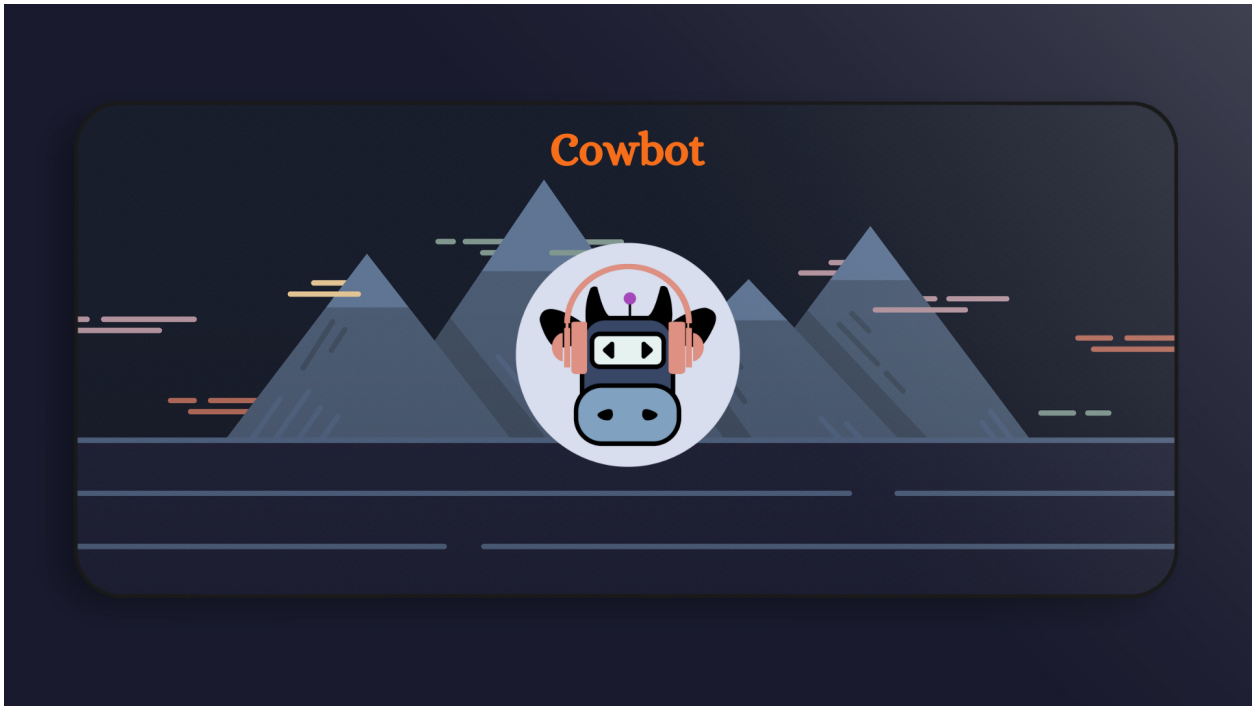

Cowbot - An AI Linux Assistant

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Batch- 41, CBA

Class- 4A, SEM- 4

Introduction

Dhenu is AI Cowbot Assistant for all Arch Linux based distributions (x64). Being capable of doing many things on demand, she can guide & assist you on your machine.

Purpose

Generally, everyone wants an assistant to make their work easy. So applies to the operating systems. Android has Google, Amazon has Alexa, Apple has Siri, Windows has Cortana, but what about Linux?

Our purpose is to provide linux users, an AI based assistant which can guide and assist them whether they are beginner or advanced users, desktop or server users.

Scope

- There are 32.8 Million worldwide linux desktop users, about 2.09% of market share near to 2.18% of Chrome OS for desktops/laptops.
- 13.6% of the server market for Linux, leading the market after Windows.

General - Description

Problem Statement

There are many Mac and Windows users switching to Linux nowadays, as they are beginners it can be challenging for them to get used to it. Because for Linux beginners, a lot of commands are difficult to remember and use. And existing users also want something simpler, say Cowbot to learn also and efficiently use their Linux systems with on demand AI help as their personal assistant.

Existing System

There is a virtual assistant J.A.R.V.I.S presently, but it has its own limitations :

1. Limited Functionalities.
2. Not user-friendly.
3. Doesn't offer customization.

Proposed System

We have proposed a system with TUI (Terminal User Interface) which can be used as a CLI (Command Line Interface) and GUI also (Graphic User Interface) with 100% support, which makes it easier for the users working on desktop as well as servers.

Product Functions

Our Cowbot is proposed with the following functionalities (and much more):

1. **Google search from terminal.**

   Input : keyword/s to search

2. **Intelligent AI based suggestions.**
3. **Wiki Mode (ChatGPT free on terminal only)**
4. **User Customization for different functionalities (*premium)**
5. **Voice Output Feature (*premium)**
6. **Video search on your terminal**

   Input : keyword/s to search

7. **Manage efficiently history of commands via DBMS**

   Input : search or delete history and optionally date/keyword/time/interval

8. **Get time, date, month, year**

   Input : keyword like time/date/month/year

9. **Open, install or uninstall softwares**

   Input : application name

10. **Run linux commands**

    Input : commands

11. **Create/rename/delete files and folders**

    Input : file/folder name and path

12. **Open files and folders**

    Input : file/folder name and path

13. **Move/copy files**

    Input : file/folder name and path

14. **Search files on your system**

    Input : keyword to search

15. **Show network properties**

    Input : statement like show network properties

16. **Show system properties**

    Input : statement like show system properties

17. **Open default apps like browser,file manager,etc.**

    Input : open [application type]

18. **Reply basic questions like : asking her name, her work, her capability, greet her, etc.**
19. **Repeat what you say**
20. **Manage processes running on your system**

    Input : keywords like manage, process

21. **Tell you quotes which are funny or motivational**

    Input : statement containing boring/bored

22. **Reply you in a different way when she doesn't understand your input**

    Input : anything useless

23. **Run a train on your terminal**

    Input : statement containing boring/bored

User's characteristics

User Characteristic

Every user including Programmers, Gamers, Learners, Professionals, Commercial users, Server admins, Students, etc.

