

# User Manual

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## JabberJack



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Version 1.0

Client Signature:

Team Signatures:

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# 1.0 Introduction

## JabberJack

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We are pleased that you have chosen the ChatterJack for your business needs. The ChatterJack Chatbot is a powerful chatbot system that is able to answer questions about NAU's college of engineering, informatics, and applied sciences and has been custom designed to meet your needs. Some of the key highlights include:

- Chatbot's ability to receive user input both textual and spoken
- Updatable database allows the chatbot to "learn" new information
- Faculty users can manage their own information
- Admin users can manage all information

The purpose of this user manual is to help you successfully install, administer, and maintain the ChatterJack Chatbot in your actual business going forward. Our aim is to make sure that you are able to utilize and profit from the ChatterJack for many years to come.

## 2.0 Installation

### JabberJack

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As part of the final delivery, the ChatterJack chatbot system should have been installed on the windows computer provided to this project. Over time however, you may want to move to a new computer or reinstall the product. This section will teach you how to reinstall the product to the other computers and also as the foundation for the future work.

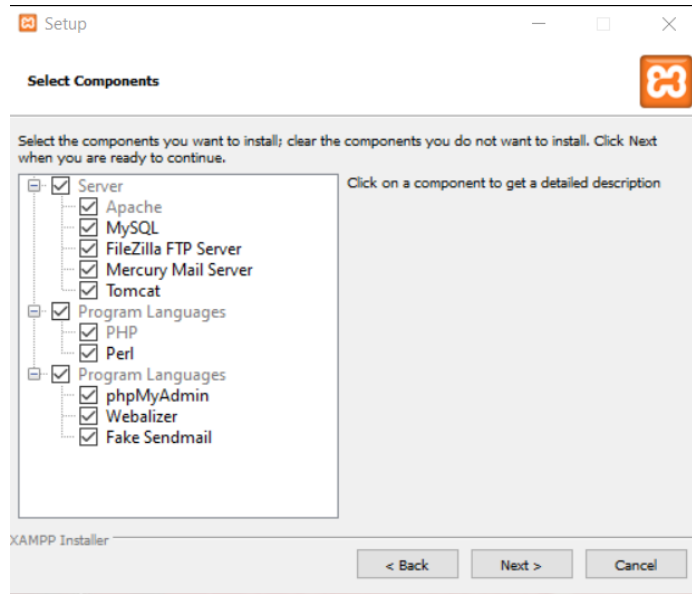
## 2.1 Web Portal and Server Installation

The web portal side of the chatbot is pivotal as it is currently the only way for the chatbot to “learn” new things. The database is updatable through this web portal and also lives on this server. This server can either run locally on a system/computer or can be run remotely through a service like AWS or Digital Ocean. Here are the steps on how to install the server on both local machine and server.

### 2.1.1 Local Install Specifics

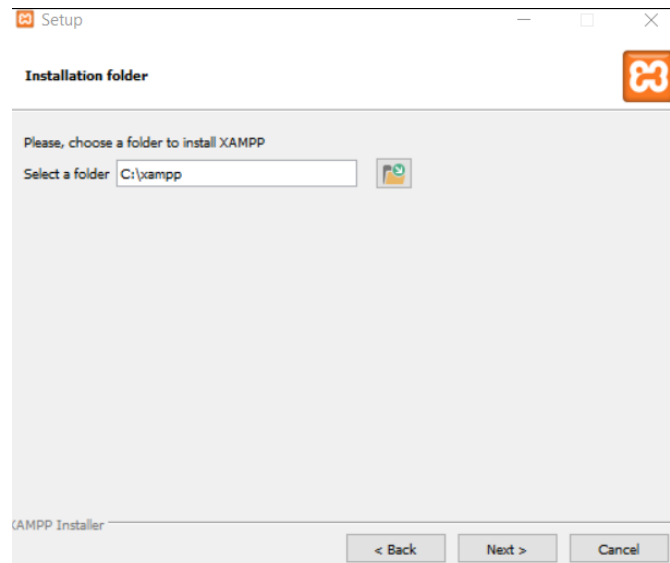
If the route you are looking for is a local install, which means that the web portal will only be accessible from the system, then you need to start here.

1. First you will need to install XAMPP, installation instructions can be found here <https://www.apachefriends.org/download.html>. XAMPP is in its most basic form a local apache server that comes with MariaDB, PHP, and Perl.
2. From there follow installation instructions and choose all of the default options  
**WARNING:** It may warn you about proceeding with the installation if you have antivirus software installed, this should not be a problem just continue.
3. After some of the basic informational install steps you come here, these are all selected by default. Click next and continue. As shown in Figure 2.2.1.



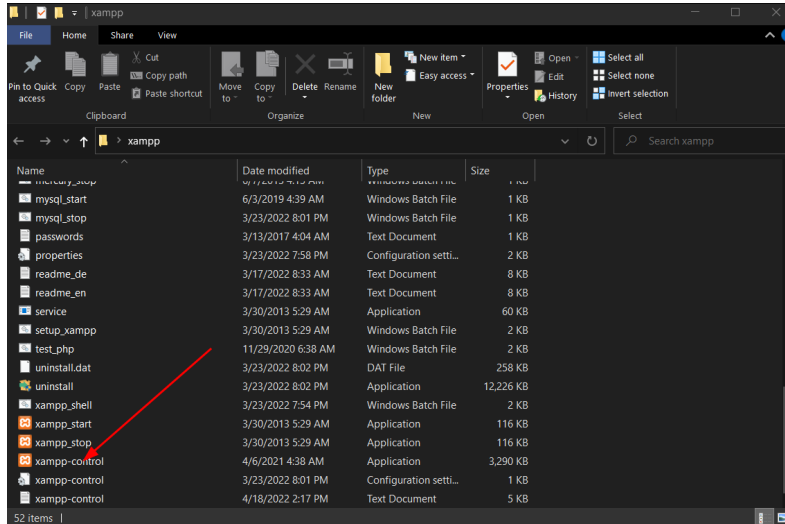
**Figure 2.2.1 Default Options**

4. Once you click next you'll need to choose where you want to install it. The default is just on the C drive but I recommend installing it on the desktop. Click next when done.



