A project report on

“Virtual Assistant”

By using python

Presented by

Mr. Akash Dilip Kumbhar

Roll. No. 19201102

Under the guidance of

Dr. B. S. Patil

Department of Master of Computer Applications,

Government College of Engineering,

Karad.

GUIDE CERTIFICATE

This is to certify that,

Mr. Akash Dilip Kumbhar has satisfactorily carried out our project work entitled **"Virtual Assistant using python"** for the course of Software Development Project Lab (MC 508) for the Master of Computer Applications Semester IV of Government College of Engineering, Karad for the academic year 2020-2021. The project work is an original and neither copied nor taken from any other earlier project work. Further, it has not submitted to any institution or University as a Partial fulfillment of condition for passing any examination.

Place: - Phaltan.

Date: -

Prof. Dr. B. S. Patil

(Project Guide)

DECLARATION

I, Mr. Akash Dilip Kumbhar Student of Government College of Engineering, Karad, hereby declare that the project report entitled “Virtual Assistant by using Python” is written and submitted under the guidance of Prof. Dr. B.S. Patil is my original work.

The empirical findings in this report are based on data collected by myself. The matter consisting in this report is not copied from any source.

I understand that if my work is found to be copied, I am liable to be punished by rules of University,

Place: - Phaltan.

Mr. Akash Dilip Kumbhar

Date:-

ACKNOWLEDGEMENTS

I am honored to grab this opportunity of saying thanks to those people who gave me support, encouragement, cooperation and guidance to complete this Project.

I convey my deepest sense of gratitude to our **Principle Prof. Dr. A. T. Pise** for their interest and encouragement during the project.

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1. Introduction

In today's world most of all jobs are digitalized. We have Phone in hands which are so smart and just connect to internet and you get world at your fingertips. These days we are not even using fingers. We just say of the task and it is complete. Now there are systems where we can say "Search Cloth Shop Near at me" and you will get cloth shop location near at you. That is the task of a Virtual Assistant. It also supports specific task such as booking a bus, or finding cheapest Home essential utensil online from various e-commerce sites and then providing a Platform to book an order are helping automatic searching, detection and online order operation.

Virtual Assistants is programs that help you to complete your day to day tasks, such as showing news, creating notes, making Playlists etc. They can take instructions via text or by voice (online chat bots). To start Virtual intelligent assistants need voice command which is we say that an invoking word or wake word to activate the listener, followed by the command. In my project I use invoking word is Meena. We have so many virtual assistants in Real time world, such as Apple's Siri, Google's Okey Google, Amazon's Alexa and Microsoft's Cortana.

Voice searches are easiest than text search. Web searches connected through mobile devices have only just overtaken those passed out using a computer and the analysts are already calculating that 50% of searches will be by voice via 2020.Virtual assistants are becoming smarter than ever. You can order your assistant to send email for you.

This system is design to be use efficiently on laptops (within under some term and condition). Personal assistant software improves user's efficiency by

managing daily routine task of the user and by given that information from online information to the user. Hello Meena is easy to use. You just call the wakeup word 'Meena' followed by the command. And within seconds, it gets executed.

This project was started on the idea that there are enough amounts of available data and information on the internet that can be used to build a virtual assistant that has access to making intelligent decisions for user's daily based activities.

2.1 Background

There already exist a number of desktop virtual assistants. A few examples of current virtual assistants available in market are discussed in this section along with the tasks they can provide and their drawbacks.

1. Cortana from Microsoft

Cortana is personal assistant software that interfaces with the user through voice interface, recognizes commands and acts on them. Cortana is a virtual assistant developed by Microsoft which uses the Bing search engine to perform tasks such as setting reminders and answering questions for the user.

It learns to adapt to user's speech and thus improves voice recognition over time. It also tries to converse with the user when it does not identify the user request. It integrates with calendar, contacts and music library applications on the device and also integrates with GPS and camera on the device. Cortana is currently available in English, Portuguese, French, German, Italian, Spanish, Chinese, and Japanese language. It depending on the software platform and region in which it is used

It uses location, time-based, social and task based contexts, to personalize the behavior specifically to the user at a given point of time.

Supported Tasks

- Execute the software which are available on my desktop
- Launch an Web browser and search something
- Send a Email to someone
- Set up a meeting on my calendar for 9am tomorrow
- Set a Remainder for tomorrow morning.

Drawback

CORTANA does not maintain knowledge of database its own and its understanding comes from the information stored in domain models and data models.

2. Google Assistant

Google Assistant software runs on smartphones which having Apple's IOS or Google Android operating system. Google Assistant is an artificial intelligence powered virtual assistant developed by Google that is Primary available on mobile and smart home devices.

It helps user to recall notes as well as tasks within a location and time context. It records user inputs and converts them into commands, and monitors current stack of user tasks to pro-actively suggest actions while considering any changes in the environment. It also presents information based on the user's last context, as well as filter information to the user based on its learned understanding of the priority of that information.

Unlike the company's previous virtual assistant, Google Now, the Google Assistant can engage in two-way conversations.