User Education Level Required

No educational background needed, only basic english knowledge

Constraints

System Constraints

➔ Most linux distributions have their own package management systems which we presently cannot integrate to install dependencies and our application with our configuration. So they aren't supported presently. Only Arch based distros with pacman package manager are supported presently.

Dependencies for the software

1. Python 3.9 or newer
2. MariaDB version 10 or newer or MySQL version 6 or newer must be installed and set up in the system.

Requirement Specification

Functional Requirements

1. Stable System: System Stability is a must. Stable systems handle synchronizations, Crashes etc. without affecting work related activities.
2. User Familiarity: System is easy to understand and work with regardless of experience with computers.
3. Response Time : As Linux itself is very fast the assistant should also be as fast as the system.
4. Security : Security is provided due to our application being in binary, harder to decompile the source.

Minimum Hardware Requirements for our Product

1. RAM : 2GB
2. Processor : Core 2 Duo or newer
3. NVIDIA GPU Turing or newer (for optional GPU features)

Software Requirements for our Product

OS : Arch Linux based distributions (x64)

Kernel : Arch official kernels (zen, arch, lts, hardened)

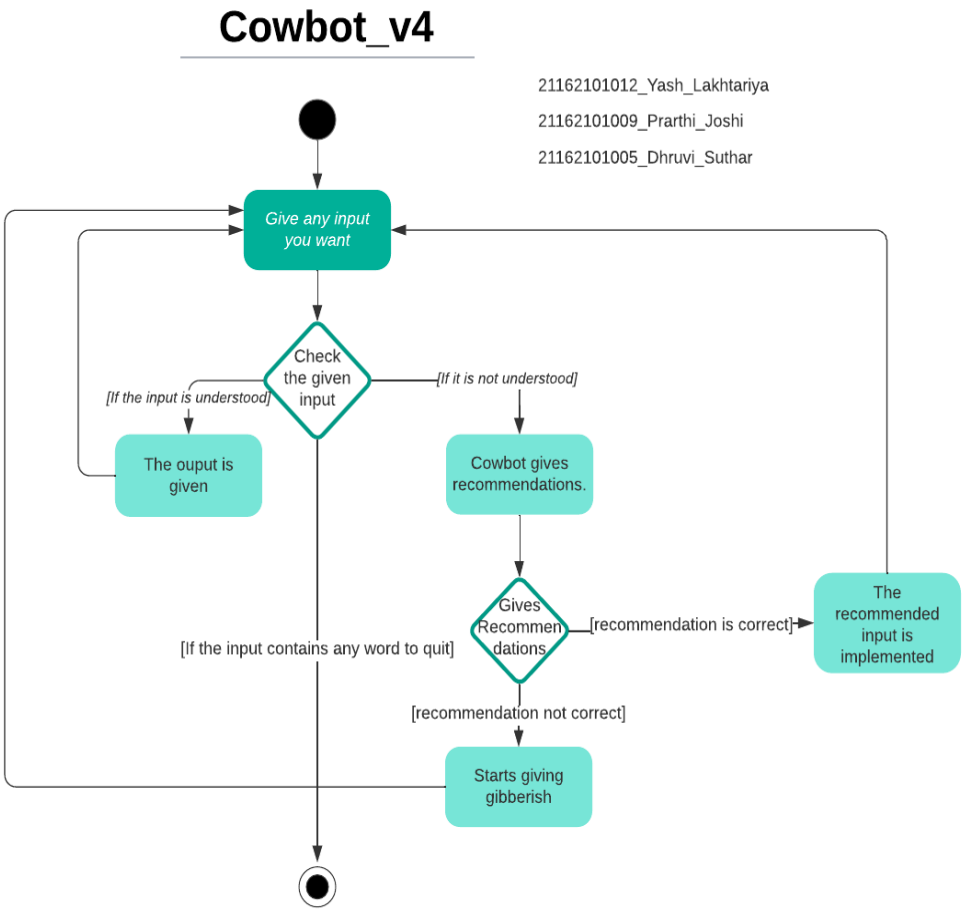
Environment : Python 3.9 or newer

Non-Functional Requirements

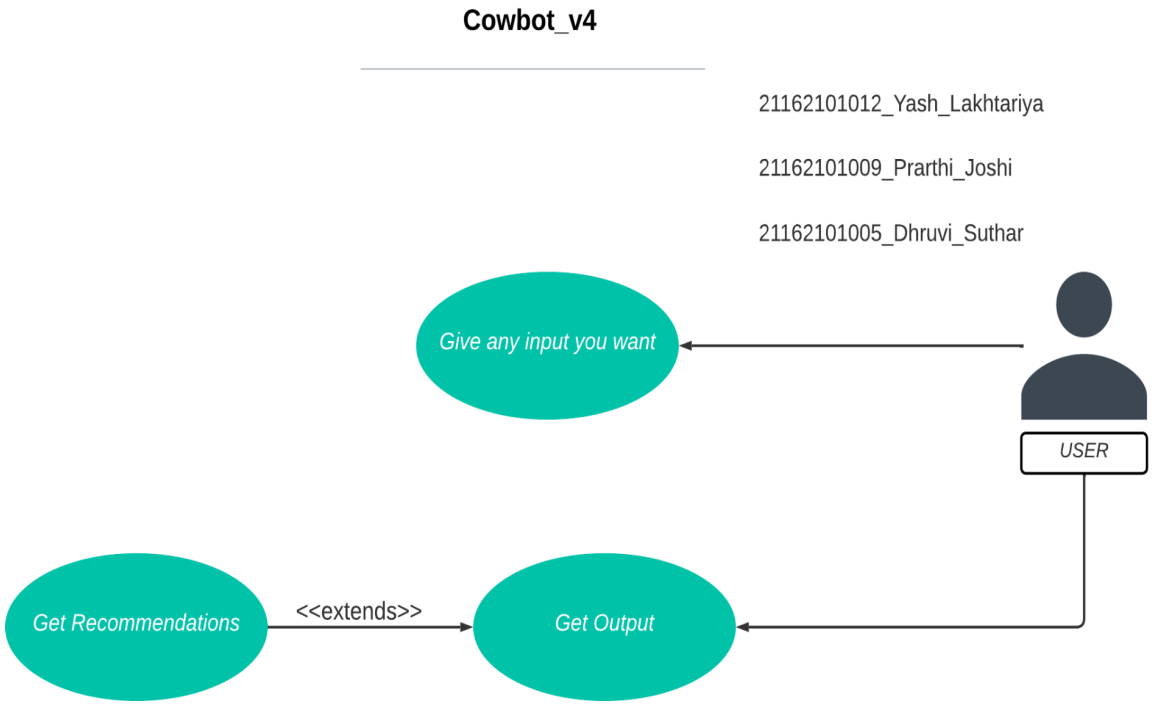
1. **Security**: Our system provides data security. All the history commands are stored in a database which is secured by password and can only be accessed by the developers.
2. **Availability**: Our application is available on Github and premium version via Telegram support system.
3. **Maintenance**: Proper maintenance and regular error checking will be conducted to ensure smooth operation.
4. **Support**: All major linux distro support is provided via Github or Mail. Personal support is provided for premium users.

