



# ChatterJack Chatbot

## Design Review #2

Team JabberJack

Team Member: [Sara](#), [Jiasheng](#), [Tyler](#), [Gabriel](#)

Faulty Mentor: [Felicity H. Escarzaga](#)

Client: Dr. Andy Wang

Date: 3/04/2022

# Problem Statement:



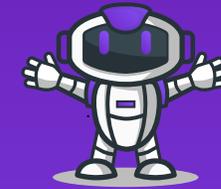
## 01. Distraction of Staff

- ❖ Staff have a job to do and needing to answer questions may pull them away from other tasks
- ❖ If they do not know the answer to a question then they must find it



## 02. Scattered Data

- ❖ Data regarding the university is scattered and buried under complex queries and countless portals



## 03. Unanswered Questions

- ❖ Students/Visitors have many questions and cannot always find the answer online
- ❖ Could email, leads to wait times and often leaves questions unanswered

# Solution Overview



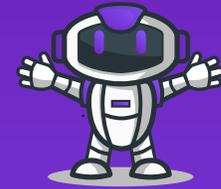
## 01. Centralized Database of Q/A

- ❖ Place data in a central location for ease of accessibility



## 02. Easily Updatable

- ❖ Updatable information behind an authentication system
- ❖ Keeps information up to date and allows manual entry of information

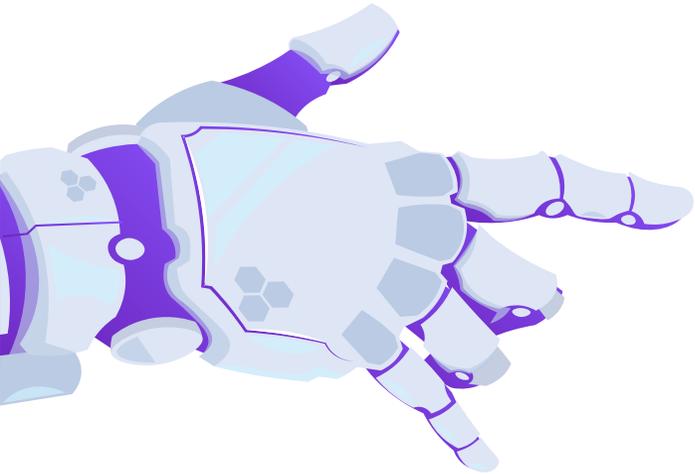


## 03. Quick answers

- ❖ Provide answers to visitors/students in a short amount of time
- ❖ No question left unanswered (provided the bot knows it)

# Requirements Overview

## Key Requirements

**01**

### User (Anyone)

- ❖ Input questions by typing text or speaking
- ❖ Quick and accurate Answer with sound and text
- ❖ Greeting

**02**

### Faculty

- ❖ Only modify or check the data related their own information

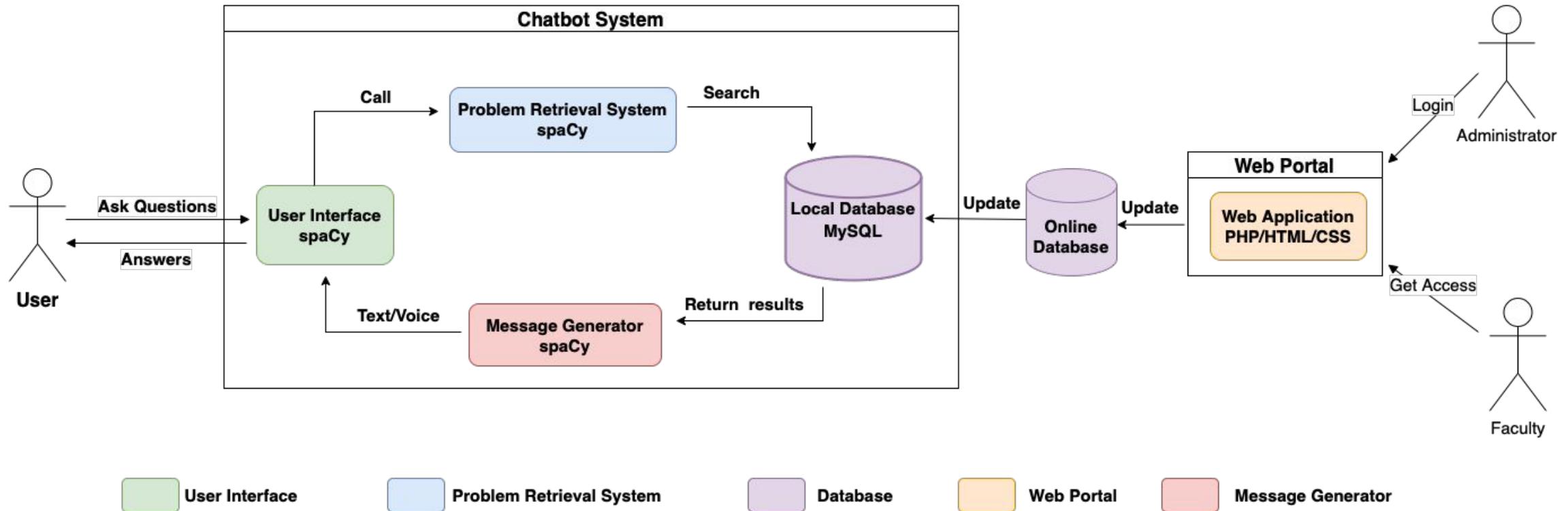
**03**

### Administrator

- ❖ All operations to manage database

# Implementation Overview

- Problem Retrieval System (Python: spaCy-NLP)
- Database (MySQL)
- Message Generator (Python: spaCy + pymysql)
- Web Portal (PHP+MySQL)
- User Interface (Python: wxpython)



