PROJECT TITLE

UNIVERSITY OF ENGINEERING & MANAGEMENT,
JAIPUR

Project Title

Submitted in the partial fulfillment of the degree of

BACHELOR OF TECHNOLOGY
In
COMPUTER SCIENCE & ENGINEERING

Under
UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

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Approval Certificate

This is to certify that the project report entitled “Project title” submitted by Candidate name (Roll:111111111) in partial fulfillment of the requirements of the degree of Bachelor of Technology in Computer Science & Engineering from University of Engineering and Management, Jaipur was conducted in a systematic and procedural manner to the best of our knowledge. It is a bona fide work of the candidate and was conducted under our supervision and guidance during the academic session of 2022-2026.

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ACKNOWLEDGEMENT

The endless thanks go to Lord Almighty for all the blessings he has showered onto me/us, which has enabled me/us to write this last note in my research work. During the period of my research, as in the rest of my life, I/we have been blessed by Almighty with some extraordinary people who have spun a web of support around me/us. Words can never be enough in expressing how grateful I/we am/are to those incredible people in my/our life who have made this thesis possible. I/we would like an attempt to thank them for making my time during my research in the Institute a period I/we will treasure. I/we am/are deeply indebted to my/our research supervisor, Professor Guide Name for introducing me/us such an interesting thesis topic. Each meeting with him/her added in valuable aspects to the implementation and broadened my/our perspective. He/She has guided me/us with his/her invaluable suggestions, lightened up the way in my/our darkest times and encouraged me/us a lot in the academic life.

Candidate Name/s

ABSTRACT

The Project Showcase App is a **digital platform** designed for college students and company employees to upload, store, and showcase their innovative projects. The app provides a **centralized system** where users can create profiles and share project details, including the title, description, member names, photos, videos, PPTs, and report files. The central purpose was to offer a resilient, scalable, and performant application from a common code base to shorten the development time and save complexity on maintaining it.

The system is developed using **Flutter** for the frontend and **Node.js** with **MongoDB** for the backend (the FMN stack). Flutter was selected specifically owing to its hot-loading and speed to offer almost native performance and high-quality UIs for both Android and iOS from a common code base. The combination of Node.js with the Express.js framework was chosen to build the RESTful API based on its **asynchronous and non-blocking property**. MongoDB, being a NoSQL database, provided the schema-less data model flexibility necessary for rapid iterations in testing application features. The app features secure authentication, cloud-based storage, media management, and project categorization. It enables others to explore, learn, and get inspired from shared work, promoting knowledge exchange and professional networking. The app enhances the visibility of student and employee innovations while providing an easy-to-use interface for project archiving and discovery.

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LIST OF ABBREVIATIONS (if applicable)

1. Introduction

The Project Showcase App aims to provide a **unified platform** for individuals to store and present their project work digitally. In most academic and professional environments, project documentation is **scattered** across various devices or drives. This app addresses the problem by offering an **organized, searchable, and easily accessible repository**.

1.1. Problem Statement

Students and professionals often struggle to manage and share project work efficiently. Projects frequently exist in either distributed or decentralized locations so that they are stored away from others (locally on drives, or maybe in cloud storage folders and without any structure), making it very difficult to locate, compare, or formally review them. There is a lack of **centralized storage** where others can explore projects and learn from them. Additionally, a location for all projects, standardized and readily accessible for all, does not exist and remains a barrier for general transparency of features and assessment of quality. The project would work towards developing a system that centralizes project data in a singular thorough approach, while promoting simplifying the processes of project data storage and display.

1.2. Objectives of the Project

The Project Showcase system aims to achieve:

- Design an easy to use mobile app utilizing Flutter.
- Implement backend APIs providing functionality to the system, using Node.js and MongoDB.
- Create a safe and trustworthy database to store project files and metadata.
- Allow users to upload projects which have attachments that include media and documents.
- Create an indexed project repository that users can search, and the items be sharable.
- Create a fair and trustworthy rating system, where projects can be rated by registered users using a quantifiable mechanism.
- Increase project visibility to a larger user group to increase awareness and feedback.