UML Diagram

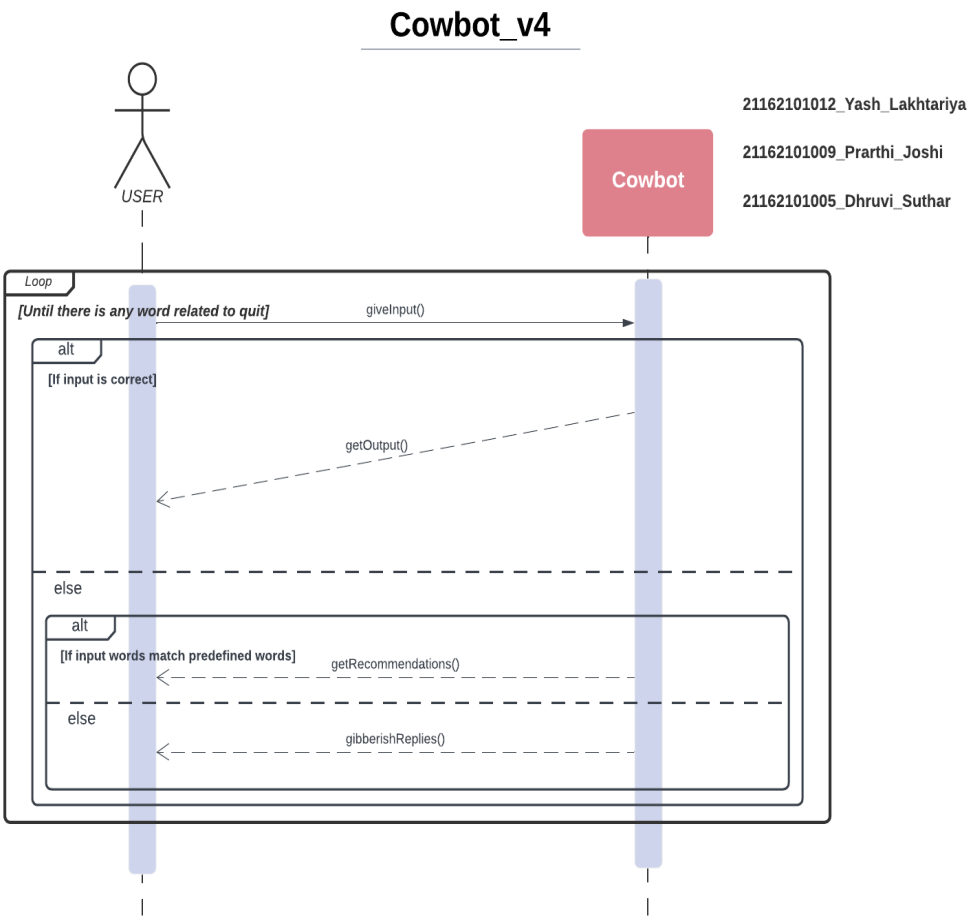
Activity Diagram



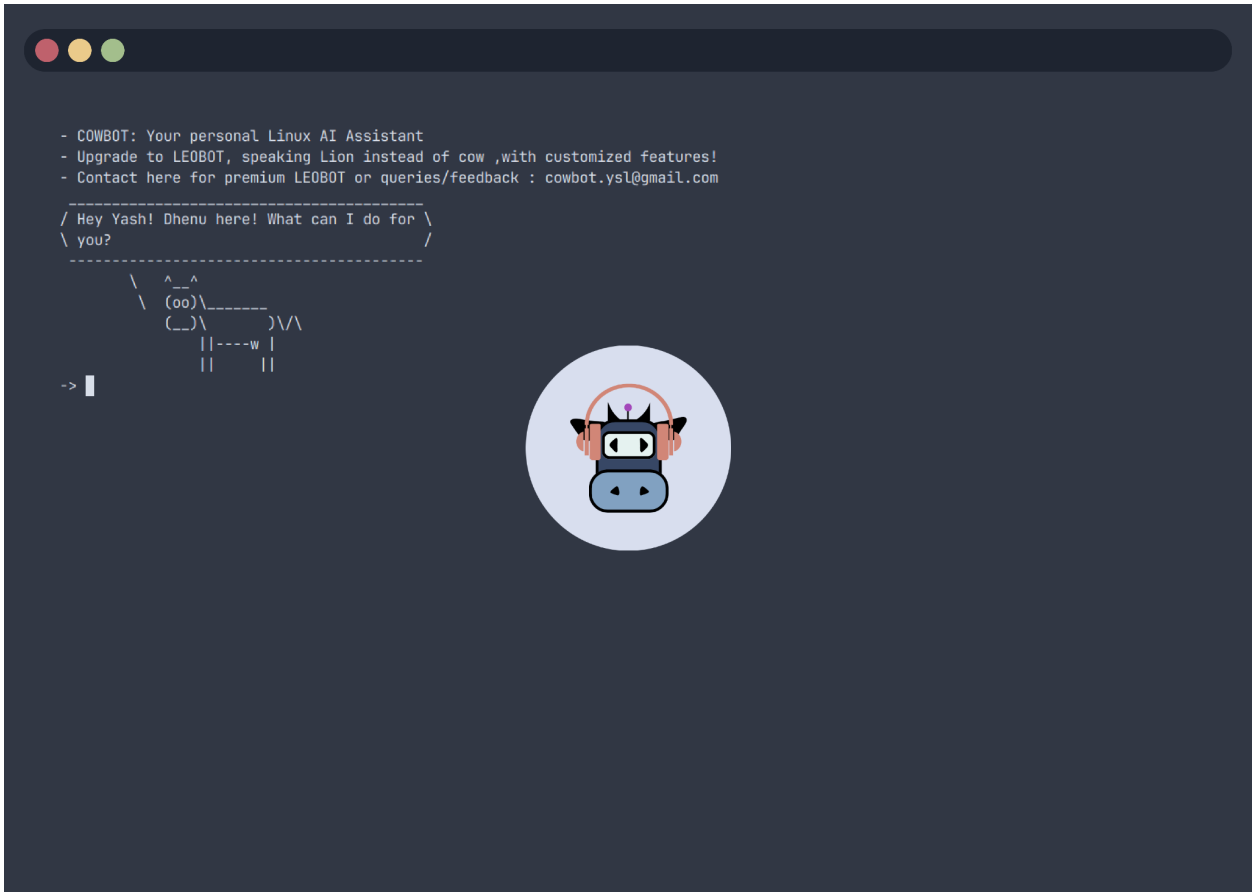
Use Case Diagram



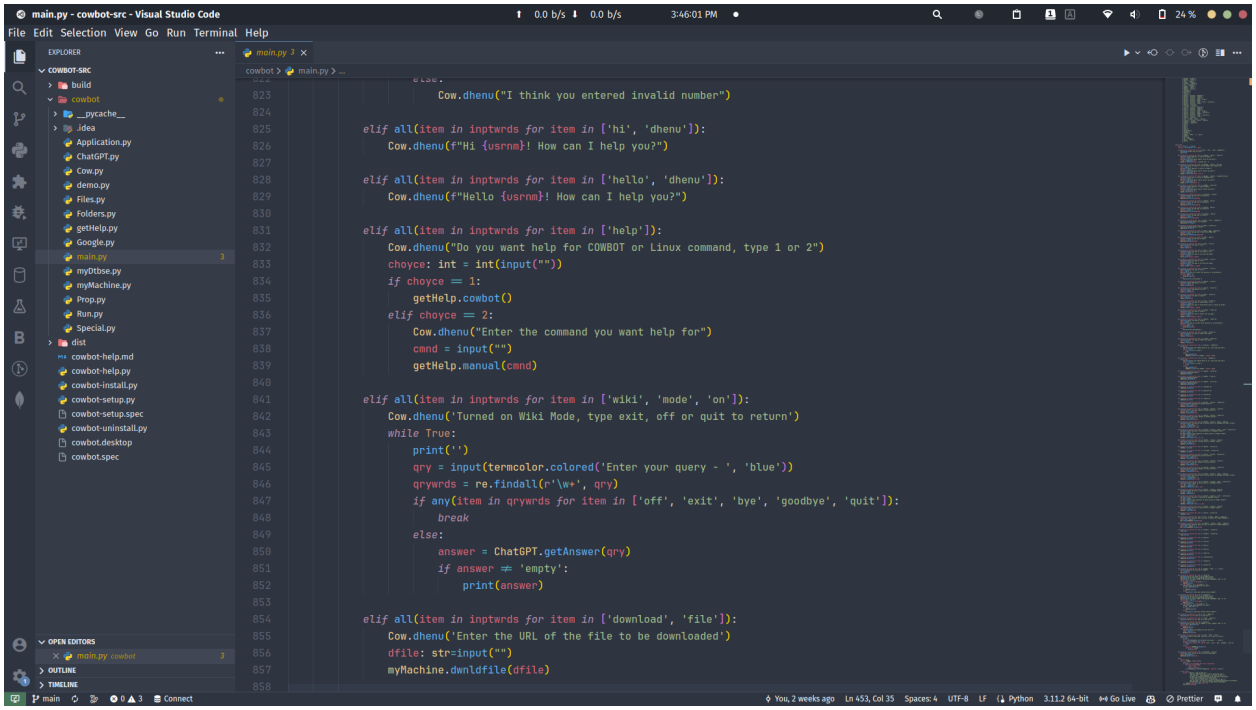
Sequence diagram

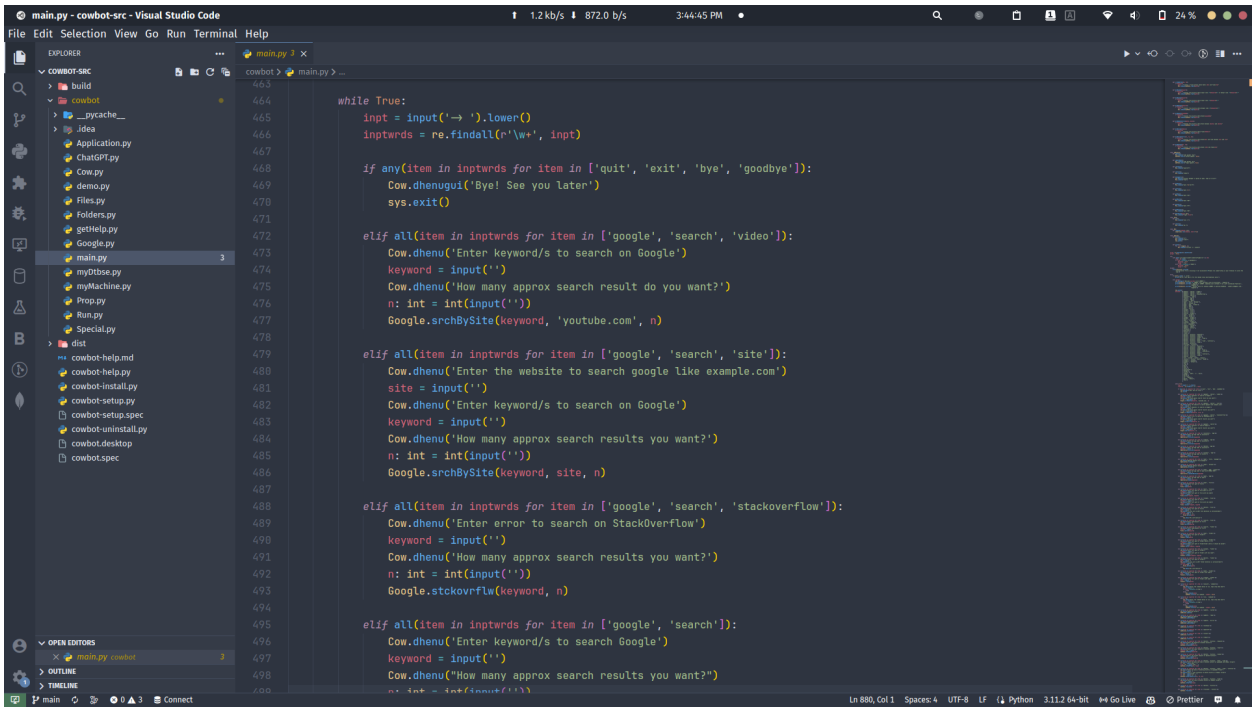


Wireframe Screens of the Project

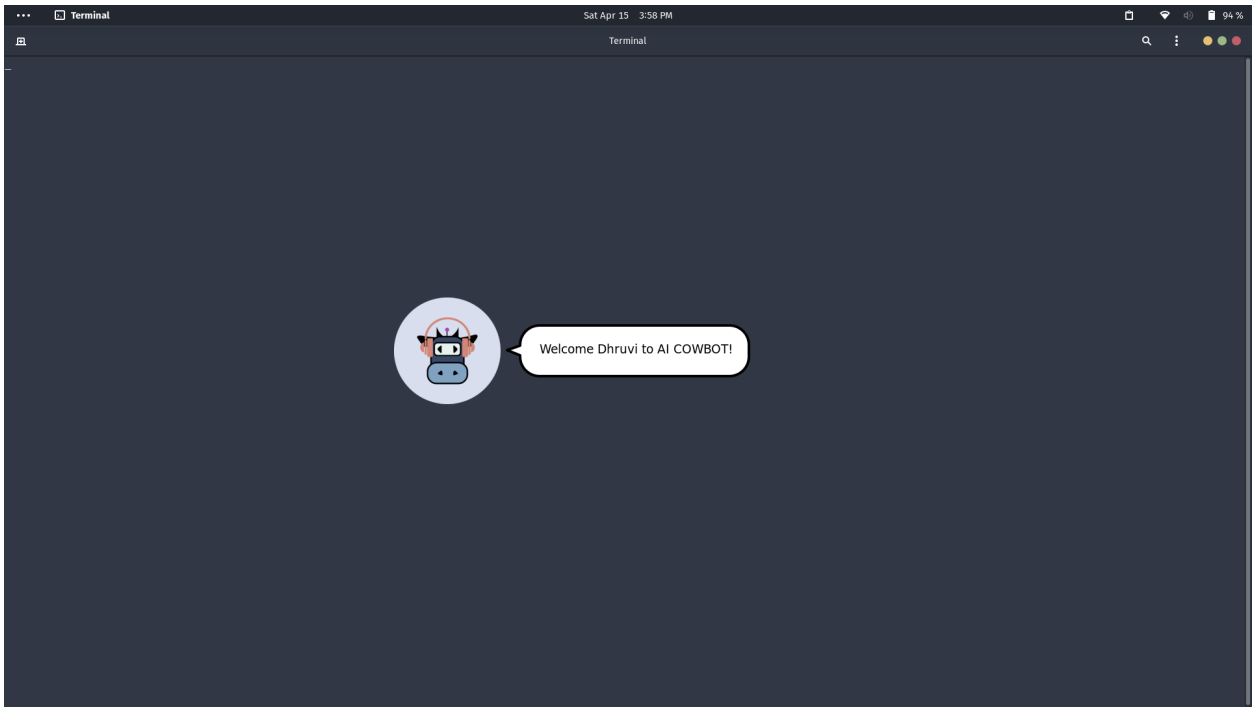


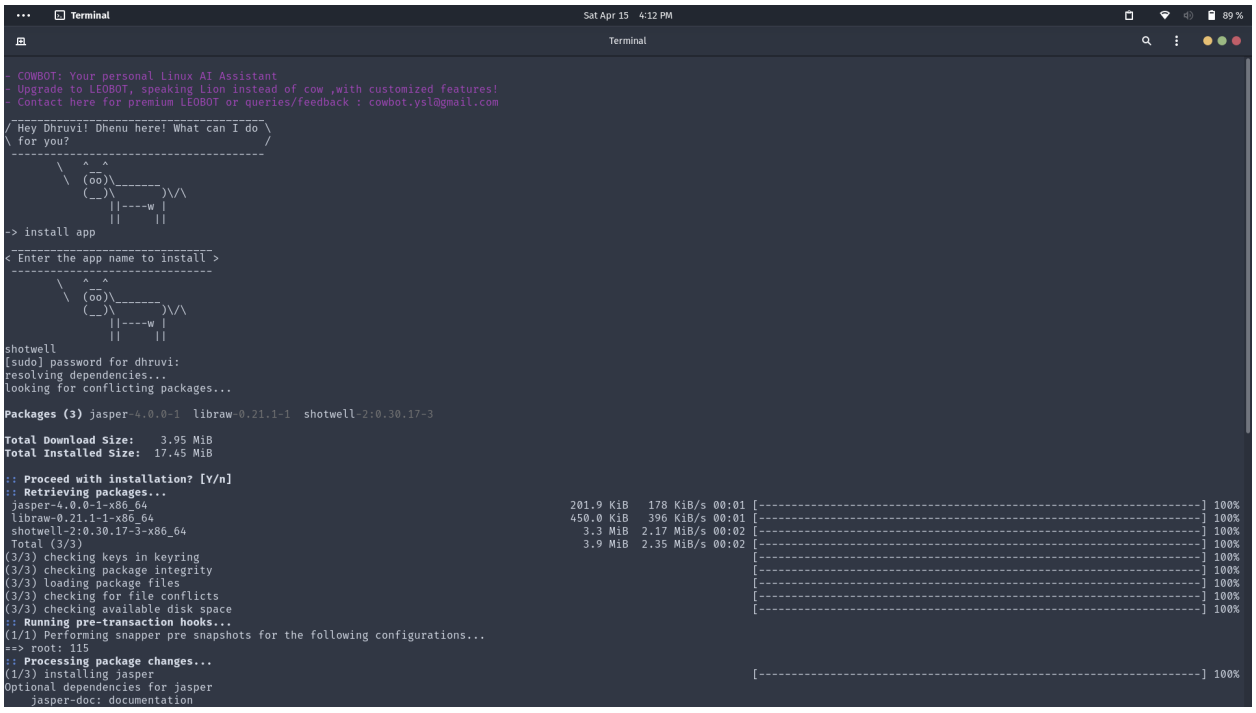
Coding Screenshots

