

Project Report

A PROJECT REPORT

Submitted by
Sukhmandeep Singh
(23BCS13741)

in partial fulfillment for the award of the degree of

B.E. Computer Science Engineering

IN
BRANCH OF STUDY



Chandigarh University

April 2025



BONAFIDE CERTIFICATE

Certified that “**Anime – Verse**” is the Bonafide work of

Sukhmandeep Singh (23BCS13741)

Who carried out this work under my/ours supervision

SIGNATURE

Dr. Jaspreet Singh

HEAD OF THE DEPARTMENT

Computer Science Engineering

SIGNATURE

Prof. Juned Alam

Professor

Computer Science Engineering

1. Project Overview

Anime Verse is a personal passion project built with React and Firebase, designed to be more than just a streaming dashboard — it's a digital sanctuary inspired by the emotional warmth and aesthetic serenity of anime. The idea came from a desire to create a space that feels like a quiet moment in a slice-of-life series: peaceful, comforting, and visually immersive. While the app began as a school assignment, it quickly evolved into something deeper — a reflection of my love for anime, design, and emotionally resonant technology.

The core vision behind Anime Verse is to offer users a tranquil experience where they can browse and stream anime episodes in an environment that feels curated and cozy. It's not just about functionality; it's about atmosphere. I wanted every interaction — from logging in to watching an episode — to feel like stepping into a warm, familiar scene. That meant paying close attention to gradients, spacing, typography, and emotional tone.

Anime Verse is built for anime lovers who appreciate the small details: the soft lighting in a quiet café scene, the gentle rustle of cherry blossoms, the feeling of nostalgia that certain visuals evoke. It's for users who want their dashboard to feel like a part of the anime world, not just a tool for accessing content.

From the beginning, I approached this project with a blend of technical rigor and artistic sensitivity. I focused on modular architecture, secure data handling, and clean code — but also on emotional UX, pixel-perfect design, and aesthetic harmony. Every feature was added with intention, and every visual element was tuned to evoke a specific feeling.

In short, Anime Verse is a place where technology meets emotion. It's a cozy corner of the internet built to uplift, inspire, and connect — and it's only just beginning.

2. Core Features

Anime Verse is designed to deliver a seamless, emotionally engaging experience through a set of carefully crafted features. Each one serves both a functional and aesthetic purpose, contributing to the overall atmosphere of the app.

At the heart of the app is the **streaming dashboard**, where users can browse anime episodes complete with embedded video players, thumbnails, and titles. The layout is clean and intuitive, with each episode presented like a curated card in a cozy gallery. The goal was to make browsing feel like flipping through a favorite manga — familiar, comforting, and visually satisfying.

To personalize the experience, I added **custom avatars** that users can select to reflect their mood or favorite characters. These avatars aren't just decorative — they're emotional anchors that help users feel more connected to the app. Whether it's a cheerful chibi or a serene character from a slice-of-life series, the avatar becomes part of the user's identity within Anime Verse.

Navigation is smooth and minimalist, with a **search bar** that allows users to quickly find titles or episodes. I implemented **theme toggling** to support both light and dark modes, each designed with aesthetic harmony in mind. The light mode feels airy and gentle, while the dark mode offers a more intimate, nighttime vibe — perfect for late-night anime sessions.

One of the most refined aspects of the app is the **login and register pages**, which were designed to be pixel-perfect twins. I spent hours fine-tuning gradients, spacing, and typography to ensure that both pages feel like part of the same visual story. This attention to detail creates a seamless transition for users and reinforces the emotional tone of the app.

Together, these features form a cohesive experience that's both technically robust and emotionally resonant. Anime Verse isn't just a dashboard — it's a place to feel at home.

3. Technical Stack

Anime Verse is built on a modern, secure, and scalable technical foundation that balances performance, flexibility, and developer experience. At its core, the app uses **React**, a powerful JavaScript library for building user interfaces. React's component-based architecture allowed me to break the app into modular pieces — from the streaming cards to the avatar selector — making the codebase clean, maintainable, and easy to expand.

For backend services and authentication, I chose **Firebase**. It provides real-time database capabilities, secure user authentication, and seamless integration with React. Firebase's simplicity and scalability made it ideal for a project like Anime Verse, where I needed reliable data handling without the overhead of managing a custom server. I implemented Firebase Auth to manage user sign-ins and registrations, ensuring that each user's experience is secure and personalized.

Styling is handled with **Tailwind CSS**, a utility-first framework that lets me design directly in the markup. Tailwind gave me precise control over spacing, typography, and layout, which was essential for achieving the pixel-perfect design I envisioned. It also allowed for rapid prototyping and visual iteration, helping me fine-tune gradients, shadows, and transitions until they felt emotionally resonant.

