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## Software Engineering Project

### Virtual Assistant

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## OVERVIEW :

A virtual assistant is an application program that understands natural language voice commands and completes tasks for a user, while providing a variety of remote services to a business. Virtual assistant chatbots combine virtual assistant services with chatbot functionality.

## AIM :

Our aim is to develop a virtual assistant application for desktops which would listen to the voice commands and perform the required actions, accordingly.

## Reasons for Selection:

Computers have become a very important devices and as well as less expensive over time.

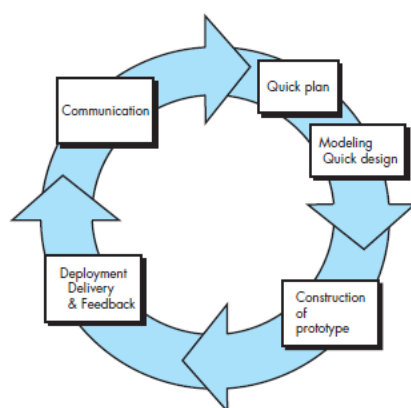
The virtual assistant would be handy to take quicker actions to complete simple tasks in the

computer without the need of typing, thus it would simplify tasks and save time.  
can be use to automize various tasks like sending a message, opening or closing an application, playing music, search something over internet, etc.

### Process Model:

Process model used for our application is **Prototyping Model**. Prototyping is defined as the process of developing a working replication of a product that has to be engineered. It is used for customer feedback. It is one of the most popular model.

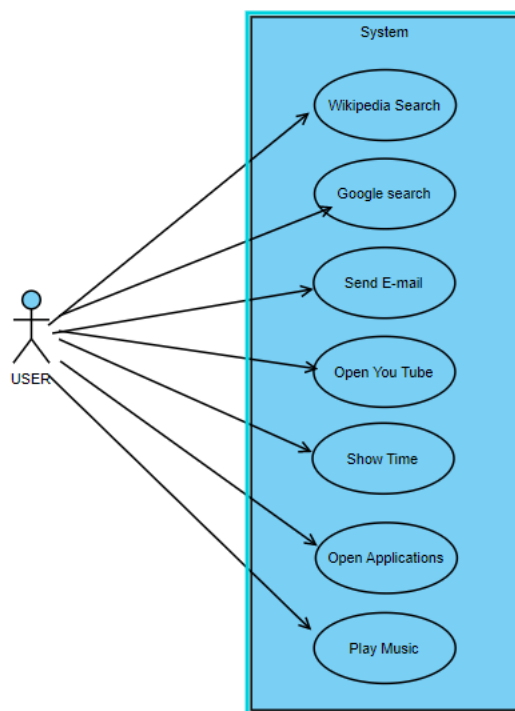
This model is developed when the customer do not know the exact requirements. In this model, a prototype of the end product is first developed, tested and redefined as per user reviews till the final project is achieved.



- Advantages of Prototyping model

1. The customer gets to see the partial project early in the life cycle. This ensures a greater level of customer satisfaction.
2. New requirements can be easily found and added.
3. It helps in finding bugs and other issues and resolve them.
4. This model provides flexibility of adding new functionalities without affecting the already existing one.

### Use Case Diagram:



Use case diagram for Virtual Assistant

## 4. Use Case Diagram:

### 4.1 : Wikipedia Search

- **Brief Description** : The case is used to search some info on Wikipedia.
- **Actor** : User, Website Provider
- **Flow of Events** :
  1. **Basic Flow** :
    - a. The user will search for any name, place.
    - b. It will open the page in Wikipedia where this information is present.
  2. **Alternative Flow** : In case the software is unable to listen user properly, it might search for something else or might not search anything.
- **Pre-condition** : None
- **Post-condition** : If the use case is executed successfully, user is provided with required information.