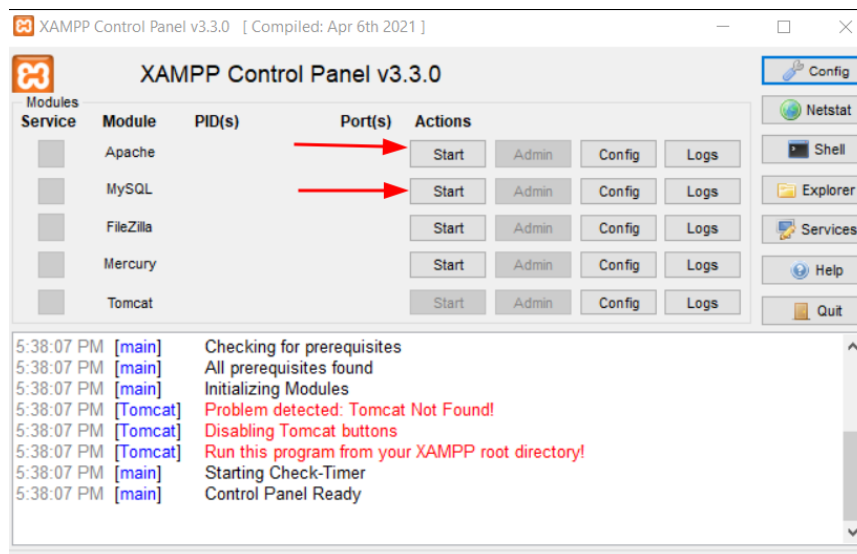
**Figure 2.2.2 Install Location**

5. On the next page there is a language selection. Select English since the only other option is Dutch. Then click next. As shown in Figure 2.2.2.
6. The next page is just another informational page click next until it starts the install.
7. Once it's done installing you can access the control panel from the folder; the folder will be named 'xampp' and you access the control panel from the xampp folder here (shown in Figure 2.2.3):



**Figure 2.2.3 XAMPP In Folder**

- Clicking that will pull up the control panel where you can start both the apache server and the MySQL server. Clicking start will start the Apache server as well as the MySQL service. This will enable you to run PHP on your local machine as well as host a database. As shown in Figure 2.2.4:



**Figure 2.2.4 Control Panel**

- From there you will need to move the Website folder into xampp/htdocs; once this is done you can access the web portal through: <https://localhost/Website/index.html>
- But you will still need to configure the database but with XAMPP this should be easy.

### 2.1.1.1 Database setup

1. Visit this page: <http://localhost/phpmyadmin/> this is where you can manually manage the database if needed. As shown in Figure 2.2.5:

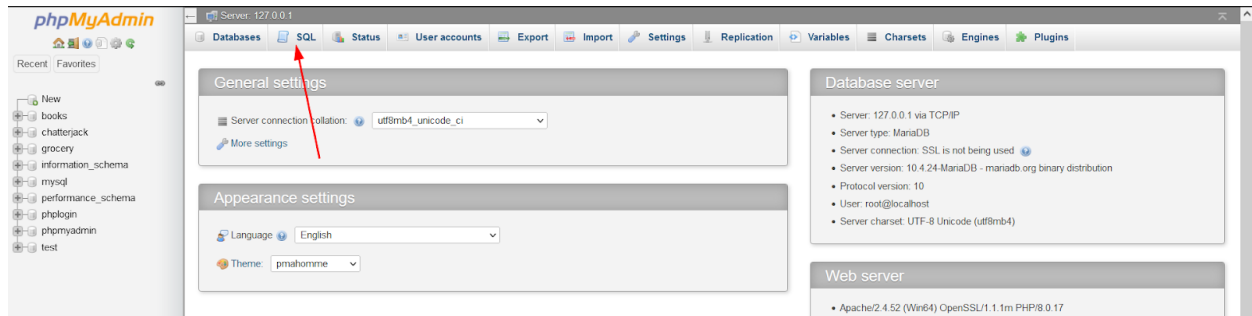


Figure 2.2.5 PHPMyAdmin

2. From the home page click the SQL button this will take you to a page where you can execute SQL statements
3. Download the `database_setup.sql` file, open it and copy **ALL** text in the file
4. Click SQL and paste it into the box as shown below in Figure 2.2.6:

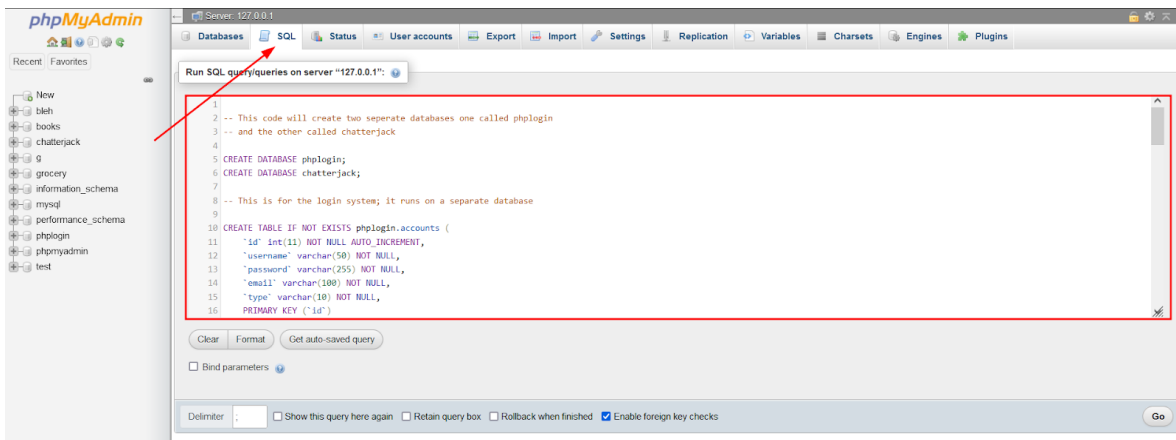


Figure 2.2.6 Initialize Databases

5. Click “Go” and it should create all of the necessary databases and tables needed for the chatbot
6. Now you can run our pre populate script to insert a whole bunch of data into the database; more information on how to do this can be found in [section 4.1](#)

### 2.1.2 Server Install Specifics

If the route you are looking for is the server install, meaning that the web portal will be accessible from the internet then you need to start here. The first major step that you need to take in order to get this server up and running is first acquiring a server. You can get access to a server through services like AWS or Digital Ocean. The next steps are going to assume that you already

have access to this server and are able to SSH into it remotely in order to make changes. If you require more guidance on this end visit the [Team Notes and Resources](#) section in this document.

**NOTE:** You will need root level access to the server

1. Once you have set up your server you are going to need to install Apache on your server to do this first update your server with ``sudo apt update`` and ``sudo apt upgrade`` this will ensure that your server has the latest versions and packages that it needs.
2. Then you will need to install Apache by running this command:  
``sudo apt install apache2``
3. Once it is installed it should automatically start running the service if not run:  
``sudo systemctl start apache2``
4. You can check the status by running: ``sudo systemctl status apache2``
5. Place all of the web portal files into the `/var/www/html` directory; this is the directory where the website files “live”

### **2.1.2.1 Database Setup**

Now that you’ve set up the server you will need to set up the database to operate from the server. **NOTE:** This sets up the SQL server to not have a password. Also the files for our web portal by default do not use any specific database passwords or usernames so those will need to be changed if you are going to use a password protected database.

