

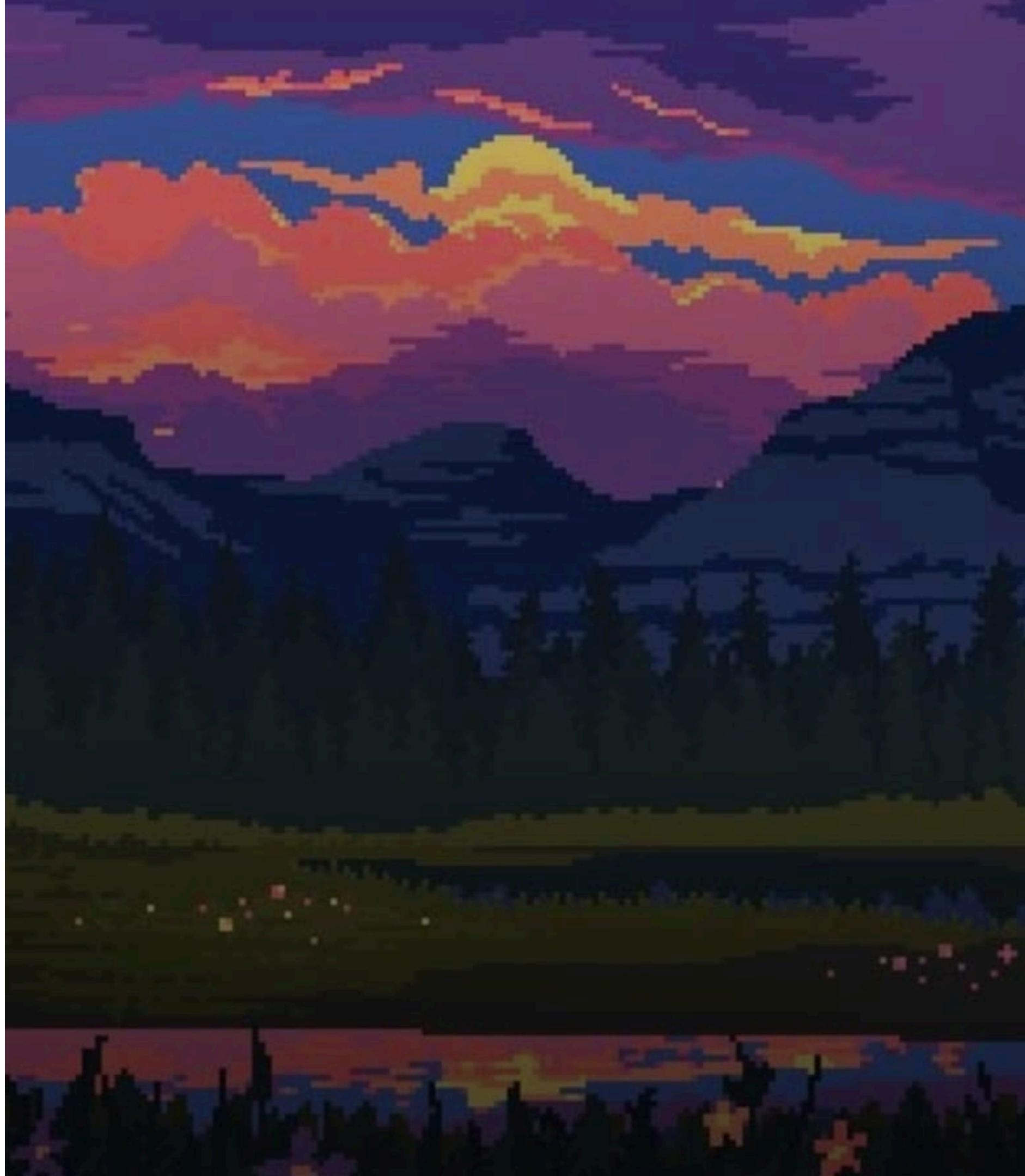
Terminal Velocity

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Introduction

- **Importance of Linux Skills:** Linux is widely used in servers, cloud computing, cybersecurity, and software development, making command-line proficiency essential for IT professionals.
- **Interactive Learning Approach:** Traditional text-based tutorials can be difficult to grasp; an interactive, challenge-based platform enhances engagement and retention.
- **Hands-on Practice:** Many learners lack access to a safe, real-world Linux environment to practice commands without risking system damage.
- **Web-Based Accessibility:** A browser-based solution eliminates installation barriers, allowing users to learn Linux anywhere.

Problem Definition

To design and develop a web-based Linux command learning game that provides interactive tutorials and hands-on practice, helping users build Linux proficiency in a controlled environment.