# Implementation Details

## 1. Problem Retrieval System

01

1. Segment question NLP Library: spaCy
2. Search: SQL Language + pymysql

02

### Key Information

- INTER: all interrogatives
- Person: Faculty
- Class: Classes
- ORG: Organizations, colleges, locations

```

Hello, My name is ChatterJack chatbot. You can ask me the information
I would like to know where is the Dr. Winfree's office?
{'_where': 'INTER', 'Winfree': 'PERSON'}
Do you have any other questions?
Who is the Dr.D?
{'_who': 'INTER', 'D': 'PERSON'}
Do you have any other questions?
I would like to know when does Dr. Michael start his CS480 class?
{'_when': 'INTER', 'Michael': 'PERSON', 'CS480': 'CLASS'}
Do you have any other questions?
Where is the Engineering Building?
{'_where': 'INTER', 'engineering': 'ORG'}
Do you have any other questions?
What is the CEIAS?
{'_what': 'INTER', 'ceias': 'ORG'}
Do you have any other questions?
no
{}
Thanks for asking. Hopefully, the answer will help you. Have a nice
  
```

# Implementation Details

## 2. Database (Three Tables)

### PERSON

id	person_name	person_spe_name	_where	_who	_when	faulty
1	Kyle Nathan Winfree	Winfree	His office is at Room 315 in SICCS Building.	He is the associate director for Undergraduate Programs, SICCS.	His office hour is at 3pm on every Wednesday.	Kyle Nathan Winfree

### ORG

id	org_name	_when	_where	_who	_how	faulty
1	engineering	It is in the Engineering Building	CEIAS is the College of Engineering, Informatics, and Applied Sciences is NAU's newest college.	Its dean is Dr. Andy Wang	You can take the Mountain 10 to there.	Andy Wang

### CLASS

id	class_name	_where	_who	_what	_when	faulty
1	cs480	It is at Room 104 in SBS West.	Dr. Michael is the primaty instructor.	It is about the knowledge of Operating System.	It starts at 4 pm every Monday and Wednesday	Michael





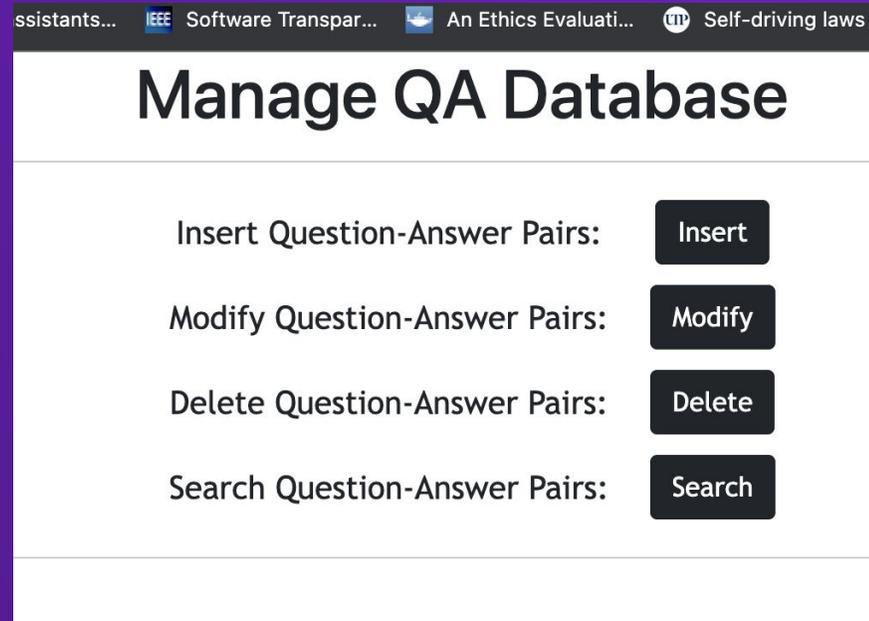
# Implementation Details

## 4. Web Portal (Administrative System)

### 01 Users

- 1. Administrator
- 2. Faculty

### 02 Managements



The screenshot shows a web browser window with several tabs open: 'ssistants...', 'IEEE Software Transpar...', 'An Ethics Evaluati...', and 'Self-driving laws'. The main content area is titled 'Manage QA Database'. Below the title, there are four rows of text, each followed by a button:

- Insert Question-Answer Pairs:
- Modify Question-Answer Pairs:
- Delete Question-Answer Pairs:
- Search Question-Answer Pairs:

# Implementation Details

## 5. User Interface



### 01. Current User Interface

- ✓ Text Box and Pop Window: [wxpython](#)
- ✓ Text-To-Speech: [gtts](#)

### 02. The Future of User Interface

- ✓ A Smiling Face
- ✓ Speech-To-Text



# Challenges and Resolutions

- ✓ Database Layout
- ✓ Web Portal - Framework vs. PHP & MySQL
- ✓ Python Library for GUI - Kivy
- ✓ Speech-To-Text - Python library





# Conclusion

- ✓ Use NLP to grab the key information
- ✓ A smiling face as UI
- ✓ Text-to-Speech/Speech-To-Text
- ✓ Comprehensive Database
- ✓ Easily updatable
- ✓ Set a foundation



# Questions



[@JabberJack](#)



**Get in touch  
with us**

**JabberJack always jabbers**

**“Intelligent brain” for LumberJack**

# Requirements Overview

## Functional Requirements for solution

- 01. User Interface
- 02. Database Management System
- 03. Web Portal and Authentication
- 04. NLP

User Interface

Database

Web Portal  
Authentication

NLP