1. Install MySQL on the server using the following commands:
  - a. ``sudo apt install mysql-server``
  - b. ``sudo systemctl start mysql.service``
  - c. ``sudo mysql_secure_installation`` → This command will allow you to set up a password and includes other security options
2. Once you have MySQL set up you are able to access the interface through this command:  
``sudo mysql``
3. Once inside the interface you are able to manipulate databases and run SQL commands; you will need to run a series of commands to completely set up the database.
  - a. First download the file named “database\_setup.sql” and place it in your home directory on the server.
  - b. Then enter into the sql interface using ``sudo mysql``
  - c. Once in the interface run ``source database_setup.sql``, this script will create the databases: chatterjack and phplogin and then will create the tables: person, org, and class in chatterjack and accounts in phplogin.
  - d. Once that is done you are able to run our populate script this will pre populate the database with entries, see how to do this in [section 4.1](#) on detailed instructions on how to do this

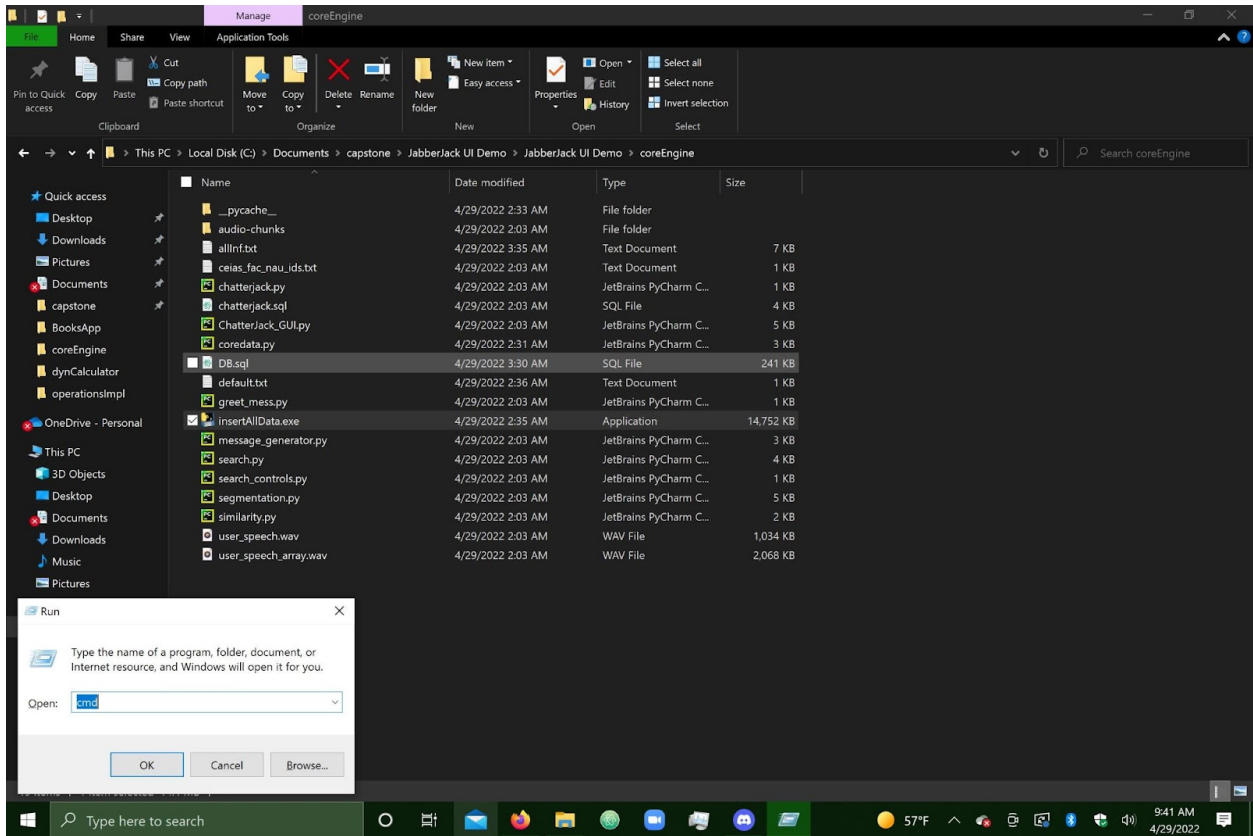


Once you have completed the set up either on the server or local machine you need to place the web portal files into the proper folder. For local machines you will need to place it within: xampp/htdocs folder. For the server you will need to place the web portal folders in the /var/www/html directory. Then you will be able to access the portal from: <https://localhost/> and from whatever server domain you have used.

## **2.2 Chatbot Installation**

Make sure that the Web Portal has successfully been installed before attempting the installation of the chatbot. Errors will arise if this is installed first. The Chatterjack Chatbot has been written entirely in a programming language called python. While the team has tried to convert it to an executable it was not as simple as it had seemed. In order to install the chatbot you will need to :

1. First install python:
2. Go to <https://www.python.org/downloads/> and download the python version 3.7.9(64-bit) and run the executable, the installation wizard for python will help you with the rest, keep all configurations to the default
3. After python has been successfully installed download the source code from either our github currently located at <https://github.com/Laconics2/chatterjack> (this may be subject to change in the future) or directly from the files provided within the thumb drive.
4. Extract the files to the desired location on the computer
5. Navigate to the GUI folder and run the DwnLoadPacks.py file this will install all the needed packages to run the chatbot
6. Find ChatterJack\_GUI.py located within the coreData folder
7. Open a command prompt window in this folder, this can be achieved in windows by typing `Win + R` and typing `cmd` from the prompt that pops up in the bottom left corner of the screen



8. Use ``cd path/to/file`` to locate where the archives have been extracted.
9. Type ``python ChatterJack_GUI.py`` and hit enter
10. Wait for the process to begin
11. Congratulations you now have the UI side of our chatbot installed, please proceed to web portal install if you wish to have full functionality

