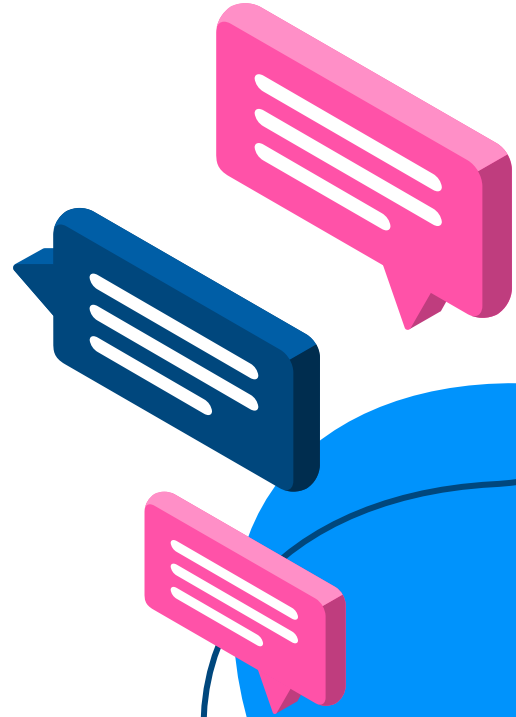


CCNY CHATBOT



Team

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Executive Summary

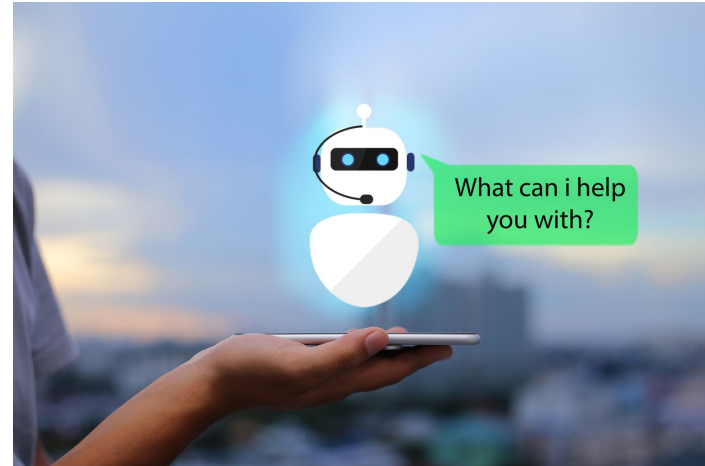
Janus (chatbot)

Features

User can ask question about City College and get a response from Janus.

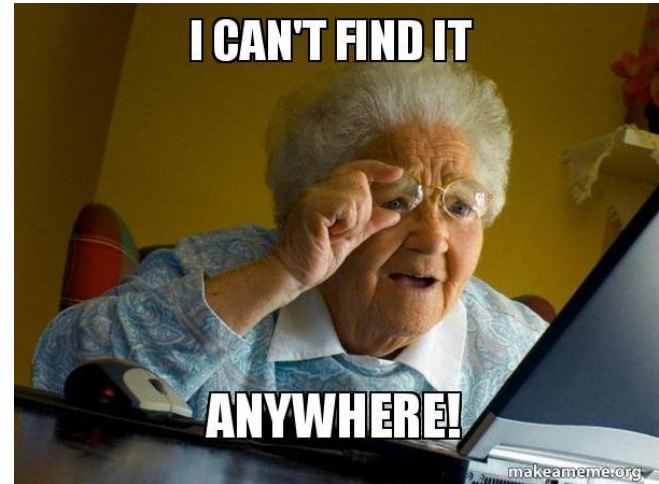
Response Type

- ❑ Direct answer
- ❑ Link to look for more details



Problem Statement

- CCNY website has tons of pages to navigate.
- Hard to find informations.

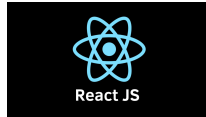


Solution

Janus (smart chatbot) was designed using neural network to interact with customers and answer questions about various topics of The City College of New York. The topics are widely varied from admission, financial aid, courses and many more to name.