Supported Tasks

- Searching Location near by user
- Checkout weather report with current time
- Playing music by using in build application
- Create an Alarm for morning.
- Call someone from my contact list.
- Play online games.

Drawback

Google assistant required high quality smart phones which having 8+ android version because it need a good quality mike for input. It also consumption more power, which decrease battery life, also need good quality internet connection.

2.2 Objectives

Main purpose of making personal assistant software is using sequential data sources available on the internet, user produced content and provided that knowledge from databases. The main objective of an intelligent virtual assistant is to answer questions that user ask. For example, it's on the business website with a chat interface. On the mobile platform, the virtual assistant is available as a button operated service where a voice asks the user "What can I do for you sir?" and then answers to vocal input.

Virtual assistants can terrifically save you time. We spend hours in online research and then creating the report in our terms of understanding. Virtual assistant can do that for you. Deliver a topic for research and continue with your tasks while assistant does the research. Another difficult task is for assistant is remembering birthdates or anniversaries. It comes with a surprise when you wake up at morning and you realize it is a birthday of your friend today. Just command assistant in advance about your friends' birthday and she reminds you well in advance.

One of the best advantages of voice searches is their speed. In fact, voice is reported to be four times faster than a written search, where we can write about 40 words per minute, we are capable of speaking around 150 during the same period of time. In this respect, the facility of personal assistants to correctly recognize pronounced words is a precondition for them to be adopted by consumers.

2.3 Requirement Analysis

Requirement and analysis is about complete understanding of present systems and finding where the current system fails. The solution on issues is determined to resolve in the proposed system. The system is divided into smaller parts. These are functional requirement and non-functional requirement of this system, the complete analysis is followed below.

2.3.1 Functional Requirements:

1. This virtual assistant should be able to be network base (online system).
2. These systems can understand only English sentences there is having language issue.
3. They also need to good and clear pronunciation to recognize in our accent.
4. When a virtual assistant is not response to answer accurately, it's because of lack of proper info or doesn't understand the question.

2.3.2 Non Functional Requirements

1. Security requirements are important factors in this system as classified data will be stored in the database.
2. The system will be easily maintained by the developer or other authorized trained person and it shall respond as fast as possible in generating report.

2.4 Proposed System

Advantages of proposed system:

1. Virtual assistant is act as an interface between user and the digital world by understanding user requests or and then translating into actions.
2. Virtual assistant focuses on releasing the user of entering text input and using voice as primary input, and then it applies voice recognition algorithms to this input.
3. Voice recognition Software takes this input in natural language, and so makes it easy for the user to input what he or she needs to be done.
4. This software totally hands free use of the applications, lets users to query or command the assistant through voice interface.

2.5 System Requirements

Hardware Requirements

Processor:	Intel(R) Core 2 Duo
Installed Memory (RAM):	4 GB RAM
System Type:	64-bit Operating System

Software Requirements

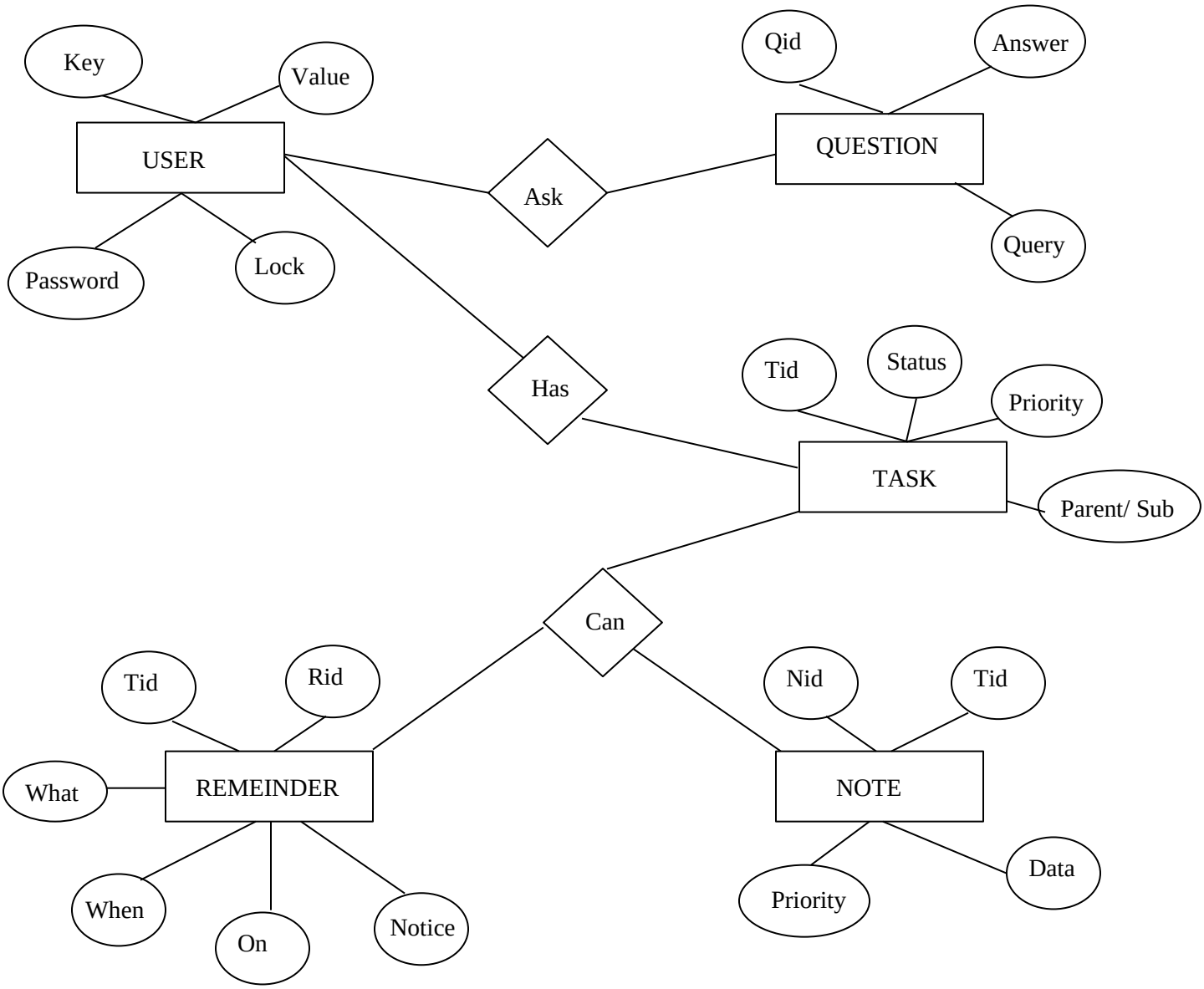
Operating System:	Windows 8(64 bit) or above
Environment (IDE):	Visual Studio Code
Technology:	Python 2.8 or above
Modules:	Pyttsx, Speech Recognition
Supportive Software:	Chrome browser