## 3.0 Configuration and Daily Operation

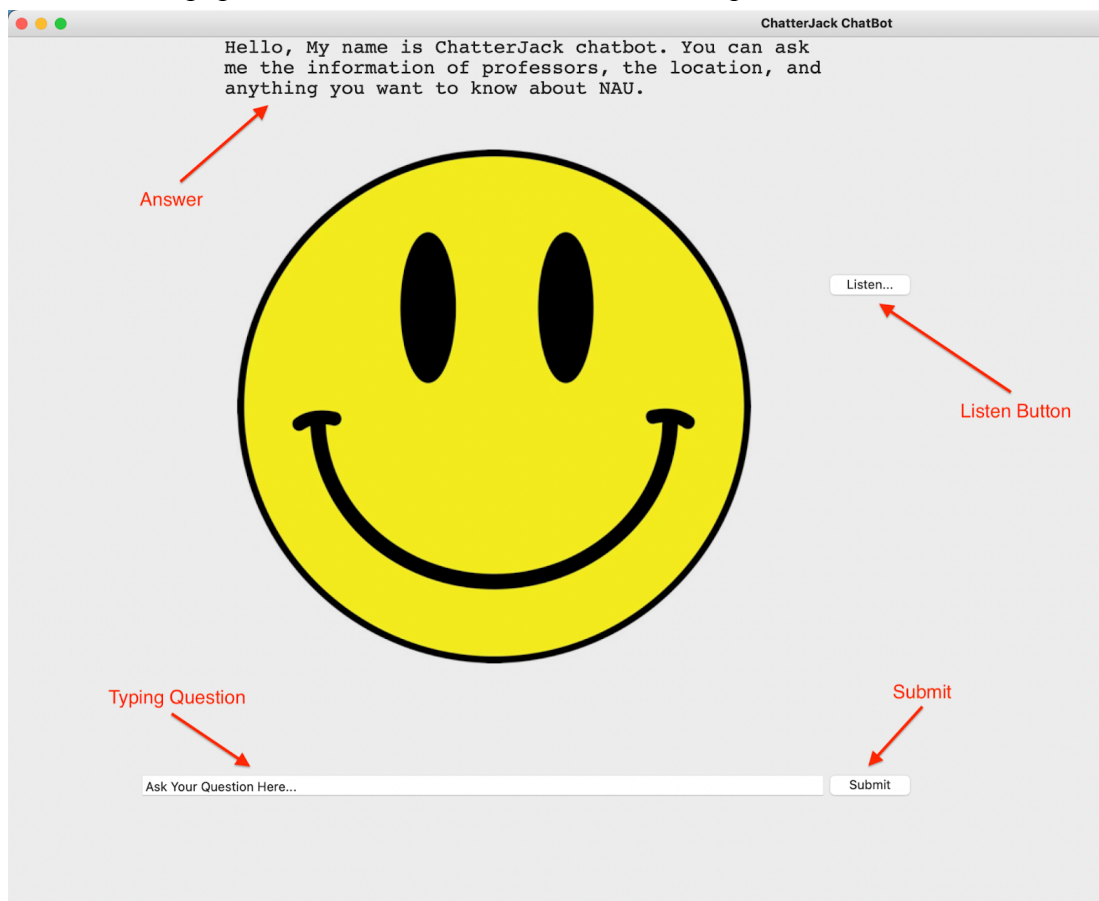


### JabberJack

This section of the User Manual will discuss three user cases: general, faculty, and administrative users to demonstrate simple day to day operations of the chatbot system and web portal separately. Due to the intuitive user interfaces and the design of the web portal, this should be fairly simple to work through.

### 3.1 Chatbot System

There is an intuitive User Interface for the ChatterJack chatbot system. The administrator starts the program by running the “ChatterJack\_GUI.py” file on a Windows Operating System machine. Here will pop a chat window for the user to ask the question:



### Figure 3.1.1 Chatbot Window

Just as the normal chat system shown in Figure 3.1.1, a user can ask the question via text/speech, then the system will return the answer to the user also via text and sound. Here are three key features:

- **Listen Button:** When a user clicks the “Listen...” button, the system will listen to the user’s question and break them down into a string, showing in the input question textbox. The user can also modify the question in the textbox if the speech recognition cannot identify the user’s question as expected.
- **Question Textbox:** A user can type the question in the textbox. When the user finished inputting, he/she can click the “Submit” button or hit “Enter” to pass the question to the Problem Retrieval System to find the answer.
- **Answer:** When the answer is found, it will show on the screen and also read aloud the answer. If the answer is not found, it will prompt a message, “Sorry, I cannot find your answer to your question”.

**NOTE:** When you click the “Listen...” button, please don’t click another button since the chatbot is thinking

In order to run the chatbot if it is not currently running you will need to navigate into the GUI folder in the command prompt and then type `python ChatterJack\_GUI.py` and hit enter. This should run the chatbot.

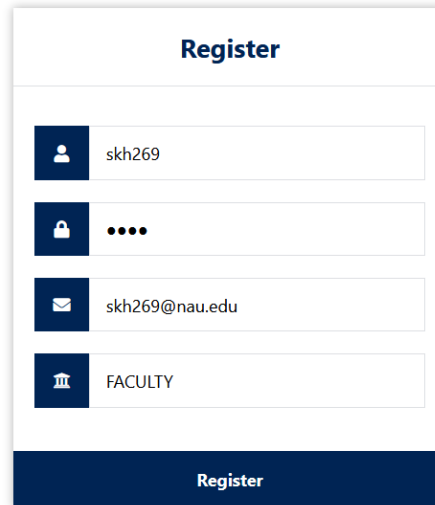
## 3.2 Web Portal

In order to get the web portal running you will need to open the XAMPP control panel and then click the start buttons on both Apache and MySQL. Then access it by typing localhost in your browser of choice. These instructions would be different if you choose to install it on a server in the future.

The web portal is set up so that an administrator has absolute access to everything; meaning that no user can gain access without contacting the administrator. In order for a user to gain access currently they would have to email [chatterjack2022@gmail.com](mailto:chatterjack2022@gmail.com) and they need to include the following in their email, instructions are listed on the login page:

- NAU User ID for example: skh269, jy445, taz26
- NAU email for example: [skh269@nau.edu](mailto:skh269@nau.edu), [jy445@nau.edu](mailto:jy445@nau.edu), [taz26@nau.edu](mailto:taz26@nau.edu)

When an admin creates this account the password should always be ‘temp’ so that users can initially login and change their password. Unfortunately this is a manual process that needs to be done by someone with administrative access. Here is an example of what a filled in form would look like shown in Figure 3.2.1



The screenshot shows a mobile-style registration form titled "Register". It features four input fields, each with a dark blue icon on the left: a person icon for the username field containing "skh269", a lock icon for the password field containing four dots, an envelope icon for the email field containing "skh269@nau.edu", and a building icon for the role field containing "FACULTY". A dark blue button labeled "Register" is positioned at the bottom of the form.

**Figure 3.2.1 Register Page**

The password field should be set to **temp** and generally the last field should always be set to FACULTY although there is the freedom to make anyone an ADMIN user simply by changing the last field to “ADMIN”. As an administrator you are able to edit, delete, and add information to the database. How to do that is listed in the below sections. Once you have completed this as an admin you will need to reply to the request manually (unfortunately) and send the user credentials. Here is a template on what you should say:

Hello,

Your user credentials are:

**Username:** NAU ID

**Password:** temp

Please change your password as soon as possible!