Technologies used:

React.js
Django
SQLite



Cloud Platform
AWS



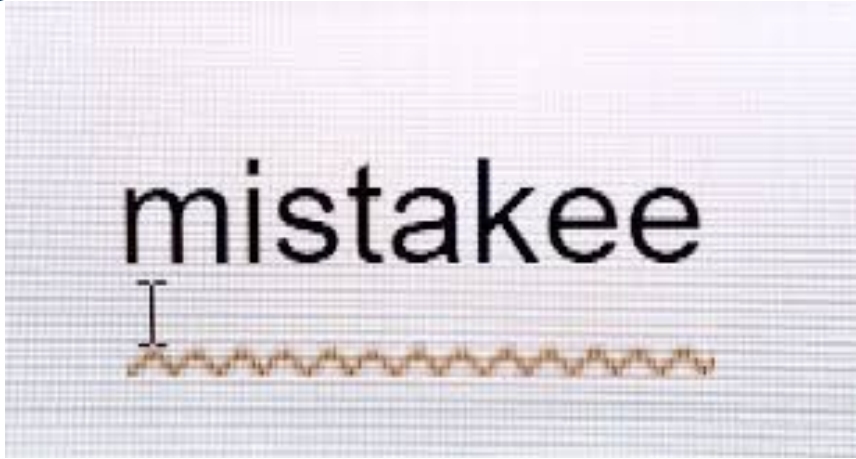
Data Preprocessing

A	B
1 Text	Label
2 How will I be considered for City College	new_potential_student
3 How will I be considered for school?	new_potential_student
4 How will I be considered for CCNY?	new_potential_student
5 How do I apply to City College?	new_potential_student
6 How do I apply to ccny?	new_potential_student
7 What is City College looking for?	new_potential_student
8 What is CCNY looking for?	new_potential_student
9 How can I apply to City College?	new_potential_student
10 How can I apply to CCNY?	new_potential_student
11 How are students considered when ente	new_potential_student
12 How are students considered when ente	new_potential_student
13 What GED score do I need?	ged_score
14 What is the GED score I need?	ged_score
15 Is there a GED score requirement?	ged_score
16 What general educational development	ged_score
17 What is the general educational develop	ged_score
18 Is there a general educational developm	ged_score
19 When is the deadline?	application_deadlines
20 When do I have to apply?	application_deadlines

```
1 {  
2   "intents": [  
3     {  
4       "tag": "greeting",  
5       "responses": ["Howdy Partner!", "Hello", "How are you doing?", "Greetings!", "How do you do?"]  
6     },  
7     {  
8       "tag": "name",  
9       "responses": ["My name is Janus", "I'm Janus", "Janus"]  
10    },  
11    {  
12      "tag": "goodbye",  
13      "responses": ["It was nice speaking to you", "See you later", "Speak soon!"]  
14    },  
15    {  
16      "tag": "new_potential_student",  
17      "responses": ["We are seeking students who will thrive at City both academically and personally while contributi  
18    ]  
19  ]  
20 }
```

- 1000+ questions
- 180+ intents

Data Preprocessing (cont.)



- Added several common typos to the questions
- Lemmatized the questions to make them more accurate by extracting the root meaning of each word.

studying
studies
study

Lemmatization →

study
study
study

Modeling

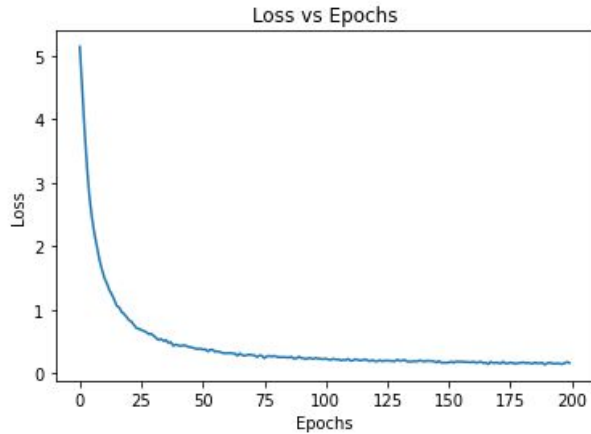
Distil -



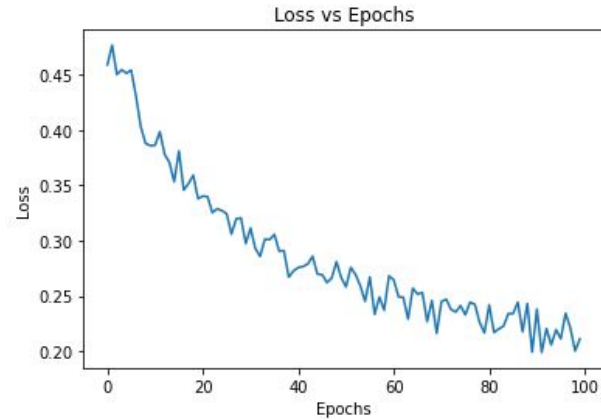
- The DistilBERT model is a smaller, faster and cheaper version of BERT. BERT stands for **Bidirectional Encoder Representations from Transformers** and it is a state-of-the-art open sourced technique for NLP pretrained model created by Google.
- BERT is able to take into account the words before and after a specific target word to learn its context

Modeling (cont.)