Objectives

- **Develop an Interactive Learning Module** – Create structured tutorials and challenges that guide users from basic to advanced Linux command-line skills.
- **Implement a Web-Based Terminal** – Design a simulated Linux terminal environment where users can practice real commands easily.
- **Integrate Level Unlocking and Progress Tracking** – Enable a system to monitor the user's status level by level and storing the progress in the local store (browser).
- **Ensure Secure Registration** – Use Firebase for secured user registration and protect user data.

Scope, Relevance

Scope of the Project:

- Designed for beginners to learn Linux commands interactively.
- Users can type and execute commands within a simulated terminal environment.

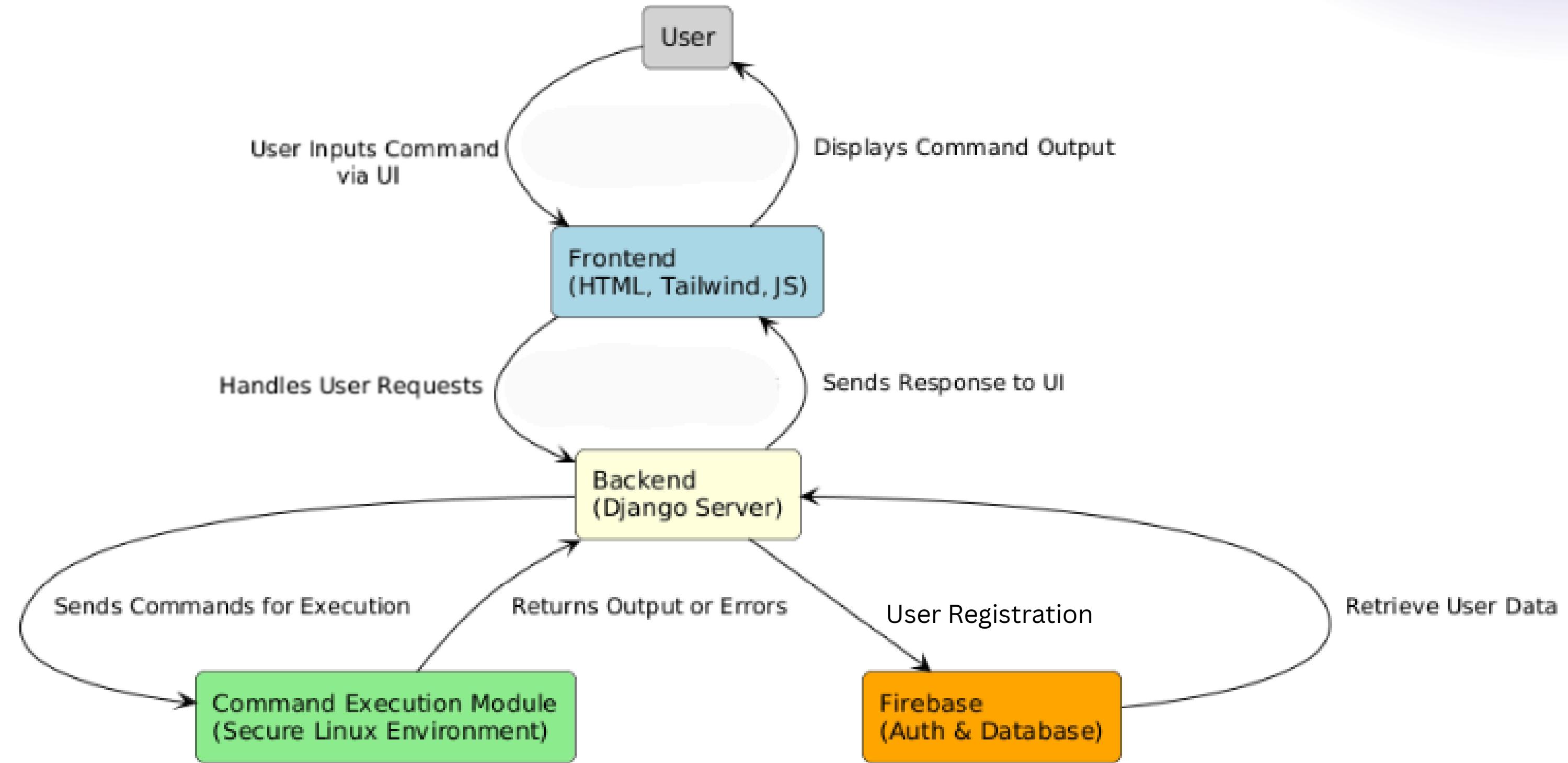
Relevance of the Project:

- For Students & Self-Learners – Helps beginners overcome the steep learning curve of Linux command-line tools.
- For IT Professionals & System Admins – Provides a refresher tool for those needing to improve their Linux skills.
- For Universities & Training Programs – Can be integrated into curriculum-based learning modules.

