A PROJECT ASSIGNMENT ON

NOVA: THE VOICE ASSISTANT

GROUP MEMBERS

1.CHOUDHARI PRANIL ANIL (6428)
2.CHAVAN BHUSHAN PRAKASH (6422)
3.CHAVAN ROHIT RAJENDRA (6426)
4.HARNEKAR ASAD NURUL AMIN (6446)

Table of Contents

VOICE ASSISTANT:

1.1 TIME MANAGEMENT

As We came up with an idea of creating our own personal voice assistant which can be very fulfilling work for self-motivated people, so long as we manage our time effectively. our aim was being organized is the key to keeping our work-life balance in check . We've determined which strategies work for us, and which aren't as helpful. we'd like to share our time management tips, which are great both in general, and specifically for those doing voice assistant work.stay focused, getting more work finished in less time overall.we also try to only do online meetings 2 days a week at most, usually Tuesday through Thursday, leaving Monday to focus on organizing our week and Friday to wrap up any loose ends or other assignment works

- ➤ So as We Gathered in our College or just met in person we atleast discussed 3 hours a day as there was very limited time of 1 months with all other Works, Exams to go on.
- ➤ Lets discussed What we did in 3 hours.
- ➤ So Lets get in detail , in 1ST hour we did Information Research about How we can Create Our Own Voice Assistant and how it would be Beneficial for others too, by Studying various things from Web , Youtube, Books etc.
- ➤ In 2ND hour we focused on coding where we understand that how it will work, which packages and with which Language it could be Developed.
- ➤ In last hour we discussed about the Testing thing which is more important to see that are We Really Fulfilled with our work by Checking Errors of Code and by testing various command and as deadline came closer our intensity increase to give our Best and 100% Work on our project

1.2 ROLES & RESPONSIBILITIES :

NO	NAMES	ROLES	RESPONSIBILITIES
1	PRANIL CHOUDHARI	CODING	Writing efficient, reusable, testable, and scalable code Working with Python libraries like pyttsx, pywhatkit,selenium etc. Enhancing the functionalities of current software systems Developing Backend components to enhance performance and receptiveness, server-side logic, and platform
2	BHUSHAN CHAVAN	INFORMATION RESEARCH	The purpose is to support the planning of our project's work to become more fully inclusive. which command to add what is necessary in voice assistant is there any alternative source and what feature & function is helpful or not Use the library's catalog system to search for titles that relate to your topic.

3	ROHIT CHAVAN	DOCUMENTATION RESEARCH	Monitoring the progress Establish project goals Host discussions with stakeholders Compile notes on the project requirements Review requirements with team members Develop and assign tasks
4	ASAD HARNEKAR	TESTING	Before they begin performing any tests, Testers will need to review and analyze the specifications of their company's software Execute Tests Document Bugs Troubleshoot Issues Re-Test Software Plan and execute the software testing process

