 0.0157 - accuracy: 0.9966
Epoch 84/100
14/14 [=====] - 0s 3ms/step - loss: 0.0146 - accuracy: 0.9966
Epoch 85/100
14/14 [=====] - 0s 3ms/step - loss: 0.0136 - accuracy: 0.9966
Epoch 86/100
14/14 [=====] - 0s 3ms/step - loss: 0.0127 - accuracy: 0.9989
Epoch 87/100
14/14 [=====] - 0s 3ms/step - loss: 0.0117 - accuracy: 1.0000
Epoch 88/100
14/14 [=====] - 0s 3ms/step - loss: 0.0110 - accuracy: 0.9989
Epoch 89/100
14/14 [=====] - 0s 3ms/step - loss: 0.0102 - accuracy: 0.9989
Epoch 90/100
14/14 [=====] - 0s 3ms/step - loss: 0.0093 - accuracy: 1.0000
Epoch 91/100
14/14 [=====] - 0s 3ms/step - loss: 0.0084 - accuracy: 1.0000
Epoch 92/100
14/14 [=====] - 0s 3ms/step - loss: 0.0076 - accuracy: 1.0000
Epoch 93/100
14/14 [=====] - 0s 3ms/step - loss: 0.0067 - accuracy: 1.0000
Epoch 94/100
14/14 [=====] - 0s 3ms/step - loss: 0.0060 - accuracy: 1.0000
Epoch 95/100
14/14 [=====] - 0s 3ms/step - loss: 0.0051 - accuracy: 1.0000
Epoch 96/100
14/14 [=====] - 0s 3ms/step - loss: 0.0043 - accuracy: 1.0000
Epoch 97/100
14/14 [=====] - 0s 3ms/step - loss: 0.0035 - accuracy: 1.0000
Epoch 98/100
14/14 [=====] - 0s 3ms/step - loss: 0.0027 - accuracy: 1.0000
Epoch 99/100
14/14 [=====] - 0s 3ms/step - loss: 0.0022 - accuracy: 1.0000
Epoch 100/100
14/14 [=====] - 0s 3ms/step - loss: 0.0018 - accuracy: 1.0000
```

```
~/Work/Projects/ChatBot/EduChat on main !3 > █
```

```
took 13s + chatbot at 17:29:34
```

```
_____ EduChat - AI Chat bot _____
Ask any queries regarding Chandigarh University..
I will try to understand you and reply ...
Type EXIT to quit...
Ask :: hi
1/1 [=====] - 0s 126ms/step
Hi! I'm ready to answer all your questions.
Ask :: who are you
1/1 [=====] - 0s 28ms/step
I am EduChat - AI chat bot developed to address your queries regarding Chandigarh University designed by Rishabh Anand
Ask :: tell me about chandigarh university
1/1 [=====] - 0s 30ms/step
To know about Chandigarh University: https://www.cuchd.in/about/
Accreditation & Ranking of Chandigarh : https://www.cuchd.in/about-us/accreditation-ranking.html
Ask :: tell me about the courses
1/1 [=====] - 0s 33ms/step
B.Tech., 5-Year integrated M.Tech., M.Tech., M.Sc. (2-year programmes in Biotechnology, Chemistry, Data Sciences, Molecular Genetics, B
io-Informatics & Physics),
M.C.A., M.B.A., B.Com. (CA), B. Com. (BFSI), B.A./B.Com./B.B.A., LL.B, (Hons.) ,
B.Sc./B.A., B.Ed. (4-year integrated programmes in English, Mathematics & Physics),
M.Sc. (5-year integrated programmes in Biotechnology, Chemistry, Data Sciences & Physics),
M. Optom & B. Optom.

B. Sc., B.Com, B.B.A., B.C.A., M.Sc. (Computer Science, Mathematics, Bio-Chemistry & Microbiology),
M.Com. and B. Tech. (CSE & ECE).
Please visit https://www.cuchd.in/academics/ for more info.
Ask :: tell me about events
1/1 [=====] - 0s 28ms/step
There are a lot of events in Chandigarh University.
Please Visit https://www.cuchd.in/campus-life/cultural.php
Ask :: what about placements
1/1 [=====] - 0s 30ms/step
Placements have been outstanding in Chandigarh University.
Please visit https://www.cuchd.in/placements/ for more info.
```

Conclusion

This project was a great learning experience for m. It also addresses the given issue greatly and provides a solution that is actually eliminating the problem to a impressive extent. With more time and effort put into the solution might land us somewhere that solves it completely.

This project was able to provide a solution to most of users queries and help its users keeps you their data bank up to date with the latest information.

It was able to filter out the required information effectively and provide students with the specific personalized result, which were summarized, directly from the instutute's webpages.

Future Scope

- Something that I would like to add to this bot is multi-channel support for whatsapp, telegram, or other apps that Gen-Z uses so that they can find all the information wherever they are and won't have to rely on a separate app or interface. This would make the entire experience more seamless and easy to use and would potentially increase the user base.
- Also, the email reader functions and the custom CSSs that people might opt in for will be added in later versions. Currently the function is a lot slower as I am using scraping up until now to excess the emails and provide users with the desired information.
- In future versions I would like to add an outlook or GMAIL API that users might opt into for faster access to their data.
- Another reason, I didn't add this feature now was because it takes a lot to secure this personal data from all the users.

References

- Designing an Educational Chatbot: A Case Study of CikguAIBot NA Nasharudin, NM Sharef, El Mansor. . . - 2021 Fifth . . . , 2021 - ieeexplore.ieee.org . . .

Therefore, this paper introduces a chatbot for teaching artificial intelligence (AI) through Malay language, namely CikguAIBot. We emphasize on the development and evaluation design . . .

- Opportunities and challenges in using AI chatbots in higher education S Yang, C Evans - Proceedings of the 2019 3rd International . . . , 2019 - dl.acm.org . . . in the areas of educational simulation, educational software' training, and helpdesk support, to support our study. In each case study, an AI virtual chatbot prototype has been proposed. . . .