System Design and Software, Hardware Requirements

Architectural Design, S/w H/w details

Architectural Design



Software, Hardware

Software Requirements:

- **Frontend:** HTML, TailwindCSS, JS
- **Backend:** Django
- **Database:** Firebase Firestore

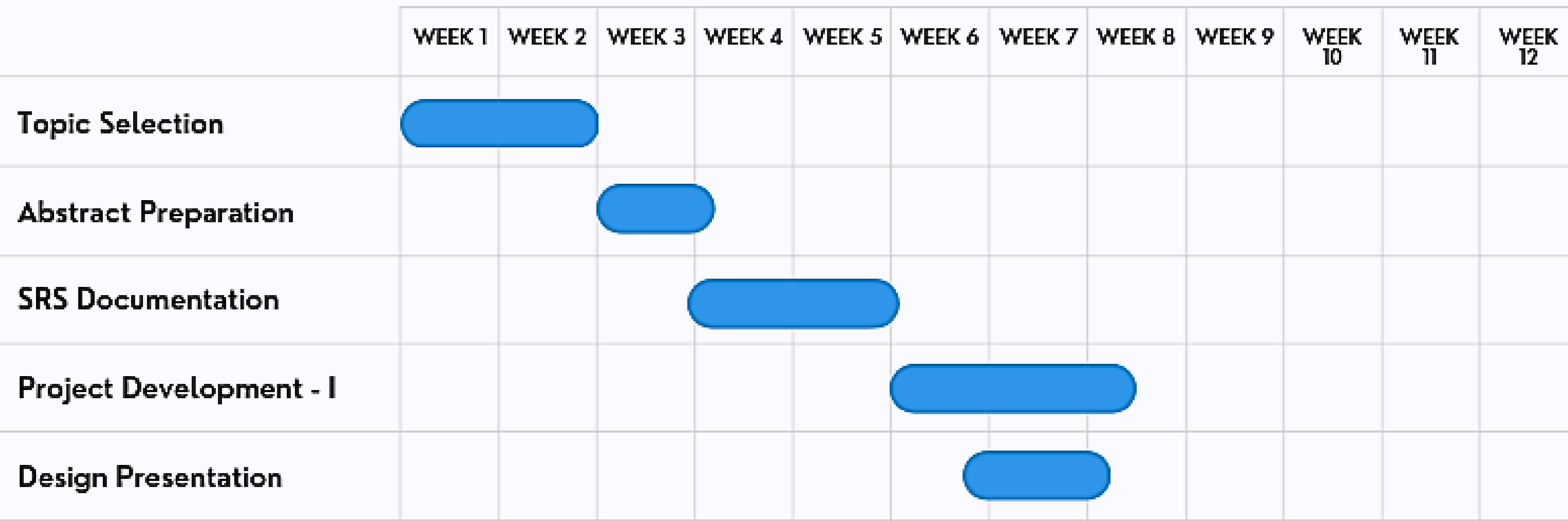
Hardware Requirements:

- **Minimum:** 4GB RAM, Dual-core processor, stable Internet connection, modern web browser (Chrome, Firefox, Edge)
- **Recommended:** 8GB RAM, Quad-core processor, high-resolution display for UI testing