1.3 GANTT CHART :

Task Name	Start (Date)	End (Date)	Duration (Days)
Research Work	11-04-2022	15-04-2022	4
Sample Data Collection	13-04-2022	20-04-2022	7
Create Plan	14-04-2022	18-04-2022	4
Schedule Work	17-04-2022	24-04-2022	7
Model Coding	22-04-2022	29-04-2022	7
Installation Construction	26-04-2022	04-05-2022	8
Feature Extraction	26-04-2022	02-05-2022	6
Testing and Debugging	02-05-2022	05-05-2022	3
Documentation	26-04-2022	05-05-2022	9
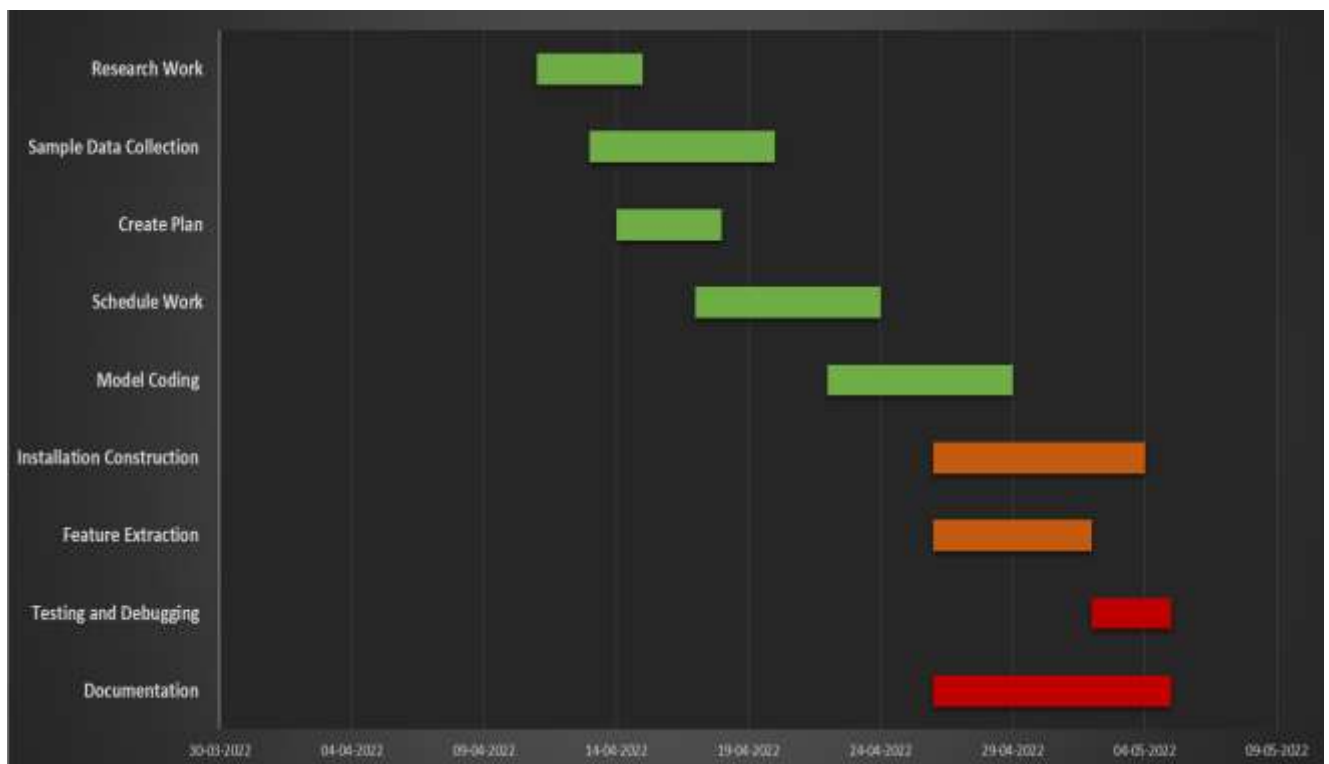
2 .EVALUATION CHOICE OF TECHNOLOGY:

The technologies that power virtual assistants require massive amounts of data, which feeds artificial intelligence (AI) platforms, natural language processing and speech recognition platforms. As the end user interacts with a virtual assistant, the program uses sophisticated algorithms to fulfill end user's needs .Python is used in new technologies for development of advanced applications.

So we use python language as it contains modern and advanced packages to add automations and to implement latest features .

The core libraries of python which we used to implement voice processing are :

➢ **Python Speech Recognition** : For converting the audio into text Speech Recognition is the process, which is used in the voice assistant . Python provides an API called **SpeechRecognition** to allow us to convert audio into text for further processing.

➢ **Python Text To Speech v3 (Pyttsx3)**: This library is a text-to-speech conversion library in Python. This library works offline.

➢ **Python Audio (PyAudio)**: PyAudio allows you to quickly play and record audio on a number of devices using Python.

3.UI ELEMENT CHOSEN TECHNOLOGY :

➢ The UI used for this project is very simple , So that for the new users or the exsisting cortana users the UI will be user friendly .

➢ It uses tkinter library for information gathering and provides an easy-to-use interface for login .

➢ Listning , recognizing and output stages are displayed while user

➢ User interface includes blackbox contents and admin has the access to whitebox contents .

4. EVENT HANDLING :

❖ First of all the username and password are accepted from user ,it is not compulsory that user must enter it . If user didn't enter the login credentials then the user may not be able to use premium features but he/she can use various basic features other than the automation.