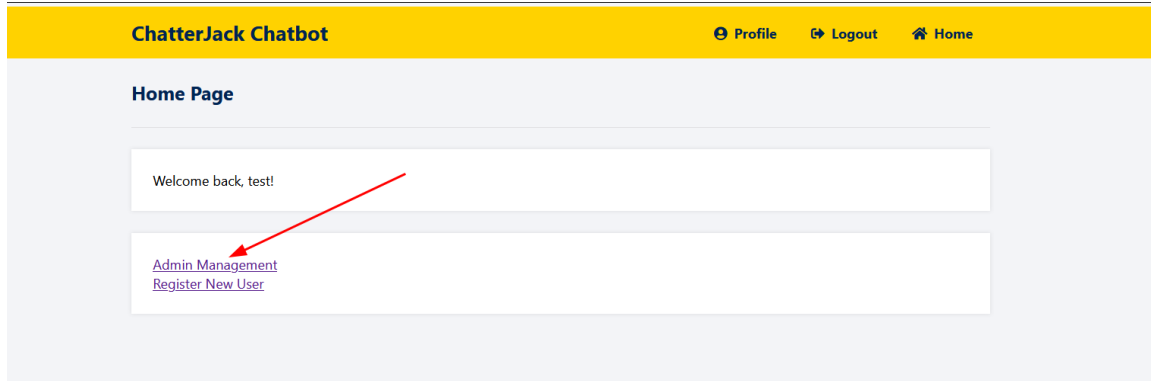
Thank you

Now they should have access to their account.

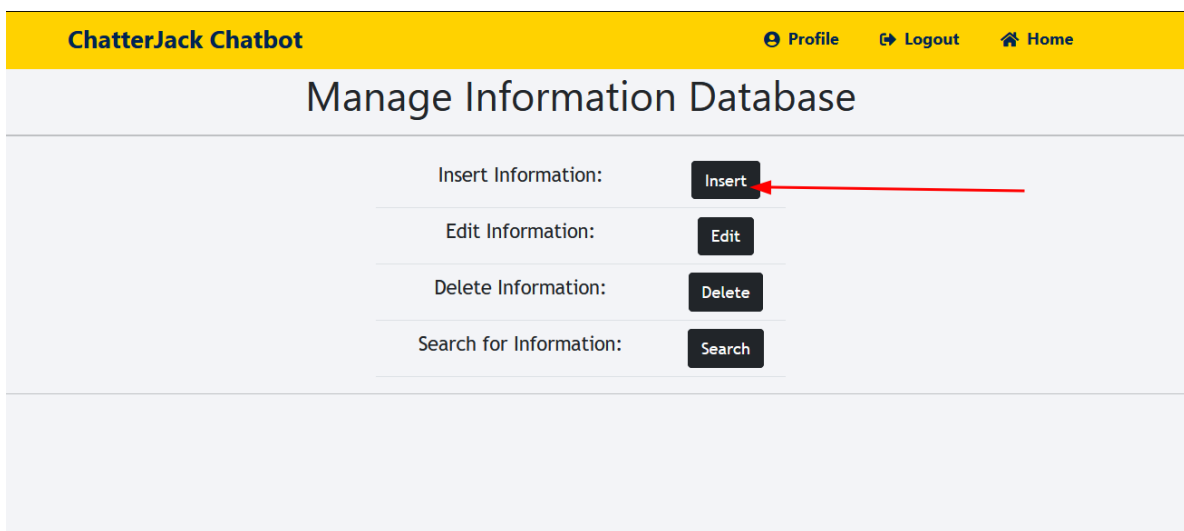
### **3.2.1 Admin Add**

Here is a step by step guide on how you can add information to the database as an admin:

1. First login using your credentials
2. Then click the “Admin Management link as shown in figure 3.2.2



**Figure 3.2.2 Admin Management Link**



**Figure 3.2.3 Insert**

3. Then you will come to the management page; now click insert as shown in Figure 3.2.3
4. Then select which table you want to insert into; there are 3 tables, the Person table is for people, Org table is for organizations like NAU or SICCS, and the class table is for classes like CS480. This will demonstrate how to insert into the Person table
5. You will need to fill out every field there are examples in each to guide you as shown in Figure 3.2.4

**Figure 3.2.4 Insert Example**

6. Then click submit and the information will be added to the database you can view it using the search function which is further explained in section 3.2.4

### **3.2.2 Admin Delete**

Here is a step by step guide on how you can delete information in the database:

1. After logging in click the admin management link like in step one of the previous tutorial

**Figure 3.2.5 Delete**

2. Then click the delete option as shown in Figure 3.2.5
3. Then it'll take you to a screen where you can select what table you want to delete from here we will select the class table
4. You will be presented with a drop down list of all the class names here you can select which one you would like to delete, shown in Figure 3.2.6

The screenshot shows a web interface for deleting information. At the top, there's a yellow navigation bar with the word 'Delete' on the left and links for 'Profile', 'Logout', and 'Home' on the right. Below this is a header 'Manage Information Database'. The main area contains four rows of controls: 'Insert Information:' with an 'Insert' button, 'Edit Information:' with an 'Edit' button, 'Delete Information:' with a 'Delete' button, and 'Search for Information:' with a 'Search' button. Below these is a section for selecting a table to delete, with radio buttons for 'PERSON', 'CLASS', and 'ORG', and 'SELECT', 'RESET', and 'NEW' buttons. At the bottom, there is a 'Delete a row:' section with a dropdown menu labeled 'Select one Class' and a 'Delete' button, which is highlighted with a red arrow.

**Figure 3.2.6 Select Option**

5. Once selected click delete and the entire row entry will be deleted; **NOTE:** this cannot be undone so make sure you really want to delete it before hitting delete

### **3.2.3 Admin Edit**

Here is a step by step guide on how an admin can edit a database entry:

1. Login and select the management link
2. Select the Edit button to take you to the edit page as shown in Figure 3.2.7
3. Then select the table you want to edit in
4. You will have the option to search for something specific but leaving this blank will just pull up all entries



**Figure 3.2.7 Edit**

5. Hit search and it'll display the table
6. Choose an entry you want to modify and select modify as shown in figure 3.2.8

**Figure 3.2.8 Select Entry**

7. Hit modify and it'll pull up text boxes that you are able to edit directly as shown in figure 3.2.9

ORG table

id	org_name	_where	_what	_who	_how	author	operation
1	engineering building	Engineering Building	College of Engineering, Informatics, and Applied Sciences is NAU's newest college	Dr. Andy Wang	Mountain 10 or LOUIE Bus	Andy Wang	MODIFY
1	<input type="text" value="engineering building"/>	<input type="text" value="Engineering Building"/>	<input type="text" value="College of Engineering, Informati"/>	<input type="text" value="Dr. Andy Wang"/>	<input type="text" value="Mountain 10 or LOUIE Bus"/>	<input type="text" value="Andy Wang"/>	OK