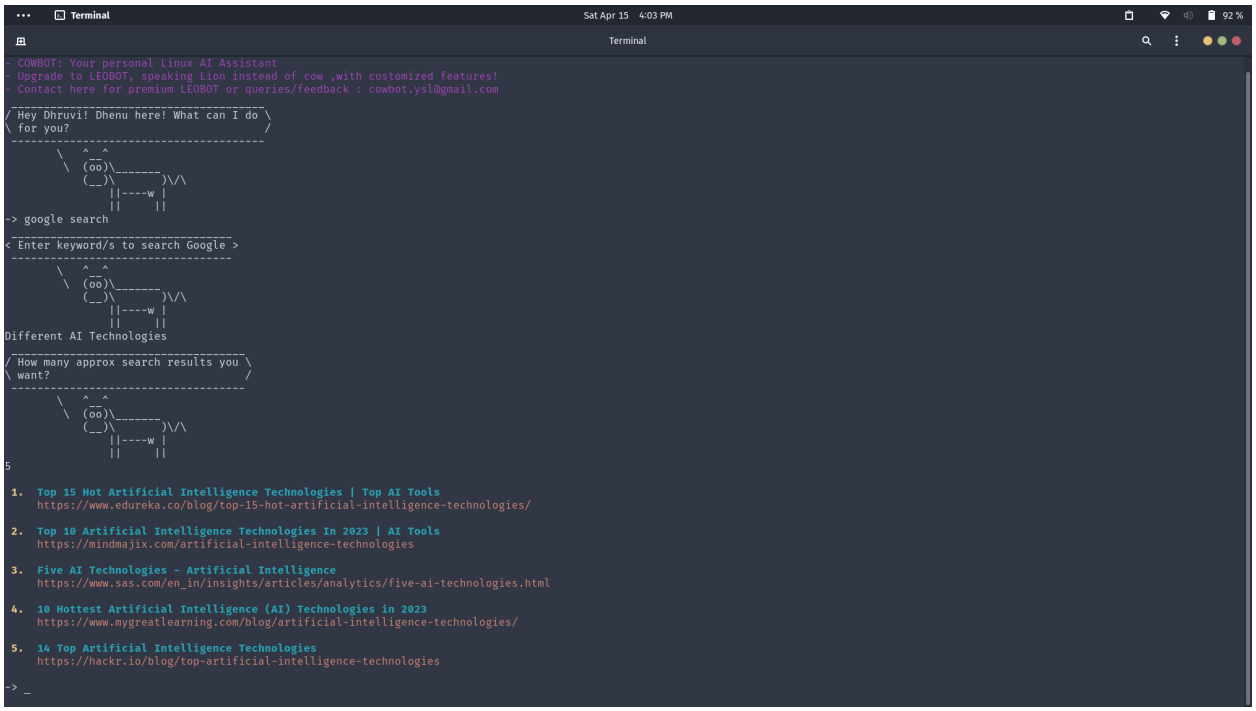




Testing Screenshots






Terminal
Sat Apr 15 4:03 PM
92 %
Terminal
- COWBOT: Your personal Linux AI Assistant
- Upgrade to LEOBOT, speaking Lion instead of cow ,with customized features!
- Contact here for premium LEOBOT or queries/feedback : cowbot.ysl@gmail.com
/ Hey Dhruvi! Dhenu here! What can I do \
\ for you? /
-> google search
< Enter keyword/s to search Google >