❖ The command listening and recognizing is done in loop and is achieved using a infinite while loop , it takes the command processes it , understand it and gives the required output simultaneously .

❖ The request which is given by user is compared with the functions our voice assistant can perform using nested or combinations of "IF , ELIF " statements .

5.DATA HANDLING :

❖ In this system the user command which he/she speaks is stored in the File in which system is stored , for the better understanding of your voice . i.e next time it processes only your voice rather than processing background person's voice and it becomes more accurate as much as you use it .

❖ Data handling in our system is also achieved by combinations of "IF , ELIF " statements , as the data (command) taken by user is compared with system's features and system provides the required outputs.

❖ The login credentials (login DATA) which are provided by the user is stored in a GLOBAL variable so that they can be traversed anywhere in the program and can be used anytime in any function .

6. ONLINE AND OFFLINE CONNECTIVITY :

➢ Our system is completely online based and requires good internet connection for all the features to work.

➢ While offline you can perform tasks which do not require an internet connection like opening a file, playing music form local device etc.

➢ You will not be able to send messages , emails ,play youtube videos, translate, search, join meet, open websites etc. and many other useful features.

➢ If your device is not connected to the internet following pop up message is displayed : ' Error while connecting to the Internet. Make sure you are connected to the Internet! ' and the execution ends.

8 . DEPLOYMENT CONSIDERATIONS / REQUIREMENT SPECIFICATION :

- Good internet connection

- Operating system : Windows 7 or later .

- Chromium-based browser, like Chrome, Edge.

- Microphone and speaker access.

- Google Account username and password for using premium features.

- Non-functional requirements include project is compact and responsive, light on resources, system ensures safety, security and usability, which are observable during operation (at run time).

- Recommended PC specifications are Intel i5/Ryzen 5 and 4 GB RAM or more. As the system has to open browser tabs ,execute tasks and give response in least time.

- Minimum PC specifications: Pentium-pro processor or later. RAM 512MB or more.
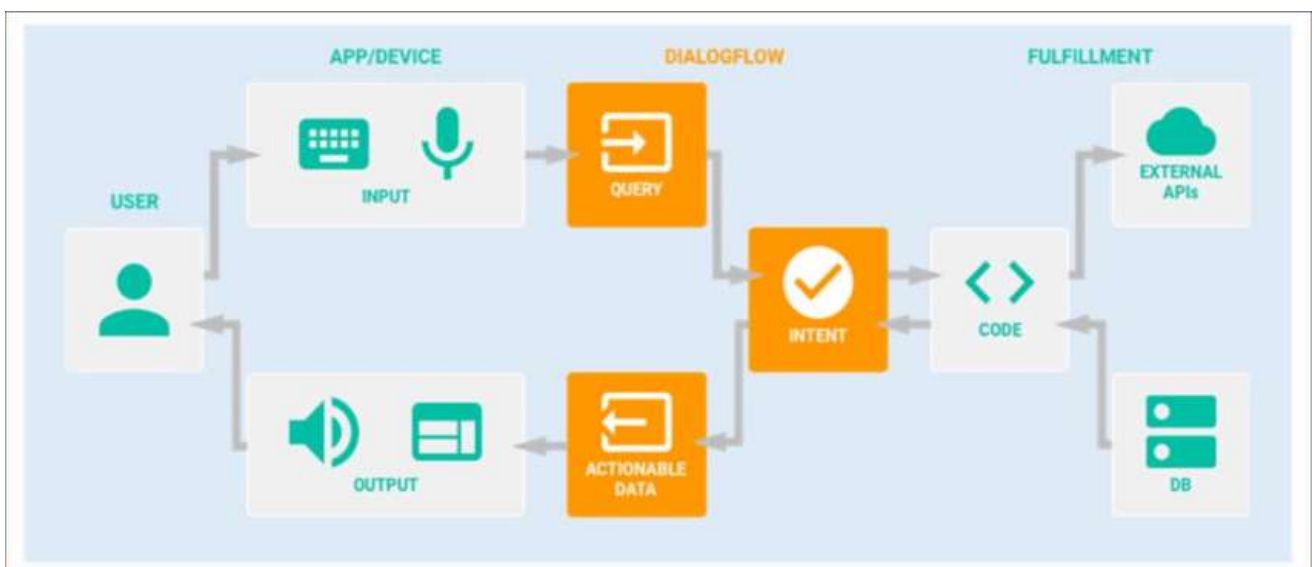
9 . TEST CASES :

Following report is the test case report for the starting login page of our system .