Note:-

The above mentioned are hardware and software requirements used to develop this project. A user (customer, admin) using this system only needs a compatible browser. The hardware requirements are subject to change.

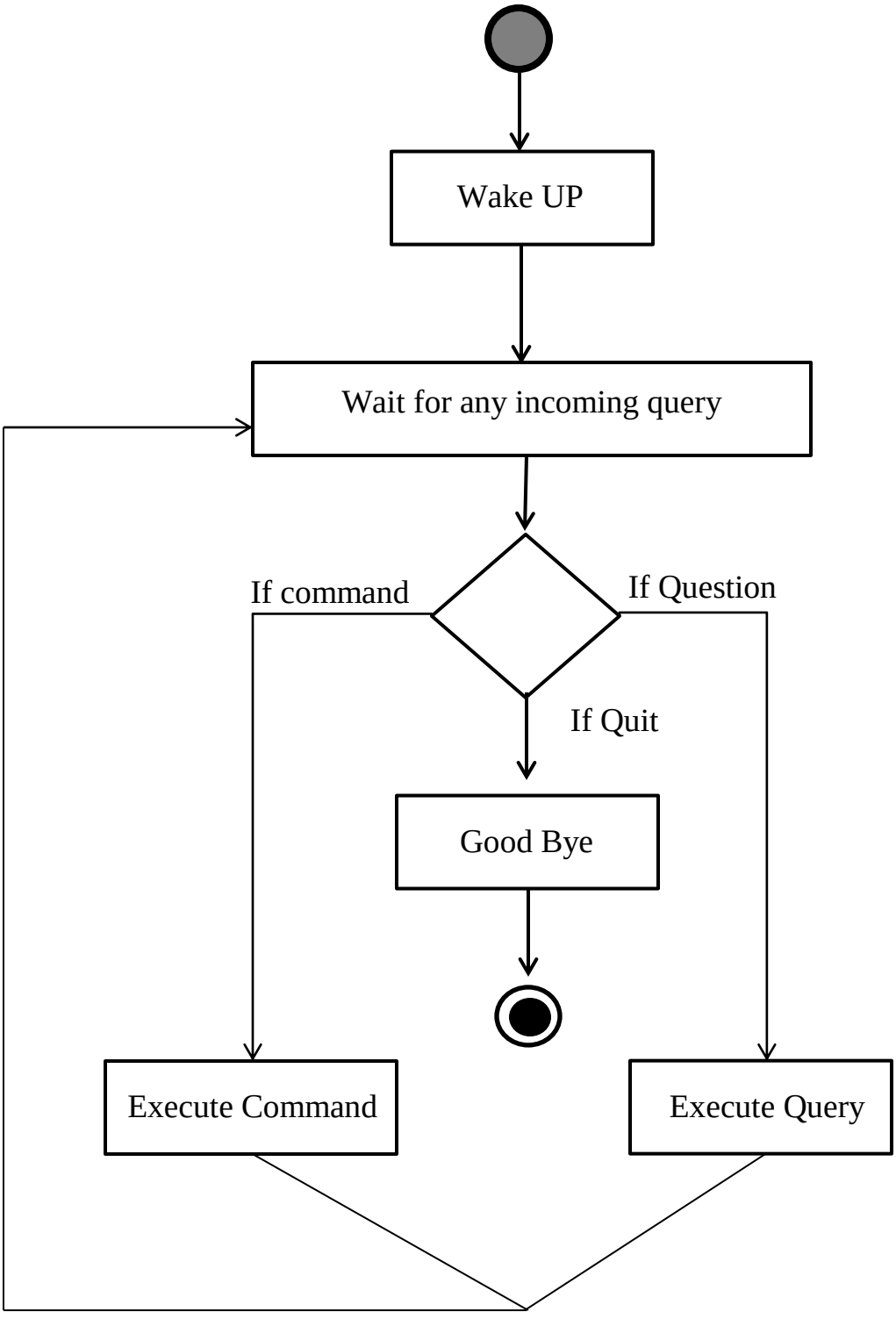
3. System Design

3.1 ER DIAGRAM

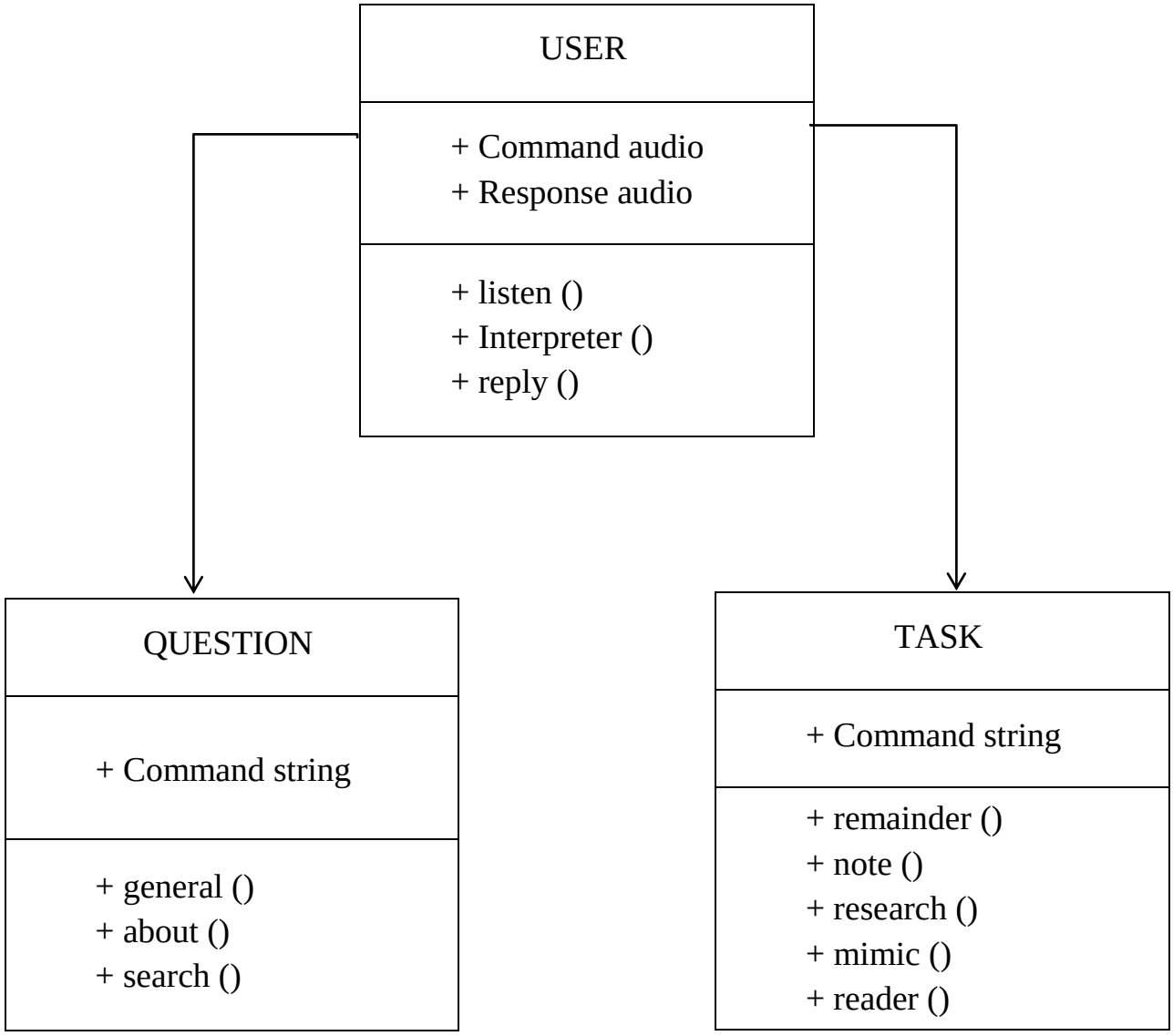


The above diagram shows entities and their relationship for a virtual assistant.