Different AI Technologies
/ How many approx search results you \
\ want? /
5
1. Top 15 Hot Artificial Intelligence Technologies | Top AI Tools
https://www.edureka.co/blog/top-15-hot-artificial-intelligence-technologies/
2. Top 10 Artificial Intelligence Technologies In 2023 | AI Tools
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3. Five AI Technologies - Artificial Intelligence
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https://www.mygreatlearning.com/blog/artificial-intelligence-technologies/
5. 14 Top Artificial Intelligence Technologies
https://hackr.io/blog/top-artificial-intelligence-technologies
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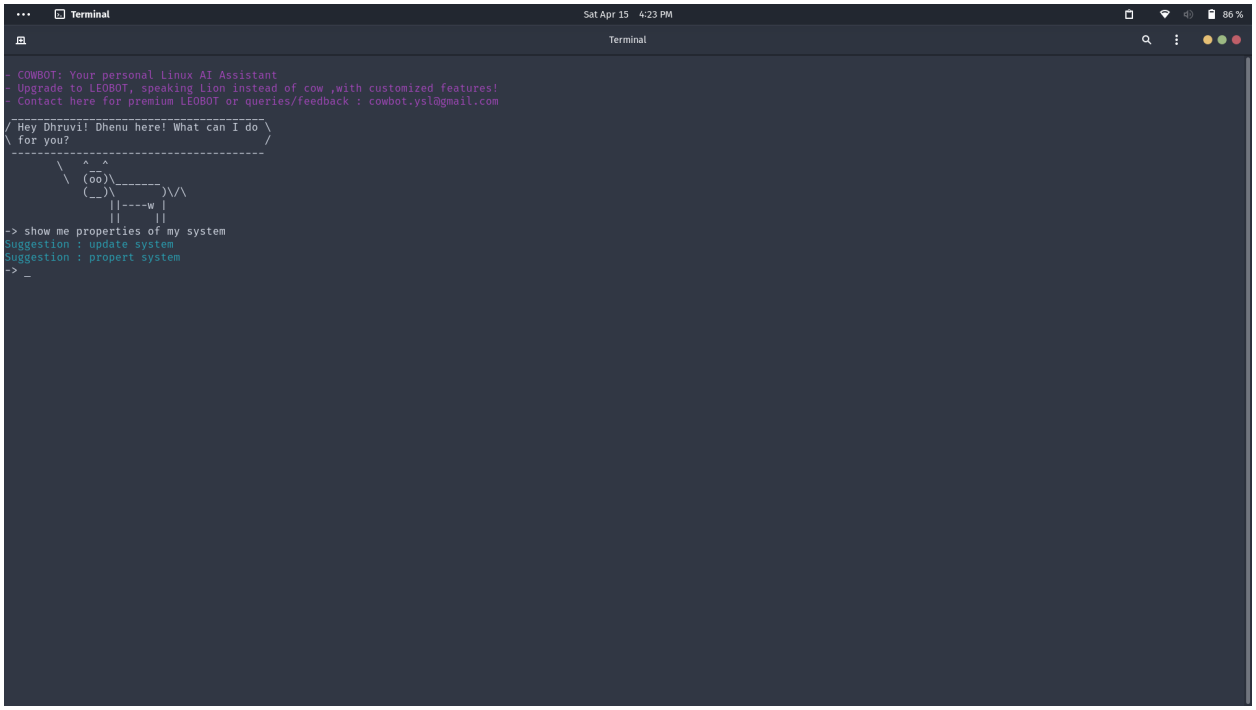
Terminal
Sat Apr 15 4:23 PM
86 %
Terminal