- For comparison, we trained two models, one with just the typos added to the dataset, and a second one with typos and lemmatization.



Typos



Typos + lemmatization

Performance Evaluation

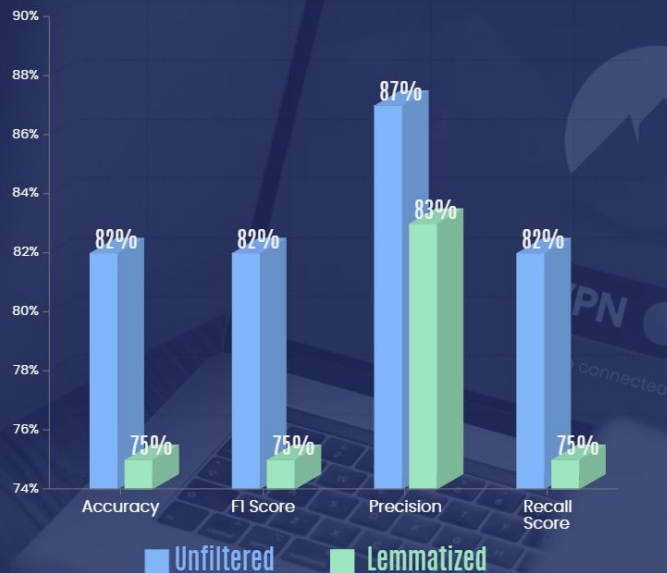
Unfiltered Data

Accuracy: 0.8208313584327698
F1: 0.8194570541381836
Precision: 0.8675469160079956
Recall: 0.8208313584327698

Lemmatized Data

Accuracy: 0.7525083422660828
F1: 0.749061644077301
Precision: 0.8332341909408569
Recall: 0.7525084018707275

Model Performance Metrics



Performance Evaluation

Welcome to CCNY Chatbot!

hello

Hello I am janus, how can I help you?

Type a message...



Welcome to CCNY Chatbot!

what ged score do i need?

You need a GED test score of 3250 to enter City College of New York

Type a message...



Welcome to CCNY Chatbot!

is the school open?

The cafeteria hours of operation can be found at <https://www.ccny.cuny.edu/dining>

Type a message...



Welcome to CCNY Chatbot!

how difficult is the workload at the school of medicine?

The Sophie Davis Biomedical Program at the CUNY School of Medicine is designed to attract students who have an outstanding academic performance

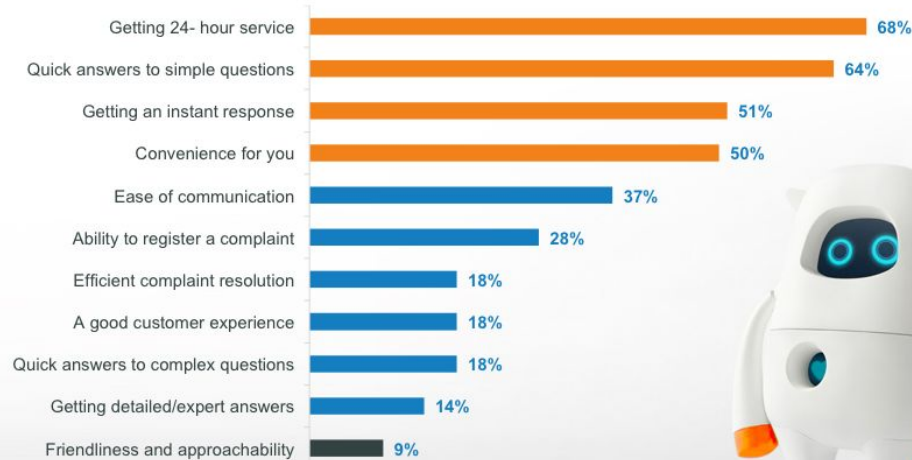
Type a message...