**Figure 3.2.9 Text Box Edit**

8. Make the necessary changes and then select ok this will change the data in the database  
**NOTE:** the changes will not be immediately reflected in the boxes you will need to refresh the page in order to see it change

### 3.2.4 Admin Search

Here is a step by step guide on how to search the database:

1. Login and click the admin management link on the home page
2. Select the search button
3. Then you can select which table you want to search in and you are able to input specific search words in the text box as shown in Figure 3.2.10

Select which table you want to search information:  PERSON  CLASS  ORG

Input the Search Information:

SEARCH RESET NEW

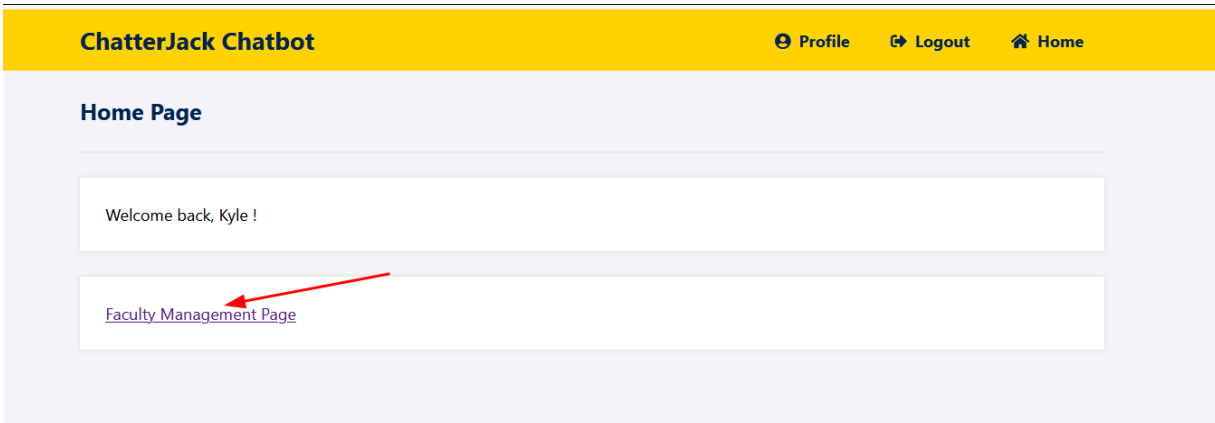
**Figure 3.2.10 Search**

4. Typing in nothing will grab the whole table
5. Then select search and the table will display; **NOTE:** This is only a way to view what information is present in the table you are not able make edits here

### **3.2.5 Faculty Add**

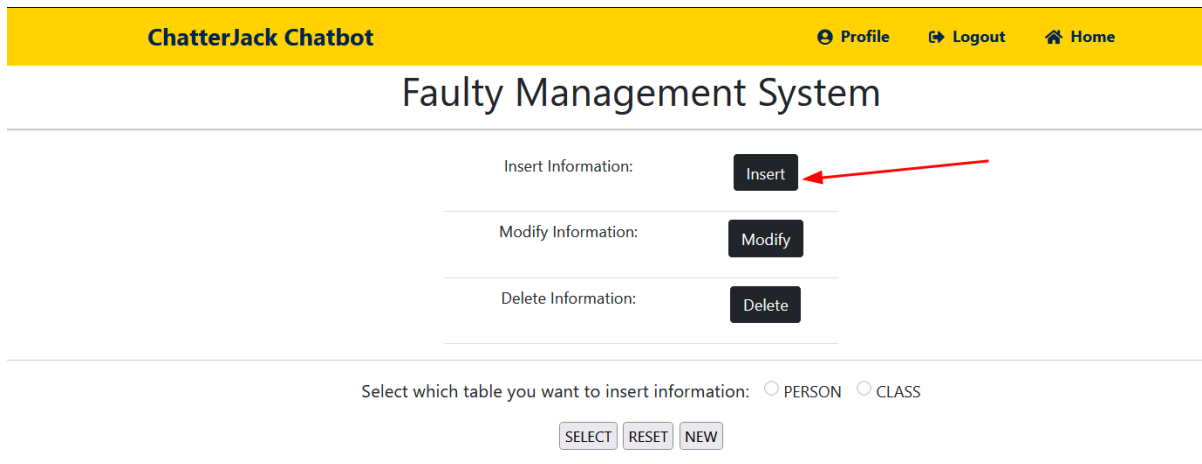
Here is a quick step by step guide on how you can add information as a faculty member

1. Login and select the Faculty management link as shown in Figure 3.2.11



**Figure 3.2.11 Management Link**

2. Then you'll come to the management page you have 3 options here we will select insert as shown in Figure 3.2.12



**Figure 3.2.12**

3. Then you can select one of two tables, only admins are allowed access to the "ORG" table

- Once you've chosen the table you can input the information as needed, an example is shown in each box for guidance as seen in Figure 3.2.13

ChatterJack Chatbot Profile Logout Home

## Faculty Management System

Insert Information:

Modify Information:

Delete Information:

Select which table you want to insert information:  PERSON  CLASS

person\_name:

person\_spe\_name:

\_where:

\_who:

\_when:

sex:

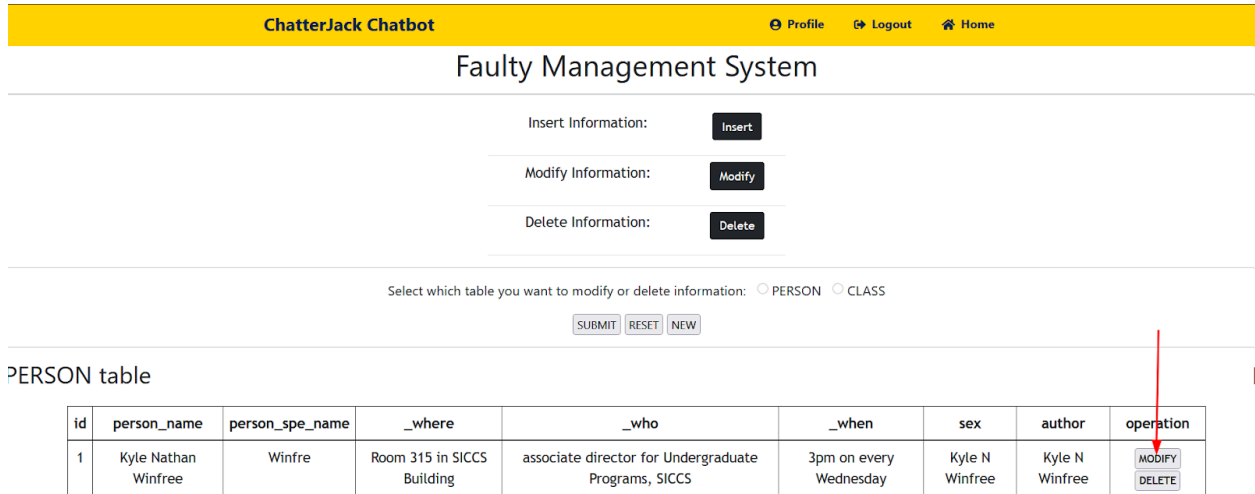
**Figure 3.2.13 Faculty Insert**

- Then select submit and the information will be added to the database and is then accessible to the chatbot