- COWBOT: Your personal Linux AI Assistant
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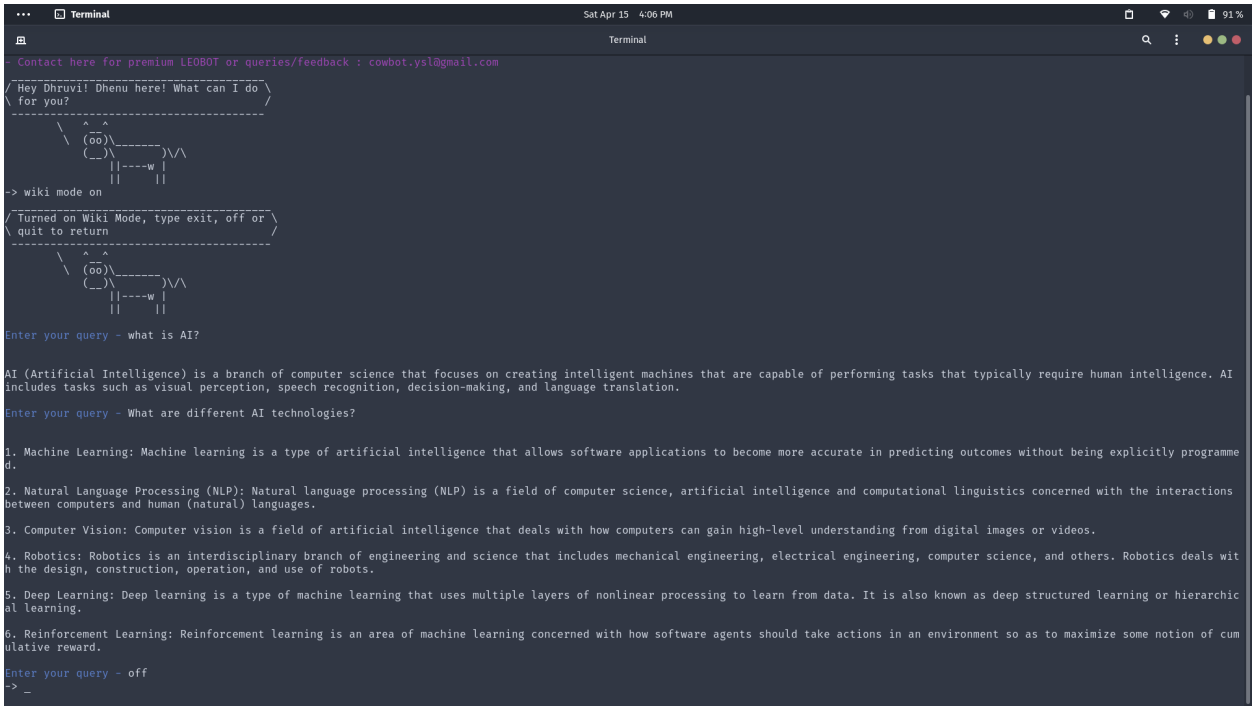
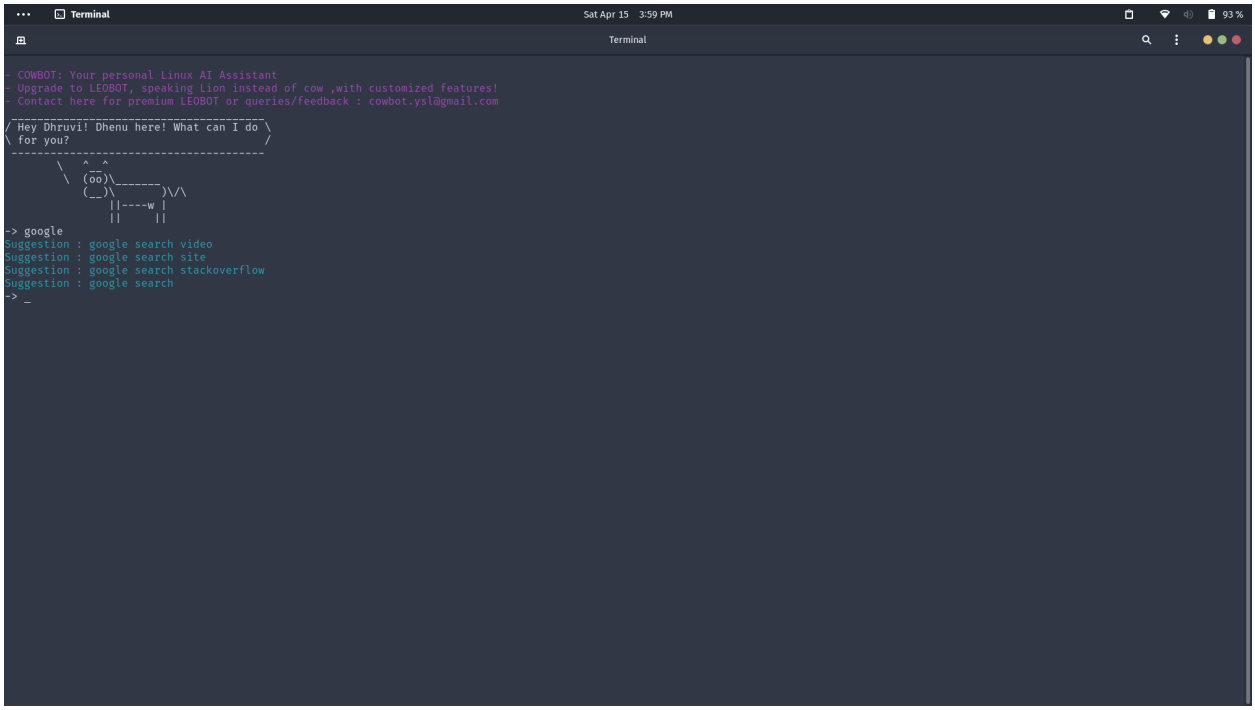
- Contact here for premium LEOBOT or queries/feedback : cowbot.ysl@gmail.com
/ Hey Dhruvi! Dhenu here! What can I do \
\ for you? /
-> show me properties of my system
Suggestion : update system
Suggestion : propert system
-> _