Security was a top priority throughout development. I used **environment variables** (`.env`) to store sensitive information like Firebase API keys, and ensured that these files were excluded from version control using `.gitignore`. This practice protects the app from accidental exposure and aligns with industry standards for secure development.

The app also includes **responsive design principles**, ensuring that it works beautifully across devices — from desktops to mobile phones. I tested layouts on various screen sizes and used Tailwind's responsive utilities to adapt the UI gracefully.

In terms of tooling, I relied on **npm** for package management and used **VS Code** as my primary development environment. I also integrated **React Router** for navigation and **React Context** for managing global state, such as theme toggling and user avatar selection.

Overall, the technical stack behind Anime Verse is a reflection of thoughtful choices — each tool selected not just for its power, but for how well it supports the emotional and aesthetic goals of the app.

4. Design Philosophy

Design is the soul of Anime Verse. From the very beginning, I knew this app had to feel emotionally immersive — not just functional, but comforting, beautiful, and deeply personal. My design philosophy centers around three key principles: **emotional atmosphere**, **pixel-perfect precision**, and **user-centered harmony**.

The emotional tone of the app draws heavily from anime aesthetics, especially slice-of-life and cozy genres. I wanted users to feel like they were stepping into a quiet scene — maybe a sunlit classroom, a peaceful street at dusk, or a warm café. To evoke that feeling, I used soft gradients, gentle shadows, and color palettes inspired by anime backgrounds. Every visual element is tuned to create a sense of calm and nostalgia.

Typography plays a huge role in setting the mood. I chose fonts that are clean but expressive — readable without being sterile. Line spacing and font weights were adjusted to make the interface feel airy and relaxed. Buttons and inputs are rounded and spaced generously, avoiding any harshness or clutter.

Pixel-perfect design was a non-negotiable goal, especially for the login and register pages. I spent hours aligning elements, matching padding, and refining transitions to ensure that both pages felt like mirror images. This level of precision isn't just about aesthetics — it's about creating a seamless experience that feels intentional and cared for.

I also focused on **user-centered harmony**. That means designing interfaces that feel intuitive and emotionally aligned with user expectations. Theme toggling, for example, isn't just a technical feature — it's a way for users to choose the mood they want. Light mode feels fresh and open, while dark mode feels intimate and focused. Both are designed with equal care.

Animations are subtle and purposeful. Hover effects, page transitions, and loading states are designed to feel smooth and natural, never jarring or distracting. I avoided flashy effects in favor of gentle motion that supports the emotional tone of the app.

In short, the design of Anime Verse is a love letter to anime aesthetics and user experience. It's about creating a space that feels safe, beautiful, and emotionally uplifting — a place where users can relax, explore, and feel at home.

5. Development Process

The development of Anime Verse was a deeply iterative and hands-on journey — one that blended technical problem-solving with creative exploration. From the very beginning, I approached the project with a mindset of gradual refinement. I didn't try to build everything at once. Instead, I focused on getting one feature working well, then layering in the next with care and intention.

I started by scaffolding the React app and setting up the folder structure in a modular way. Each component — whether it was the navbar, avatar selector, or episode card — was built to be reusable and isolated. This made it easier to test, debug, and style each part without breaking the rest of the app. I also kept the codebase clean and readable, using consistent naming conventions and breaking logic into smaller functions where needed.

Once the foundation was in place, I integrated Firebase for authentication. This was my first time working with Firebase in a real-world project, so I took time to understand how to securely connect it using environment variables. I tested sign-up, login, and logout flows thoroughly, making sure error handling was smooth and user-friendly.

Styling came next, and this is where the project really started to feel alive. Using Tailwind CSS, I was able to iterate quickly on layout, spacing, and color. I'd often spend hours tweaking gradients, adjusting padding, or experimenting with hover effects — not because I had to, but because I wanted every interaction to feel just right. I also made sure the design was responsive, testing it on different screen sizes and refining breakpoints to maintain visual harmony.

Throughout the process, I ran into plenty of challenges — from npm dependency issues to layout bugs — but I treated each one as a learning opportunity. I leaned on documentation, forums, and AI collaboration to troubleshoot problems and find elegant solutions. I also made a habit of committing frequently, writing clear commit messages, and backing up my work.

What made this process special was the emotional connection I had to the project. Anime Verse wasn't just code — it was a creative outlet, a space I could shape and refine until it felt like something I'd want to use every day. That mindset kept me motivated, even when things got tough.

6. Challenges & Solutions

Every meaningful project comes with its share of obstacles, and Anime Verse was no exception. But rather than seeing these challenges as setbacks, I treated them as opportunities to grow — both as a developer and a designer. Here are some of the key hurdles I faced and how I overcame them.