Test Case ID :	N9022195		Designed Date :	15-05-2022		Designed By :	Pranil Choudhari
Test Case Name :	login window		Created Date :	16-05-2022		Created By :	Rohit Chavan
Test Case Descript	functionality of window		Executed Date :	17-05-2022		Executed By :	Asad Harnekar
Priority :	high						

STEP NO	ACTION	INPUT	EXPECTED O/P	ACTUAL OUTPUT	STATUS	COMMENTS	
1	RUN THE EXECUTABLE FILE OF THE SYSTEM.	ICON	OPEN THE NOVA VOICE ASSISTANT APPLICATION	OPENS APPLICATION	**PASS**	OPENS THE APPLICATION	
2	SELECT THE OPTION "CONFIRM TO ENTER "	PRESS THE BUTTON "CONFIRM TO ENTER"	NEW WINDOW OPENS AND DISPLAYS THE FORM TO ACCEPT THE USERNAME AND PASSWORD	NEW WINDOW OPENS AND DISPLAYS THE FORM TO ACCEPT THE USERNAME AND PASSWORD	**PASS**	LOGIN FORM OPENS AS NEW WINDOW	
3	ENTER THE USERNAME AND PASSWORD	ENTER VALID USERNAME AND VALID PASSWORD	ACCEPTS THE USERNAME AND PASSWORD	ACCEPTS THE USERNAME AND PASSWORD	**PASS**	CHECKS IF CORRECT OR NOT AND THEN PROCEEDS TO THE FURTHER EXECUTION .	
4	ENTER THE WRONG USERNAME	ENTERING THE VALUE WHICH DOESNOT CONTAINS THE SEQUENCE : ^[a-zA-Z0-9+_.-]+@[a-zA-Z0-9.-]+$	ACCEPTS THE USERNAME AND PASSWORD	DECLINES THE LOGIN REQUEST AND POPUP A MESSAGE "USERNAME IS INVALID"	**FAIL**	AS THE REQUIREMENT OF EMAIL I.E EG :ABC12@GMAIL.COM DOES NOT SATISFIES IT REJECTS THE LOGIN AND ASKS TO RE ENTER THE USERNAME	
5	SELECT THE OPTION "OK"		ACCEPTS THE USER CREDENTIALS AND RUNS THE ACTUAL CODE	ACCEPTS THE USER CREDENTIALS AND RUNS THE ACTUAL CODE	**PASS**	BY PRESSING THIS YOU ARE LOGGED INTO PREMIUM ACCOUNT	
6	SELECT THE OPTION "CLICK TO EXIT"	PRESS THE BUTTON "CLICK TO EXIT"	EXITS THE FORM AND RUNS THE ACTUAL CODE WITHOUT PREMIUM FEATURES	EXITS THE FORM AND RUNS THE ACTUAL CODE WITHOUT PREMIUM FEATURES	**PASS**	EXITS THE LOGIN OPTION AND PROVIDES YOU THE FREE BASIC VERSION EXPERIANCE	

9.1 TEST CASES FOR OVERALL EXECUTION :

- **Test Case 1**

Test Title: Response Time

Test ID: T1

Test Priority: High

Test Objective: To make sure that the system respond back time is efficient.

Description: Time is very critical in a voice based system. As we are not typing inputs, we are speaking them. The system must also reply in a moment. User must get instant response of the query made.

- **Test Case 2**

Test Title: Accuracy

Test ID: T2

Test Priority: High

Test Objective: To assure that answers retrieved by system are accurate as per gathered data.

Description: A virtual assistant system is mainly used to get precise answers to any question asked. Getting answer in a moment is of no use if the answer is not correct. Accuracy is of utmost importance in a virtual assistant system.

- **Test Case 3**

Test Title: Approximation

Test ID: t3

Test priority: Moderate

Test Objective: To check approximate answers about calculations.

Description: There are times when mathematical calculation requires approximate value. For example, if someone asks for value of PI the system must respond with approximate value and not the accurate value. Getting exact value in such cases is undesirable.