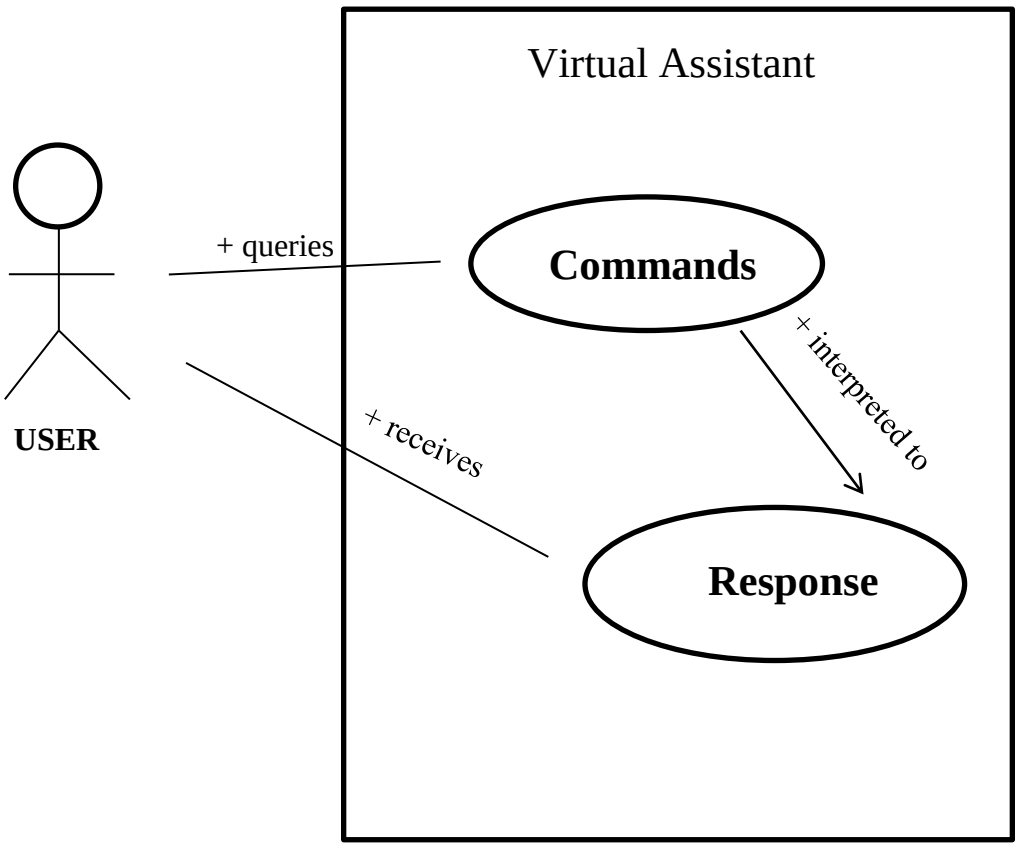
3.2 Activity Diagram



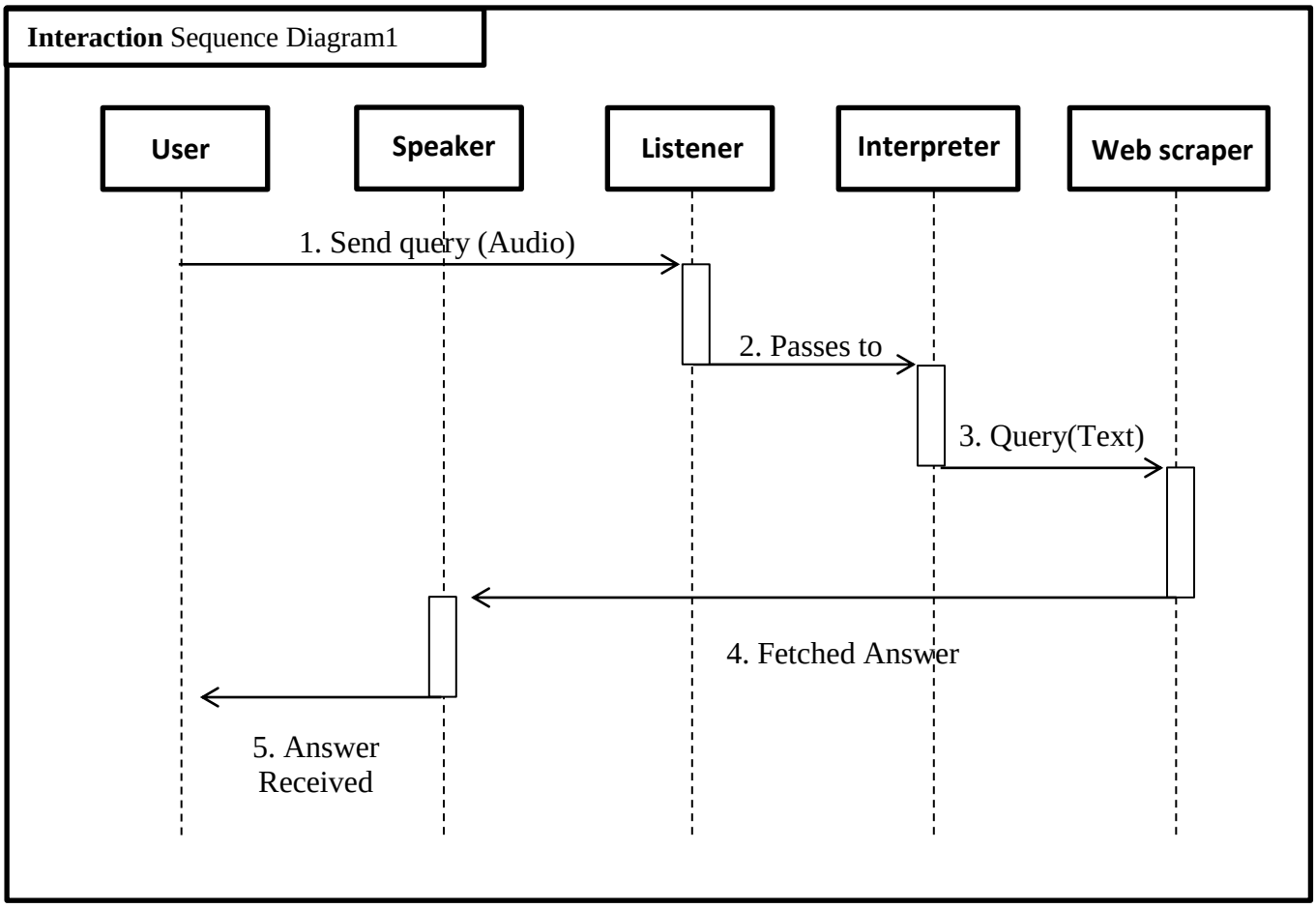
3.3 Class Diagram



3.4 Use Case Diagram



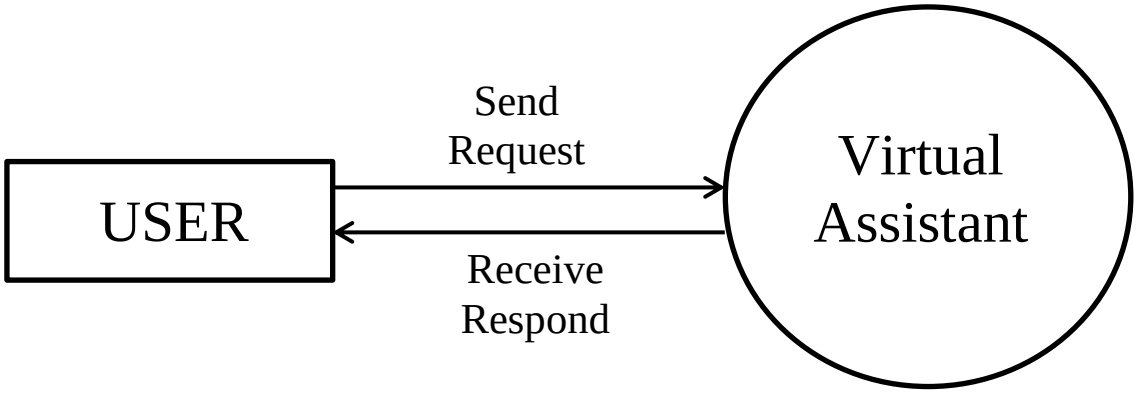
3.5 Sequence Diagram



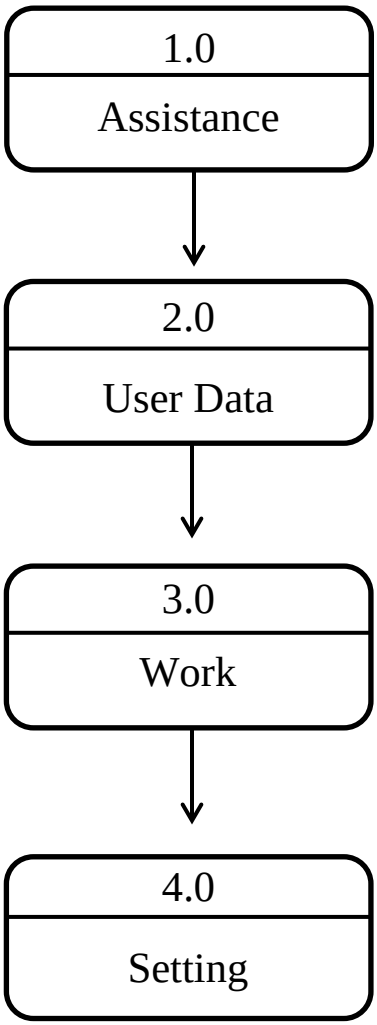
The above diagram shows how an answer questioned by the user is fetched from internet. The audio query is taken and sent to Web scraper (Website). The Website searches and finds the answer. It is then sent back to speaker.