One of the earliest issues I ran into was with **npm and package dependencies**. At one point, I had conflicting versions of React and Firebase libraries that caused the app to break during build. It was frustrating, especially since the errors weren't always clear. I solved this by carefully reviewing the package.json file, removing unused dependencies, and reinstalling everything from scratch. I also learned to use `npm audit` and `npm ls` to trace issues more effectively.

Another major challenge was **securing the Firebase configuration**. Initially, I had the API keys hardcoded into the project, which I quickly realized was a security risk. I moved all sensitive data into a `.env` file and added it to `.gitignore` to prevent it from being pushed to version control. This not only made the app safer but also taught me the importance of environment-based configuration in real-world projects.

Design-wise, the biggest challenge was achieving **pixel-perfect harmony** between the login and register pages. Even though they shared similar components, small differences in spacing, alignment, and font weight made them feel inconsistent. I went through multiple iterations, using Tailwind's utility classes to fine-tune every detail. I also used browser dev tools to inspect computed styles and ensure everything matched down to the pixel. It was tedious, but the final result was worth it — both pages now feel like seamless parts of the same visual story.

There were also moments where I had to **pivot creatively**. For example, I originally planned to implement a complex user dashboard with watch history and favorites, but it became clear that it would require more backend logic than I had time for. Instead of forcing it, I focused on polishing the core experience — streaming, avatars, and design — and left the advanced features for future updates.

In the end, these challenges didn't slow me down — they sharpened my skills and deepened my understanding of what it takes to build something meaningful. Anime Verse became stronger because of them.

7. Future Plans

Anime Verse is just the beginning. While the current version already offers a cozy, functional experience, I see endless possibilities for where it can go next. My goal is to evolve it into a full-fledged anime streaming dashboard — one that not only delivers content but also builds community, personalization, and emotional connection.

One of the first features I plan to expand is the **streaming dashboard itself**. Right now, users can browse and watch episodes with embedded players and thumbnails, but I want to introduce richer categorization — genres, moods, seasonal collections, and curated playlists. Imagine a “Rainy Day Comfort” section or a “Feel-Good Slice of Life” carousel. These would help users discover anime based on how they feel, not just what’s trending.

I also want to build a **scene collection** — a gallery of peaceful anime-style backgrounds that users can browse, save, or even set as their dashboard theme. These scenes would be handpicked for emotional resonance: quiet streets, cozy rooms, sunset skies. It’s a way to deepen the aesthetic experience and let users personalize their space even more.

Another major goal is to introduce **user profiles**. These would include avatars, watch history, favorites, and maybe even mood-based recommendations. I envision a dashboard that adapts to the user — showing them comforting titles when they’re feeling down, or energizing ones when they need a boost. Profiles would also allow for saved preferences, like theme mode and layout style.

Long-term, I’d love to add **community features**. A comment section under each episode, a cozy forum for anime discussions, or even collaborative playlists where users can share their favorite scenes. These features would turn Anime Verse from a solo experience into a shared one — a place where fans can connect over the shows they love.

Technically, I’m also considering integrating **local storage or Firestore** to persist user data more robustly. This would allow for smoother transitions between sessions and deeper personalization.

Ultimately, Anime Verse is a living project. It’s not just about adding features — it’s about deepening the emotional experience, making users feel seen, safe, and inspired. I want it to grow into a space that feels like a second home for anime lovers.

8. Final Thoughts

Anime Verse is more than an app — it's a reflection of who I am as a creator. It's a space where code meets emotion, where design becomes storytelling, and where every pixel is placed with care. Building it has been one of the most rewarding experiences of my journey so far, not just because of the technical challenges I overcame, but because of the emotional depth I was able to express through the interface.

This project taught me that great design isn't just about aesthetics — it's about empathy. Every decision I made, from the color palette to the layout spacing, was guided by a desire to make users feel something. I wanted them to feel calm when they logged in, joy when they saw their avatar, and comfort when they browsed their favorite shows. That emotional intention shaped every line of code.

It also taught me the value of iteration. Anime Verse didn't come together overnight — it was built piece by piece, with constant refinement. I learned to embrace the process, to pivot when things didn't work, and to celebrate small wins along the way. Whether it was fixing a broken npm package or finally getting the login page spacing just right, each step felt meaningful.

Security and best practices were never an afterthought. I made sure to protect sensitive data, structure my code cleanly, and follow conventions that would make the app scalable and maintainable. But I also gave myself room to experiment — to try new layouts, play with gradients, and push the boundaries of what a dashboard could feel like.

Most importantly, Anime Verse reminded me why I love building things. It's not just about solving problems — it's about creating experiences. It's about crafting something that resonates with people, that makes their day a little brighter, that feels like it was made just for them.