### 4.2 : Google Search

- **Brief Description** : This case is used to open the google webpage.
- **Actor** : User, Website Provider
- **Flow of Events** :
  1. **Basic Flow** :

- a. User will ask program to open google webpage.
- b. It will see if the webpage is available and open accordingly.

**2. Alternate Flow :** In case the software is unable to listen user properly, it might be unable to open the webpage.

- **Pre-condition :** None
- **Post-condition :** After successful execution, the user will get the google search result.

#### 4.3 : Send E-mail

- **Brief Description :** The case shows how user can send e-mail to someone.
- **Actors :** User, Receiver
- **Flow of Events :**
  - 1. Basic Flow :**
    - a. Actor asks to send an e-mail.
    - b. He tells the credentials of the receiver.
    - c. If receiver is available then mail is sent.
  - 2. Alternative Flow :** If there is error in credentials then it asks user to again enter the details.
- **Pre-condition :** Sender's and receiver's e-mail.
- **Post-condition :** The mail is sent successfully.

#### 4.4 : Show Time

- **Brief Description :** The case is used to see the current time.
- **Actor :** User

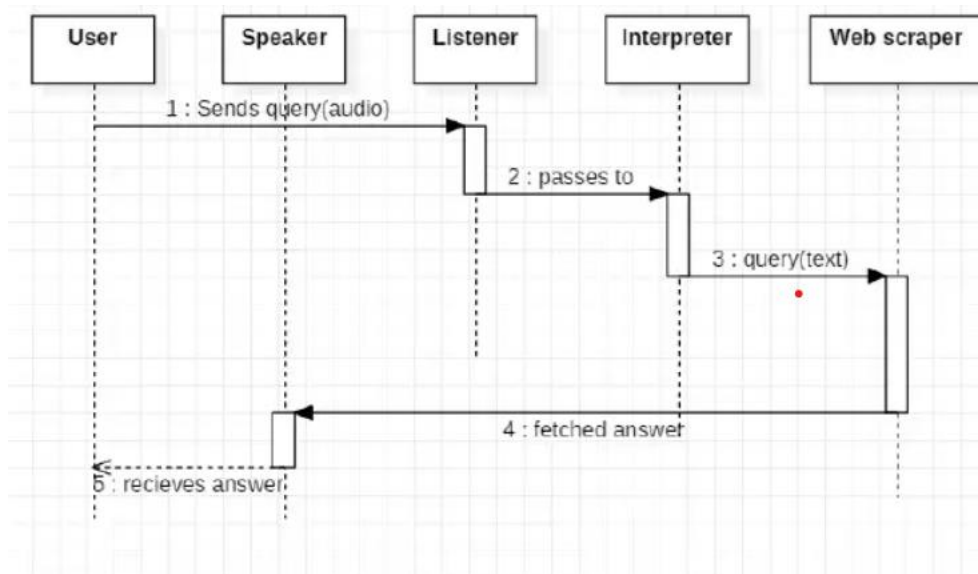
- **Flow of Events :**
  1. **Basic Flow :**
    - a. User will request for current time.
    - b. The Software return current time.
  2. **Alternative Flow :** There might be some error while listening to command and it might not be able to respond according to request.
- **Pre-condition :** None
- **Post-condition :** Current system time is displayed.