1.3. Work Scope

The application may be used by different universities, organizations, or start-ups to organize all portfolio projects. This task covers the entire development life cycle, including:

- Front-end Development: Developing the user interface (UI) for viewing, searching, and rating projects.
- Back-end Development: Developing the application logic for handling user authentication, project submission, data validation, and rating calculation.
- Database Management: Development of a database schema that efficiently stores information on projects, users, and ratings.
- Security: Security of files and user data.

2. LITERATURE REVIEW

2.1. Existing Works

Current systems like GitHub, Behance and LinkedIn show projects but are not dedicated specifically to college-level or company-internal projects. The literature has reviewed high-throughput REST APIs using Node.js, and explored Flutter as a performance-first unified cross-platform mobile UI. Existing works include:

- GitHub for version control and public sharing.
- Google Drive for personal storage.
- Behance for creative portfolios.

2.2. Research Gaps

Identified Research indicates that integrating the organization of project repositories with collaboration tools produces the highest learning and productivity outcomes, yet most collaborative platforms do not allow, and are not structured, with the option to upload a detailed project repository of documents and multi-media files and are not designed for academic or employee showcase environments. An enormous gap in the research is a practical application that allows for secure file storage, user-based (self-reported) ratings, and meets data integrity standards (a measurement of validated participants with their responses). There is no research and no suggested real-world applications that occurred as integrated to manage documentation storage of project files, publicly showcase and record the documentation metadata, and that could calculate and stored securely, user-based subjective ratings and define the data integrity specifications.

3. METHODOLOGY

3.1. Technologies

This project was built on the following technology stack:

- Frontend: Flutter (for cross platform UI).
- Backend: Node.js using Express.js.
- Database: MongoDB Atlas.
- Authentication: Firebase Authentication.
- Storage: Firebase Cloud Storage / MongoDB GridFS.

3.2. System Design

The system is based on a client-server architecture, where a Flutter app (the client) uses REST APIs hosted on Node.js (the server). The backend is responsible for the authentication, file upload and storage, data retrieval, and the data (referred to as metadata in the context of the project) is stored in MongoDB. The project included designing a data model, a secure RESTful API that worked as intended, state management in the Flutter code, and end-to-end testing, as part of the core functionality of the development process.

4. DESIGN AND IMPLEMENTATION

4.1. Detailed Design

The design consists of a simple, clean, and user-friendly interface that allows the visual presentation of projects to serve as the focal point. The detailed design consists of the basic screens and a few key features outlined below:

- Login/Signup page with Firebase Authentication.
- Project upload form that consists of fields for title, description, members, media, and files.
- Project gallery with search and filters.
- Project detail screen that will show links to download/view.

4.2. Implementation

Flutter widgets were used for UI development. The speed with which the framework allowed us to access nearly native performance for Android and iOS from a single code base was crucial to the implementation. Node.js APIs empowered the backend logic and CRUD (Creating, Reading, Updating and Deleting) logic while MongoDB as a NoSQL database allowed the necessary schema-less data model flexibility required to iterate quickly in testing application features. The combination of the FMN stack provided performance and developer speed better than traditional development methodologies of native applications.

5. RESULTS & DISCUSSION

5.1. Testing and Experiments

Testing was performed on both the Android and web apps. Functional tests were conducted to confirm each of the upload, download, and authentication aspects of the applications worked as expected. Testing of the applications showed that interfacing between the Flutter front-end and the node.js/MongoDB back-end appears to be reliable and secure with regard to these important functions.

5.2. Result Analysis

The analysis of the results suggested the upload and retrieval of multimedia and documents worked without problems. The UI was internally rated with high usability. The system appears to have resolved all basic components of centralized storage and a working UI to explore projects and thus resolved the problem of messy project documentation.

6. CONCLUSION & FUTURE SCOPE

6.1. Conclusion

The Project Showcase App effectively **bridges the gap between project storage and presentation**. It provides a **structured and accessible way** for students and professionals to manage their work portfolios. By centralizing project data and providing a secure, cross-platform interface, the application successfully enhances the visibility of innovative work and streamlines the process of project archiving and discovery.

6.2. Future Scope

The following features are identified for future development to further enhance the system's utility:

- Integration of **AI-based project recommendations**.
- Adding **comment and rating features** to establish a formal feedback mechanism.
- Introducing **analytics dashboards** for project performance and engagement tracking.

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