Terminal
Sat Apr 15 4:06 PM
91 %
Terminal
- Contact here for premium LEOBOT or queries/feedback : cowbot.ysl@gmail.com
/ Hey Dhruvi! Dhenu here! What can I do \
\ for you? /
-> wiki mode on
/ Turned on Wiki Mode, type exit, off or \
\ quit to return /
Enter your query - what is AI?
AI (Artificial Intelligence) is a branch of computer science that focuses on creating intelligent machines that are capable of performing tasks that typically require human intelligence. AI includes tasks such as visual perception, speech recognition, decision-making, and language translation.
Enter your query - What are different AI technologies?
1. Machine Learning: Machine learning is a type of artificial intelligence that allows software applications to become more accurate in predicting outcomes without being explicitly programmed.
2. Natural Language Processing (NLP): Natural language processing (NLP) is a field of computer science, artificial intelligence and computational linguistics concerned with the interactions between computers and human (natural) languages.
3. Computer Vision: Computer vision is a field of artificial intelligence that deals with how computers can gain high-level understanding from digital images or videos.
4. Robotics: Robotics is an interdisciplinary branch of engineering and science that includes mechanical engineering, electrical engineering, computer science, and others. Robotics deals with the design, construction, operation, and use of robots.
5. Deep Learning: Deep learning is a type of machine learning that uses multiple layers of nonlinear processing to learn from data. It is also known as deep structured learning or hierarchical learning.
6. Reinforcement Learning: Reinforcement learning is an area of machine learning concerned with how software agents should take actions in an environment so as to maximize some notion of cumulative reward.
Enter your query - off
-> _


Terminal
Sat Apr 15 3:59 PM
93 %
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Suggestion : google search site
Suggestion : google search stackoverflow
Suggestion : google search
-> _