#### 4.5 : Open Applications

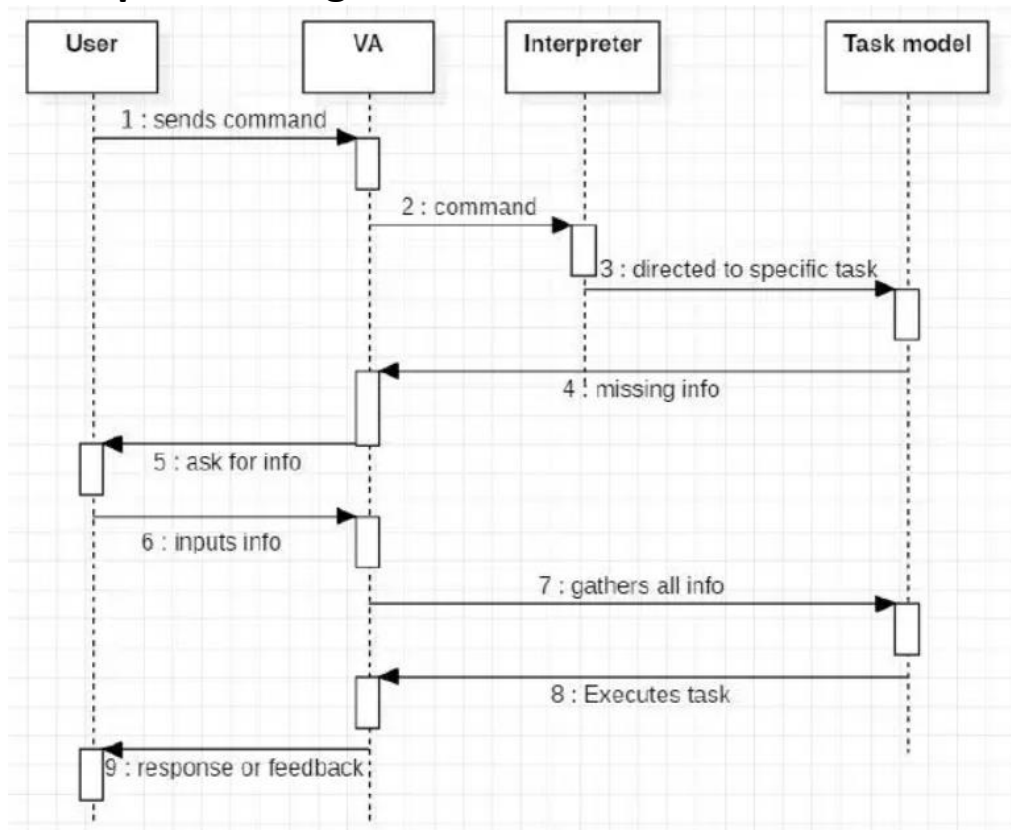
- **Brief Description :** The case is used to open a application on the system.
- **Actor :** User
- **Flow of Events :**
  1. **Basic Flow :**
    - a. The user will request to open a specific application.
    - b. The software will search for the launcher of application and run it.
  2. **Alternative Flow :** In case the software is unable to find the launcher/executable file , the application is not opened.
- **Pre-condition :** The application must be Present in the device.
- **Post-condition :** The application is open for user to use.

#### 5. Sequence Diagram :

### a. Sequence Diagram for Query response.



### b. Sequence Diagram for task execution.





## **6. Data Dictionary :**

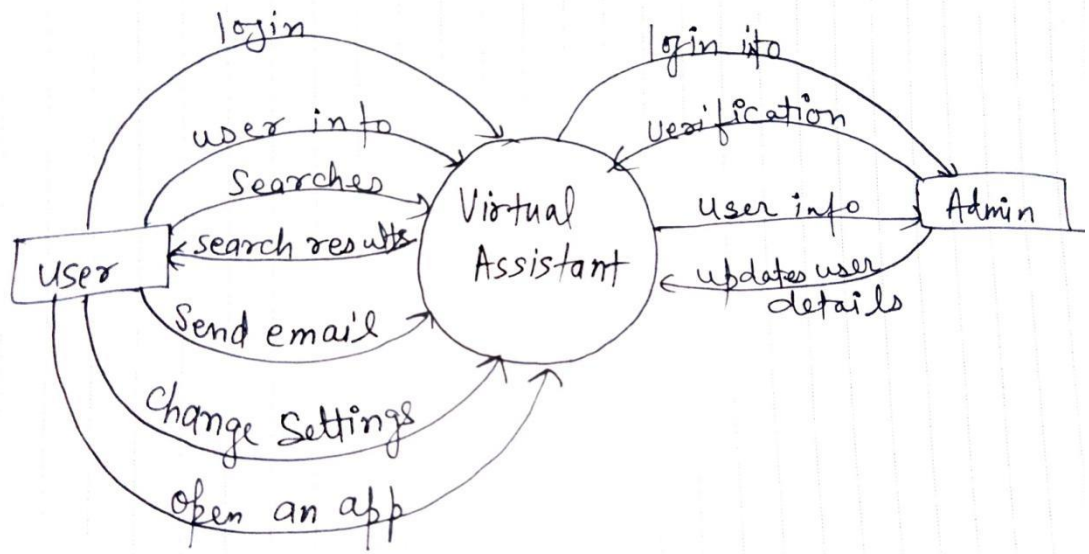
The data dictionary provides an organized approach for representing the characteristics of each data object and control item. A data dictionary is important in software development because:

- A data dictionary lists standard terminology for use by an engineer.
- It defines data structures in term of their component element.

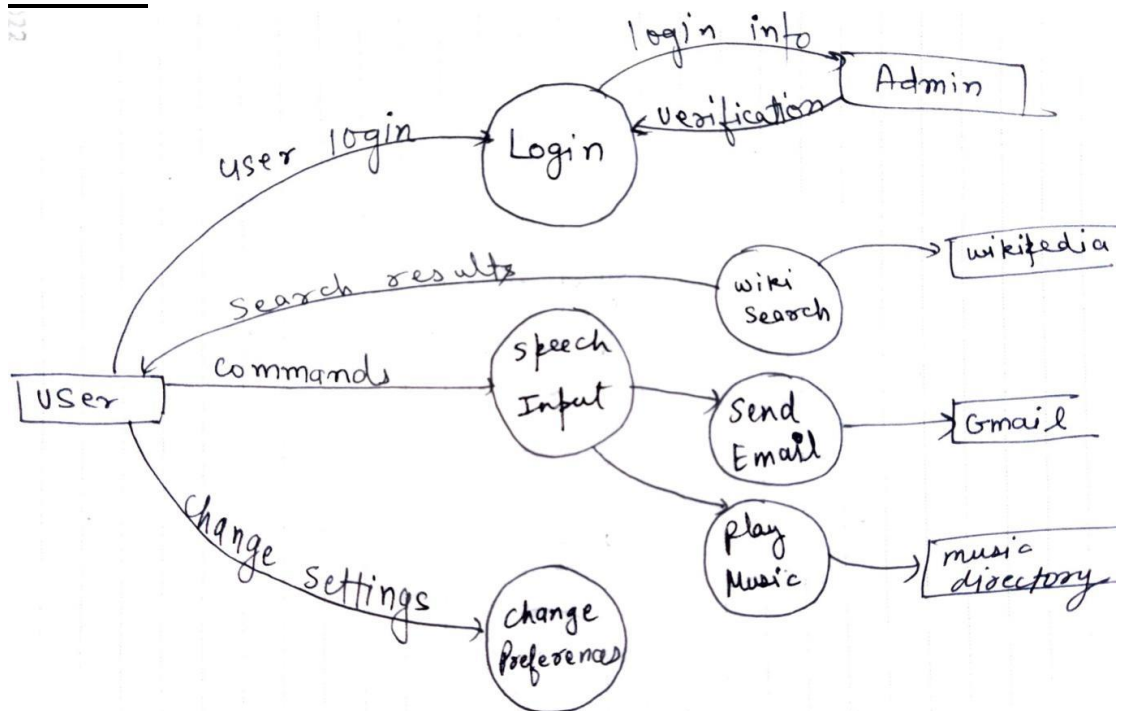
<b>Data</b>	<b>Description</b>
Login	Username + Password
Wikipedia Search	Search Query
Play Song	Song name
Time	Date and Time
Send E-mail	Sender's mail + content + Receiver's mail