Impact

- Having access to a chatbot will improve customer experience
- Janus will make the navigation of the CCNY website more convenient

Benefits to Expect from a Chatbot



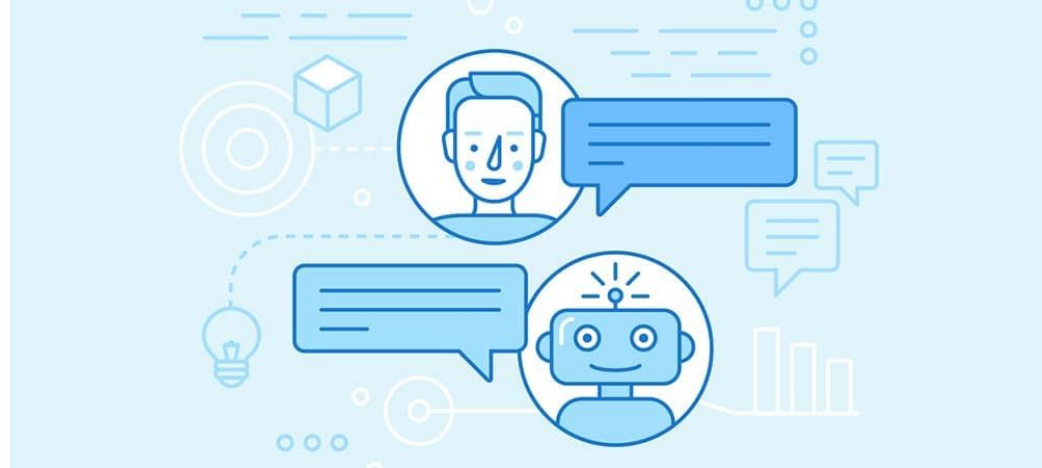
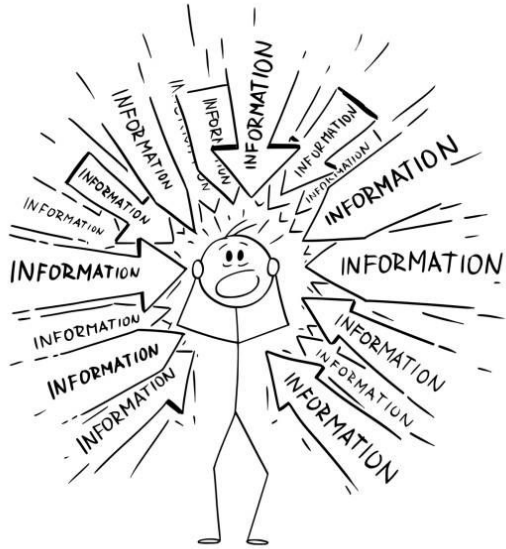
Source: MyClever, May 2016



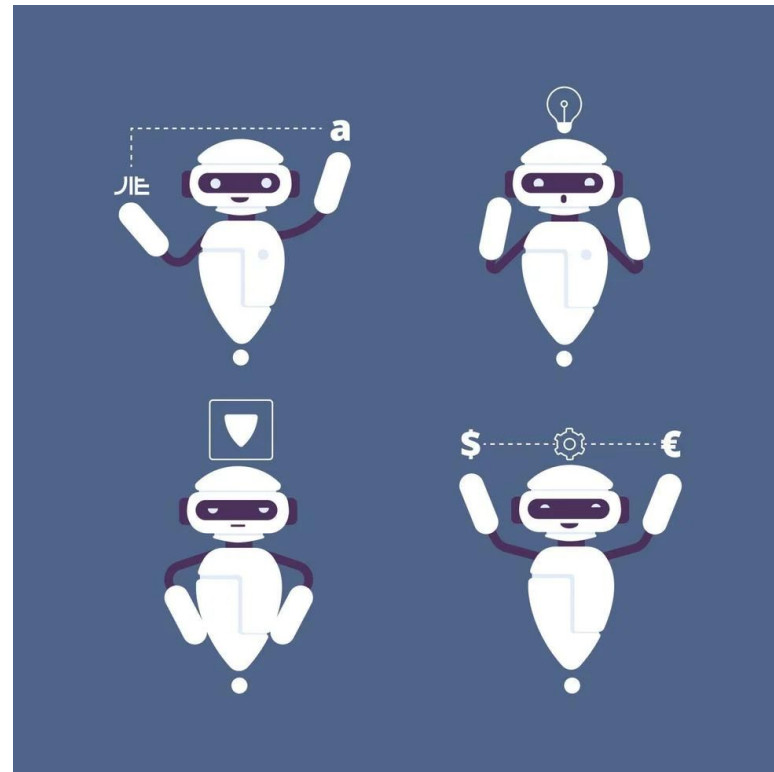
The image features a white background with two large, abstract blue shapes in the corners. One shape is in the top right corner, and the other is in the bottom left corner. Both shapes have a thick blue outline and a lighter blue fill. The text "DEMO !" is centered in the middle of the page.

DEMO !

Conclusion



Next Steps



Thank You!



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