3.6 Data Flow Diagram

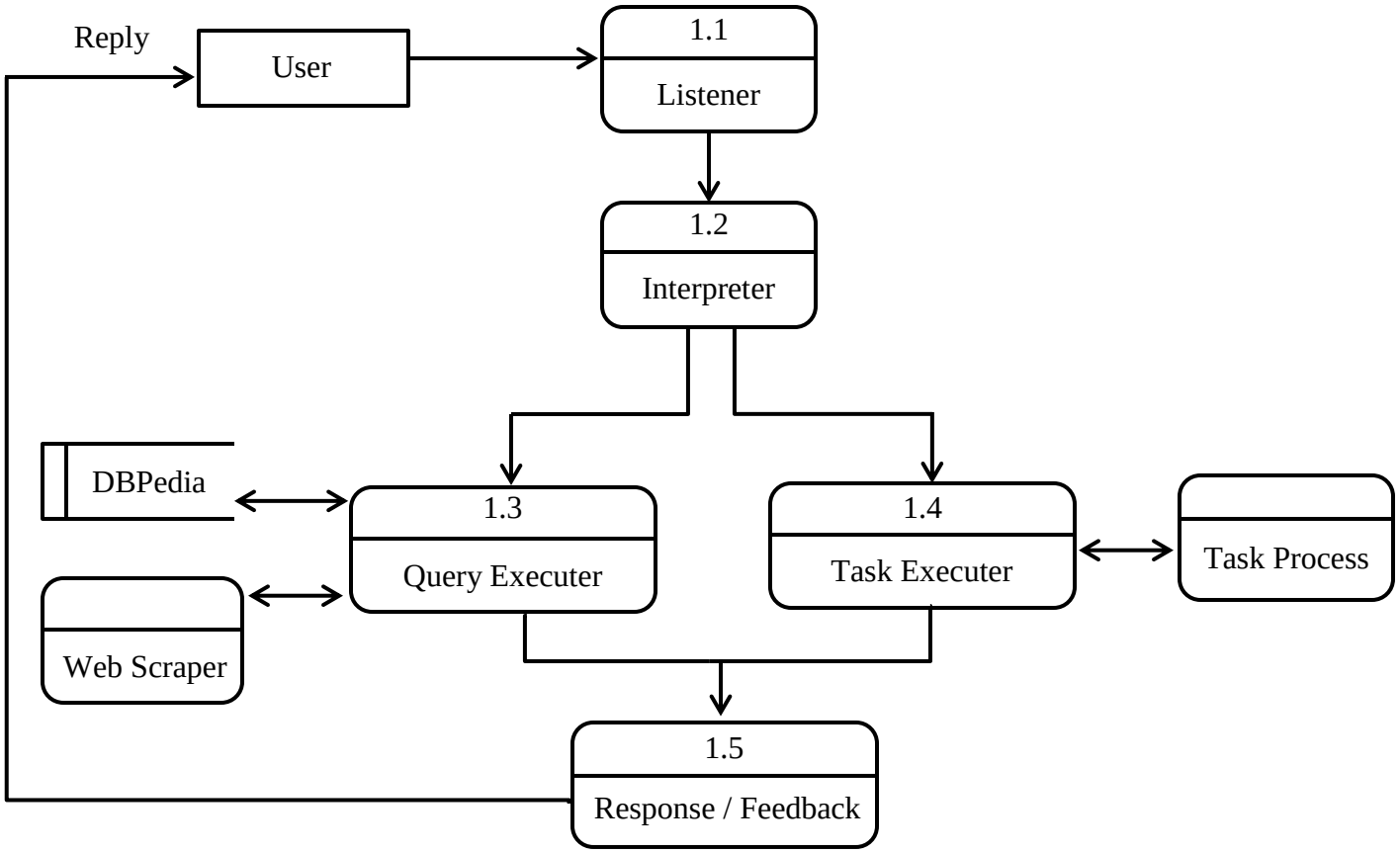
4.6.1 DFD Level 0 (Context Level Diagram)