## **7. Data Flow Diagram :**

### **a. Level-0**

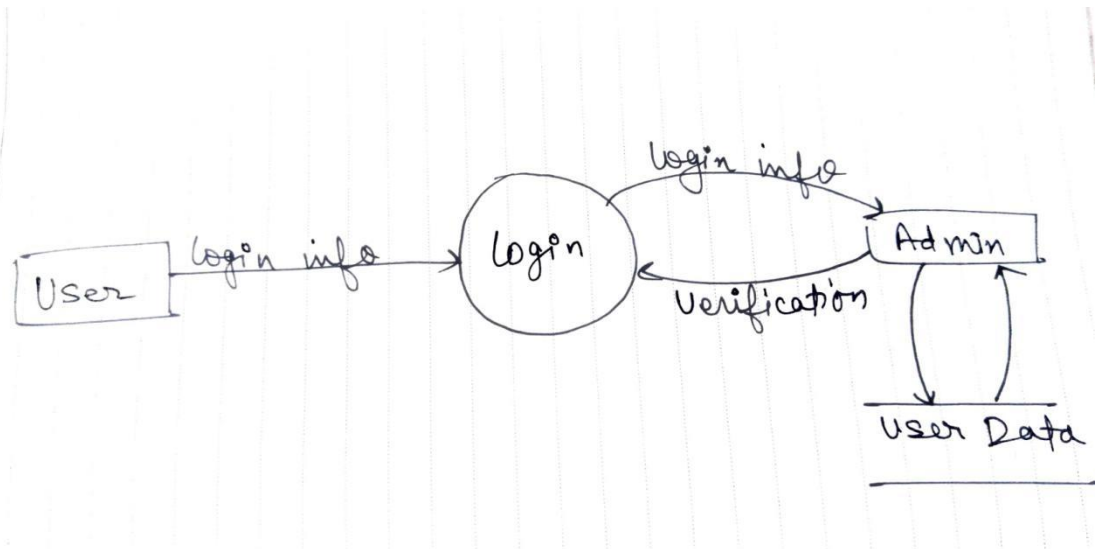


## b. Level-1

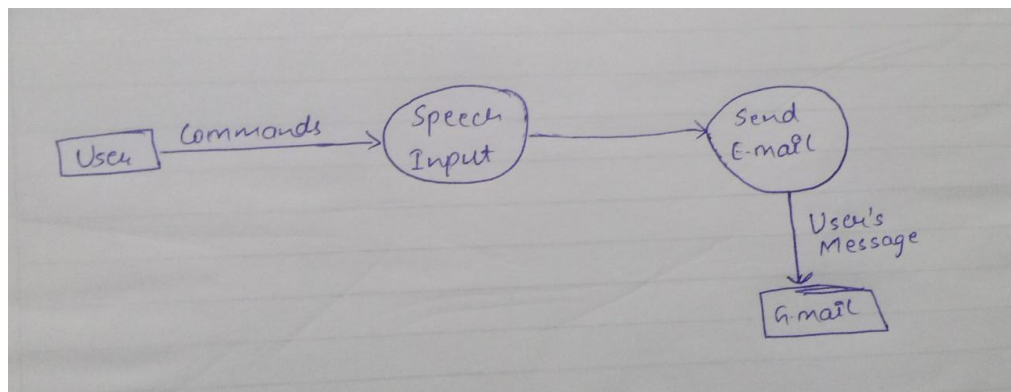


## c. Level 2-DFD

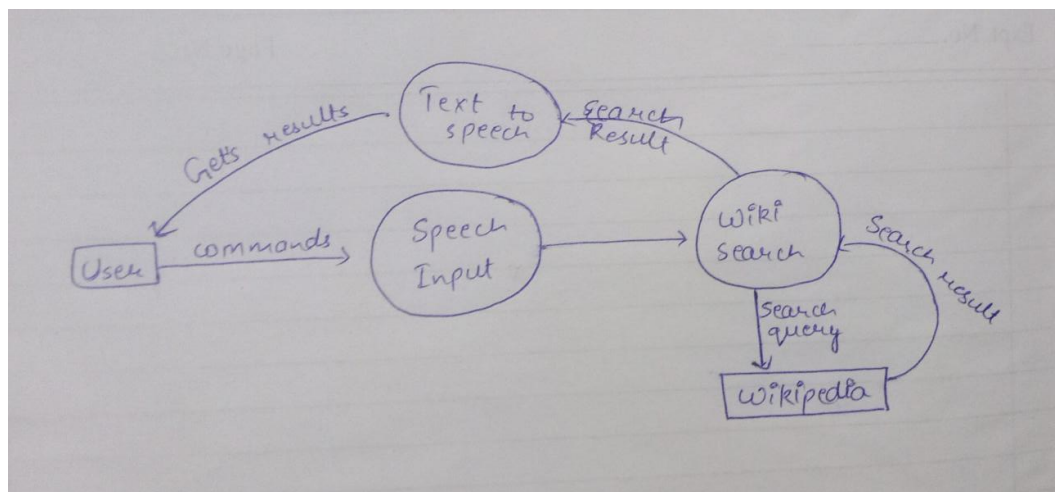
### 1. Login



## 2. Send Email



## 3. Wikipedia Search



## **8. System Requirements Specifications :**

### **1. Introduction:**

The purpose of this SRS document is to provide a detailed overview of the personal voice assistant. This describes applications audiences and its user interface, hardware and software requirements. It defines how the user interact with the features of application. Also, it helps any software developer in Software Development Life Cycle process.

#### **1.1. Purpose:**

This document provides an overview of the final product and assures the project management stakeholders and client that the product meets user demands.

#### **1.2. Scope:**

This system mainly focuses on providing a virtual assistant which works according to user command. With this system user can send mail just by commanding. They can play any song, or open any application. This application helps user in efficiency.

#### **1.3. References:**

- Pressman, R.S., & Maxim, B.R. (2015). Software Engineering

#### 1.4. Overview:

The remaining sections of this documents provide a general description, including characteristics of user of this project, product's hardware and functional requirements.

### 2. Overall Description:

The software project allows the user to perform any action just by his voice. This provides feature to search any query on internet or play songs as per user demand.