### **3.2.6 Faculty Edit**

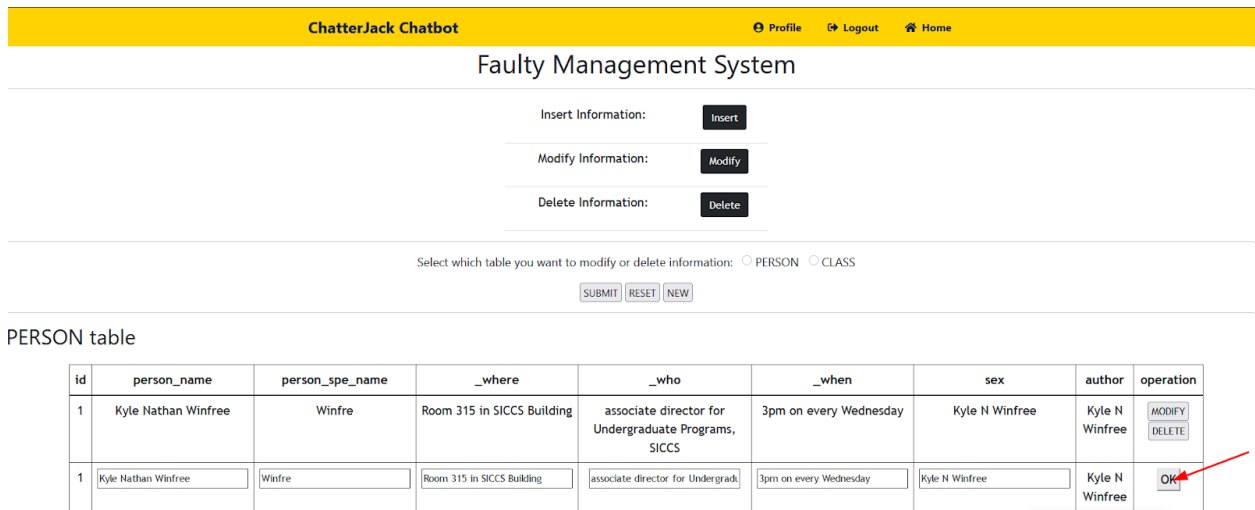
Here is a step by step guide on how to edit an entry as a faculty member:

- First log in and select the faculty management link as before
- Then select modify
- Then you can select the table you want to edit data from here we chose person as shown in Figure 3.2.14



**Figure 3.2.14 Faculty Modify**

- Then you can edit it by selecting modify; text boxes will pop up below the entries
- Edit what you want and then select ok as shown in Figure 3.2.15



**Figure 3.2.15 Confirm Edits**

- Once selected the edits will be made within the database; **NOTE:** These changes will not be immediately reflected on the page, if you refresh it'll update

### 3.2.7 Faculty Delete

Here is a quick step by step guide on how to delete information as a faculty member:

- First login and select the faculty management link
- From there select delete as shown in Figure 3.2.16

**Figure 3.2.16 Faculty Delete**

3. Then select the table you want to delete from here we'll select people
4. From there we can view entries available for us to delete as shown in Figure 3.2.17

id	person_name	person_spe_name	_where	_who	_when	sex	author	operation
1	Kyle Nathan Winfree	Winfre	Room 315 in SICCS Building	associate director for Undergraduate Programs, SICCS	3pm on every Wednesday	Kyle N Winfree	Kyle N Winfree	<input type="button" value="MODIFY"/> <input type="button" value="DELETE"/>

**Figure 3.2.17 Select Entry**

5. Then select delete; this will delete the whole entry **NOTE:** This cannot be undone

**NOTE FOR FACULTY ACCOUNTS:** Faculty members will only be able to view and modify entries that they have authored. For example Dr. Smith cannot edit Dr. Kerri's data.

## 4.0 Maintenance



### JabberJack

Maintenance is the modification of a software after final delivery to correct faults, and improve performance. This section will demonstrate how to keep the brain always intelligent. The ChatterJack chatbot system is designed as a software application without caches and cookies, which means that the administrator should not pay more attention to maintaining the chatbot system. As an administrator for the product, he/she has to login the Web Portal to update or delete the information to make sure the chatbot always returns the accurate answer for the corresponding question.

#### 4.1 Update the Database by Web Portal

Sometimes it might be necessary to add information about a large group of individuals without manually inserting each entry. For this purpose there is a handy webscapper application designed to grab as much information about the faculty members as possible. With that in mind, there are limits, and as such some manual insertion will be required after the web scraper has run. Running the program without any arguments will use the 'default.txt' (located in the same directory) to use in the population of database entries. Passing a txt file will then use that file to insert data entries. These text files must contain a list of nauIDs in a vertical column, for example a text file might contain this:

```
1   mlv83
2   aab79
3   amd357
4   amf334
5   adg326
```

**Figure 4.1 UserID.txt File**

**NOTE:** running the web scraper program multiple times with the same file, be it default.txt or one passed to it, will result in duplicate entries.

To run the web scraper application with default configuration:

1. In a terminal window change directories using `'cd PopulateDatabase/'`
2. Run `'insertAllData.exe'`

OR Double click insertAllData.exe from the file explorer

To run the web scraper application with a custom nauID list:

1. In a terminal window change directories using `'cd PopulateDatabase/'`
2. Run `'insertAllData.exe path/to/file.txt'`

**NOTE:** `'cd PopulateDatabase/'` assumes the current directory is the root of the application

If the chatbot begins to give wrong answers then there is a problem with the information in the database. The database contains information about NAU and since information is not static the information stored within it will need to be updated regularly. With the web portal this should be easy; just keep the information up to date. The information should be updated as often **as needed**, at the very least this should occur at least once every semester so that the class table is up to date.

## **4.2 Web Server**

Web servers are touchy and in order for nothing to break you will need to update the web portal regularly. This assumes that you will utilize an ubuntu web server

1. SSH into your web server
2. Make sure you have root level access here
3. Run `'sudo apt update'` and `'sudo apt upgrade'` in that order
4. To ensure that your server is still running run `'systemctl status apache2'`
5. If it is not running run `'systemctl start apache2'`

If needed you can access all source code in the provided thumb drive.



## **5.0 Troubleshooting**



### **JabberJack**

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Sometimes applications fail us and throw errors that we aren't expecting. This section helps walk you through some of the things that went wrong during our testing.