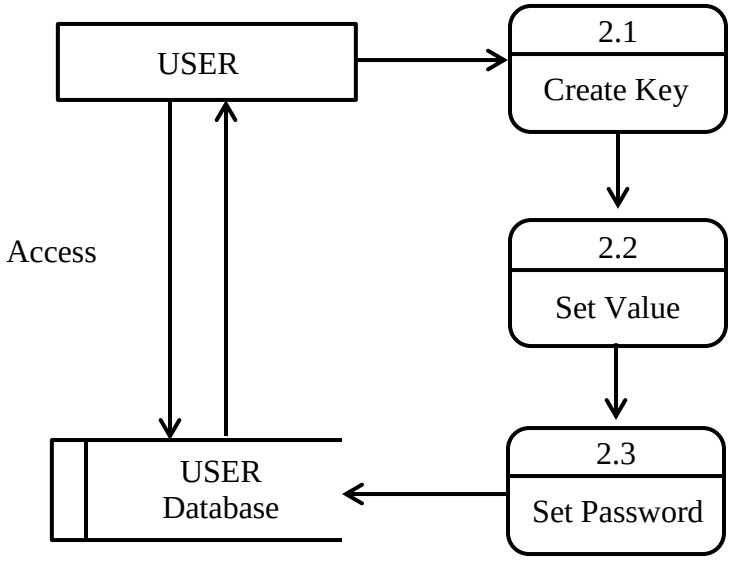
4.6.2 DFD Level 1



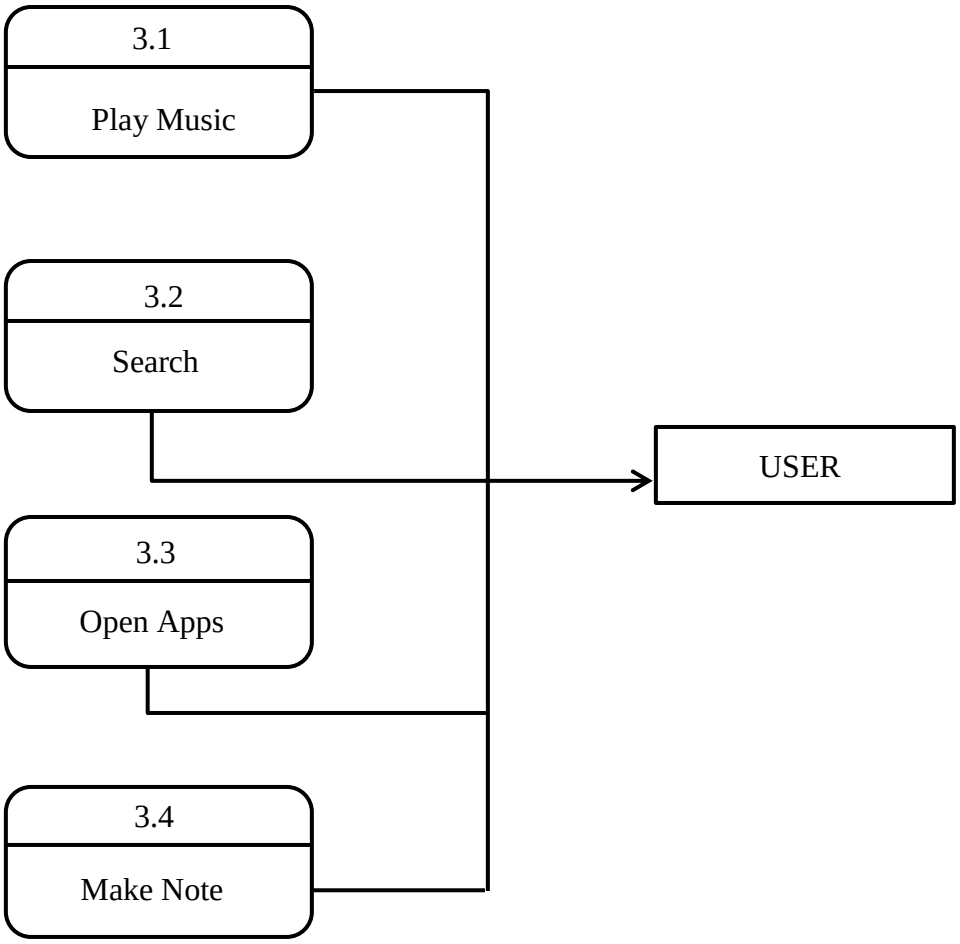
4.6.3 DFD Level 2



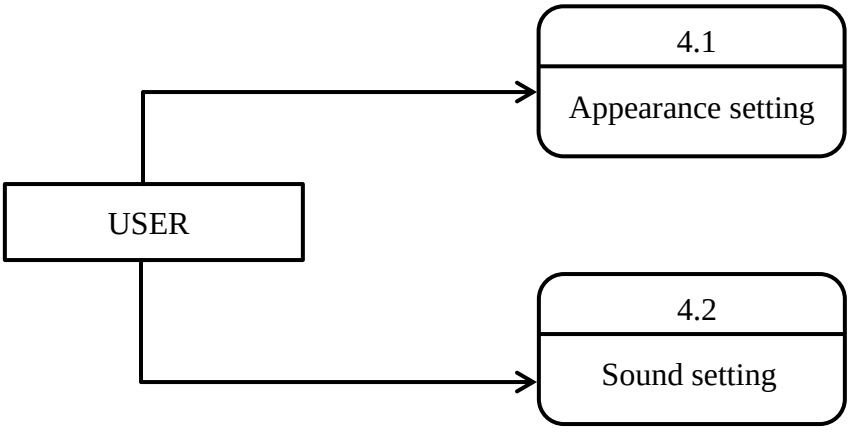
Data Flow in Assistance



Dataflow for User Data



Data Flow in work



Dataflow in setting

4 Data Dictionary

User

Key	Text
Value	Text
Lock	Boolean
Password	Text

Question

Qid	Integer PRIMARY KEY
Query	Text
Answer	Text

Task

Tid	Integer PRIMARY KEY
Status	Text (Active/Waiting/Stopped)
Level	Text (Parent/Sub)
Priority	Integer

Reminder

Rid	Integer PRIMARY KEY
Tid	Integer FOREIGN KEY
What	Text
When	Time
On	Date
Notify before	Time

Note

Nid	Integer PRIMARY KEY
Tid	Integer FOREIGN KEY
Data	Text
Priority	Integer

5. Conclusion and Future Enhancement.

The virtual assistant is a command line - web based application developed using python. Also because of the use of Py-Audio and Speech recognition, it looks very adorable. User can easily handle this application. This is modern type of artificial intelligence technique.

❖ Future enhancements to this project include a number of things.

- Firstly, we will try to build multiple more function like play games, connect to social media.
- We will try adding more security queries, like to build face recognition system.
- the main purpose of Future enhancement is that we will mostly try to design UI for this system

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    2. Edureka!