#### 2.1. Product Perspective:

The application will be a window-based, it is neither self-contained nor independent.

- System Interface:

None

- User interface:

The application has a user-friendly interface. It has a simpler listener module which listens to use inputs. It opens new tabs and windows according to the command.

- Hardware Interface:

➤ The application may need internet so the device shall be connected to internet via: modem, LAN, etc.

- Minimum 2 GB RAM.
- 500 GB hard disk storage.
- Intel Pentium or higher processor.
- Software Requirements:
  - Windows 7 or above
  - Python 2.7 or later
  - Chrome Driver
  - SQLite
- Product Functions:
 

The assistant should provide a variety of functions, some of these are:

  - Providing information such as weather, facts from e.g., Wikipedia etc.
  - Set an alarm or make to-do lists and shopping lists.
  - Remind you of birthdays and meetings.

Play music from user database.

### 3. Specific Requirements:

#### 3.1. User Requirements:

- **Technical Expertise:** User should be comfortable using general computer applications.
- **Language:** User should be comfortable with English language.
- **Knowledge:** User should have basic knowledge regarding what he wants assistant to perform.

#### 3.2. Performances Requirements:

- High data transfer rate.
- Should be able to act very quickly for every command.
- Data connection should be available.
- Mic. Should also be available.

### 3.3. Logical Database Requirements:

- The application communicates with internet databases.
- The database is used to search for something on internet.
- It also communicates with device database which is used while searching for something through the device.