### **5.1 Python Libraries**

There is a potential issue regarding our chosen python libraries. If for some reason python updates or the libraries get updated then the chatbot application can fail. Changes in packages and libraries usually need to be accompanied by changes in the code. If this happens you may need to revert the packages to their initial state.

### **5.2 Web Server**

Like all websites, if you decide to host the web portal on a server you will need to keep that server up to date or the website may not display on the internet. To ensure that your web server is up to date make sure that you run ``sudo apt update`` and ``sudo apt upgrade`` (in that order) regularly. More detailed information on how to keep your server up to date can be found in section

### **5.3 Environment Constraints**

The chatbot has some operating system dependent libraries regarding the audio. As such there will be issues if the chatbot tries to run on Linux or something other than windows things may break. It was designed with the idea that it would be run on a Windows machine. It is also required that there is a microphone on the computer and speakers → otherwise there will be no audio or any way to input questions via spoken word.

## 6.0 Conclusion



### JabberJack

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With best wishes from the ChatterJack development team: Sara Harris, Gabriel Proctor, Jiasheng Yang, and Tyler Zimmerman. While the team is all moving on to professional careers, we would be happy to answer any short questions in the coming months to help you get the product deployed and operating optimally in your organization. Here is our contact information and responsibilities:

<b>Team Member</b>	<b>Responsibility</b>	<b>Contact Information</b>
Sara Harris	Web Portal Login and Register Page	laconics@protonmail.com
Jiasheng Yang	Natural Language Processing Web Portal Management Page	jy445@nau.edu
Tyler Zimmerman	User Interface	taz36@nau.edu
Gabriel Proctor	Database	gbh25@nau.edu

**Table 6.0 Contact Information and Responsibility**



## 7.0 Team Notes and Resources

### JabberJack

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This section is here to provide any extra information that the team feels is important or necessary to the operation of our product or to the installation process. What is the most crucial point is that these resources will help other future teams to understand how the current chatbot system and web portal works.

### 7.1 Chatbot

The chatbot runs on Python which means that you will need some software that is able to run python code. The team recommends that you use Pycharm but you are able to run it in the command line with a python environment as well. Some resources that you can use are:

- Here is the main document about the spaCy Python Library that is used for Natural Language Processing: <https://spacy.io/>, which demonstrates how the segmentations and the identification of entries works.
- Here is the main document on how wxPython utilizes for the User Interface: <https://www.wxpython.org/>.
- Here is the link that the future team can improve the speech recognition: <https://pypi.org/project/SpeechRecognition/>.
- Here is some resource for correcting the wrong typing: <https://zh.wikipedia.org/wiki/Tf-idf>.

### 7.2 Web Portal

The web portal is where users who have an account are able to update the database that the chatbot uses as its information base. The web portal as it is now is probably set up as a local server so that users are able to update the chatbot from the system. Some resources that you can use are:

#### 7.2.1 Local Install Resources

Here are some resources and tutorials that you can follow if you need assistance installing the local server:

- XAMPP Download: <https://www.apachefriends.org/download.html>.
- XAMPP Video installation steps: [https://www.youtube.com/watch?v=\\_TDiZWoiewk](https://www.youtube.com/watch?v=_TDiZWoiewk).

Here is where you can access the database manually:

- PHPMyAdmin: <http://localhost/phpmyadmin/index.php>.

## **7.2.2 Server Install Resources**

If you want the web portal to run on a server, meaning that users are able to access it from anywhere via the internet, you will need to gain access to a server through a third party service. We recommend that no matter what service you use, you should use **Ubuntu(LTS)** linux as it is the most widely used distribution as a server. Services that we recommend:

### **AWS**

Amazon Web Services or AWS is a cloud computing service run through Amazon; users can set up an account and create an instance or a server where they can run their website from. Here is the link to the home page: <https://aws.amazon.com/>.

Here are some extra resources that may be helpful on this front:

- Here is a link to help create an EC2 instance and install an apache web server on it: [https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP\\_Tutorials.WebServer.rDB.CreateWebServer.html](https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_Tutorials.WebServer.rDB.CreateWebServer.html). **WARNING:** Some of these instructions seem to be slightly out of date, specifically the ones following how to install the apache web server.
- Here is a link that will help you understand how to install the Apache server specifically on **Ubuntu**: <https://ubuntu.com/tutorials/install-and-configure-apache#3-creating-your-own-website>.

### **Digital Ocean**

Digital Ocean is another cloud computing service that is similar to AWS but has several different features that makes it slightly more appealing than other services.

- Here is a link to their home page: <https://www.digitalocean.com/>.
- Digital Ocean has a pay as you go plan where you only pay for what you need; here is a link to their payment options <https://www.digitalocean.com/pricing>.
- Here is a link that can assist with setting up a Digital Ocean server in your name: <https://www.digitalocean.com/solutions/website-hosting>.
- Here is a link to some resources on how to install the Apache web server specifically on a Digital Ocean drop: <https://www.digitalocean.com/community/tutorials/how-to-install-the-apache-web-server-on-ubuntu-20-04>.

Configuring a server is a bit complicated and needs someone with experience in order to do it efficiently. Although setting up a server can be done by anyone, we recommend that you find someone who has done this before to assist with the installation and set up. If you want

something different than what is listed above then here is an article with other options for you to explore: <https://www.itproportal.com/guides/best-cloud-computing-services/>.

## **7.3 Database Setup**

The database contains all of the ChatterJack’s “knowledge” so it is pivotal to operations that it is set up and installed properly. If it is not then the chatbot will not “know” anything. How to install and populate the database is described in sections [2.2.1.1](#) and [2.2.2.1](#). Here are some additional resources if you are finding yourself lost:

- This is Digital Oceans’ explanation as to how to install MySQL on a server (**ubuntu**): <https://www.digitalocean.com/community/tutorials/how-to-install-mysql-on-ubuntu-20-04>.
- Here is a resource for how to interact with MySQL in the command line: [https://docs.oracle.com/cd/B25329\\_01/doc/appdev.102/b25108/xedev\\_sqlplus.htm](https://docs.oracle.com/cd/B25329_01/doc/appdev.102/b25108/xedev_sqlplus.htm).
- Here is a video demonstrating how you can interact with MySQL through the command line: <https://www.youtube.com/watch?v=JoVLLdJXzss>.

## **7.4 Email Credentials and Admin Credentials**

There is an associated email account that prospective users will need to email in order to request access the credentials to this email are below:

**Username:** [chatterjackchatbot@gmail.com](mailto:chatterjackchatbot@gmail.com)

**Password:**

Once you gain access to it please change the account credentials as soon as possible.

There is an admin account built into our web portal, the credentials are below:

**Username:** admin

**Password:** TBD will be determined on install

Again please change the password as soon as possible once you gain access to the web portal.