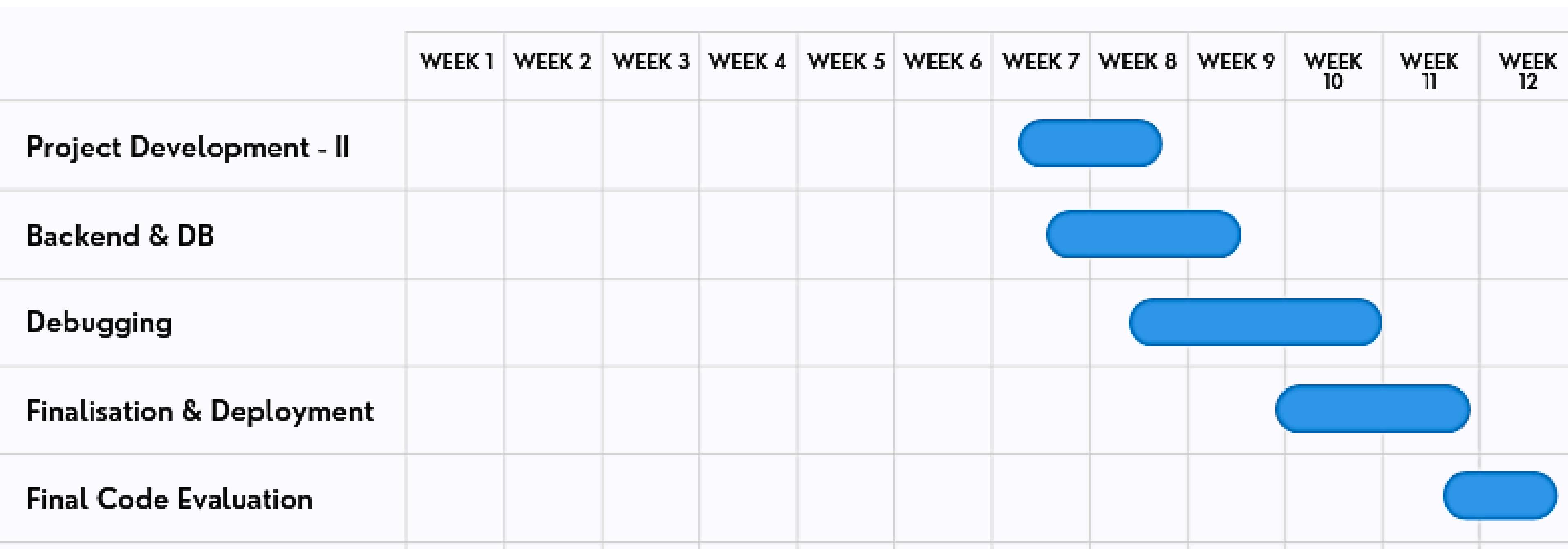
Work Division and Requirements

Work Division Gantt Chart, Software and Hardware Requirements

Gantt Chart - I



Gantt Chart - II



Results

Final working model and screenshots

Terminal Velocity

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Welcome to Terminal Velocity

Master Linux commands through an engaging and interactive game.

About Us

Terminal Velocity is designed to help students learn Linux commands in a fun and interactive way. Our mission is to make learning Linux commands accessible and enjoyable for everyone. Whether you are a beginner or an experienced user, our game offers a unique way to improve your skills and knowledge.

Meet The Team!

Our team is led by Elena Thomas Kochupurakal, a leader with a passion for innovation. Working alongside them are our talented developers: Giribala Arun, who excels in front-end design and creating intuitive user interfaces; Eesha Ajith, known for their creativity and attention to detail; and Maysa Sameer, whose expertise in management and organisational skills ensures our projects are built to perfection. Together, we are committed to delivering exceptional results and pushing the boundaries of what's possible.

Reviews

Terminal Velocity

Directory Management

ls

cd

pwd

mkdir

rmdir

File Management

Text Processing

Command of the Day

Type commandOfTheDay in the terminal!

ls Command

The ls command is used to list all files and directories in the Linux terminal. When executed, it shows the contents of a directory, allowing users to see the names of file, directories, and their details.

I told my computer to ls the files... now it's listing all the reasons it's the best.

NORMAL OPERATION

Syntax: ls [option] [file/directory]

This will display the contents of the current directory. By default, 'ls' lists files and directories in alphabetical order.

COMMON OPTIONS

1. -l: displays detailed information about files and directories.

Welcome to your interactive Linux terminal! Type a command to be
Type 'help' to see available commands.

TerminalVelocity:~\$ ls

Documents Downloads Music Pictures Videos hello.txt sample.

> The ls command will list directories and files in the current directory.

> Now type cd Documents to enter a sub directory.

TerminalVelocity:~\$ cat hello.txt

Hey there newbie!

Having fun? I hope so.

> The cat command views the text inside a file on the terminal.

TerminalVelocity:~\$ cd Documents

> cd stands for Change Directory. You just changed your directory.

> You can check your present directory by typing pwd.

> To return back to the previous directory you should type cd ...

TerminalVelocity:/Documents\$

HANDY LINK

Link to refer: [cat command](#)

QUESTIONS

You have a text file that was sent to you by your friend. It is labeled as "decryptionpassword.txt". You want to see the contents of the file in such a way that it is easy to read. What command would you use to do this?

```
cat -E decryptionpassword.tx
```

[Check Answer](#)

[Next Level](#)

tac Command

The tac command concatenates and displays the contents of a file, but it does so in reverse order — it outputs the last line of the file first, the second-to-last line second, and so on.

Ending

Conclusion and References

Conclusion

- **Summary:**

Terminal Velocity is an interactive, web-based platform that teaches Linux commands through real-time execution and gamified challenges.

- **Key Features:**

The platform includes an integrated terminal, interactive tutorials, real-time feedback, and a progress tracking system. With gamification elements such as levels, it ensures an engaging and structured learning experience for users.

Future Enhancements

- **Progress Tracking:** Analytics will provide insights into strengths and areas needing improvement, along with streak tracking and achievement badges to encourage continuous learning - using Firebase Firestore.
- **Profile Customization:** Users will be able to personalize their profiles by adding avatars, bios, and theme preferences.
- **Certification:** To enhance credibility, a certification system will be implemented. Users who complete specific learning modules will receive downloadable certificates that can be showcased on LinkedIn and resumes.
- **Advanced Linux Commands:** The learning scope will be expanded to include advanced Linux commands such as iptables, systemctl, and shell scripting.

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