SkillVine - An Activity Points Management System rit.skillvine.tech

An online platform for managing, evaluating & grading activity points

Introducing us

Project Guide:

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Introducing the proposed Activity Points Management platform

- An accessible activity point management platform for teachers and students
- It automates certificate management for students, allowing them to upload and edit certificates.
- Easy overview of activity points and certificates. Teachers can efficiently manage certificates and allot points.
- System follows KTU guidelines for certificate marking.
- Generates individualized reports for teachers to use.

Introduction

Problem Statement

Existing manual processes for managing certificates and activity points are time-consuming and error-prone. Our project aims to address these challenges by developing an automated and user-friendly system for efficient certificate handling and activity point management.

- **Output** Challenges of Manual Handling: Manual handling is time-consuming and challenging for teachers.
- Errors and Transparency: Manual processes often lead to errors and lack transparency.
- Real-Time Status: A system with real-time status can boost student participation.

- Need for Automation: Manual methods are time-consuming and error-prone, necessitating an automated and centralized platform.
- Project Deliverables: A user-friendly web application for managing student activity points, allowing students to view progress and teachers to approve certificates and generate reports.
- Exclusions: The system does not automatically verify certificate authenticity, relying on manual verification by teachers.

Tools we used...

- Frontend
 - 1) React

It is used to create our reusable UI components.

2) JsPDF **jsPDF**

It is used for our report generation.

- API Integration
 - 1) Axios **A** X 1 **O** S

HTTP client for the browser used to make requests to a REST server.

- Backend
 - 1) Node js

It is used to employ our run time environment.

2) Express EX

It is our minimal and flexible backend framework.

- Database
 - 1) Mongo DB 🚺

We efficiently store and fetch our user data from Mongo DB.

2) S3 Bucket 📫

We used Amazon's S3 Storage services to store the PDF and image files of the certificates uploaded by students.

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Existing System

- Certificate recording and manual calculations by hand.
- Manual evaluation of certificates and scoring consumes significant time.
- Difficulty arises from managing multiple certificates and grades for each student.
- Need for efficient automated grading and activity point evaluation.
- Streamlining certificate management for improved efficiency.



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Existing System	Analysis
Manual Method	Manual systems are time-consuming, labor-intensive, and prone to errors due to manual data entry and processing. Also the absence of real time data is also an issue . The physical involvement of the teacher and student is more and may become stressful in some situations. Also these may take up time which can be utilized for other academic procedures.
Third-Party Educational Platforms	Designed for a wider range of functions beyond activity points management. Also the points updated may not be accurate as the validation may or may not be conducted by institutional teachers. Also points may not be updated instantly. Limited flexibility and segregation of certificates by year, category, event. They might come with subscription fees or limited customization options.

Gap Analysis



Advantages:

- Efficient Certificate Management & Storage.
- Real-Time Students' Activity Points Tracking points.
- Scalability: Can be scaled to handle user data for entire department or college.
- Reduces manual efforts, saving time and resources for students and teachers

Disadvantages:

- Learning curve may be needed.
- Technical issues such as server downtime, bugs, or connectivity problems.



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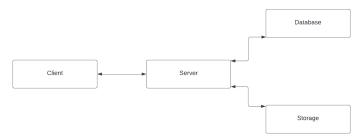
Software requirements

Requirements for the system to function smoothly

- Hardware Requirements: Computer/laptop with RAM 4GB+, efficient processor (Intel core i3+ or Ryzen 3+).
- Fast & reliable internet connectivity.
- Latest versions of Google Chrome, Firefox, or Microsoft Edge



The system mainly consists of **App interface**, **server** & **database**. The app interface enables interaction for students and teachers with database-stored data and certificates through the server.



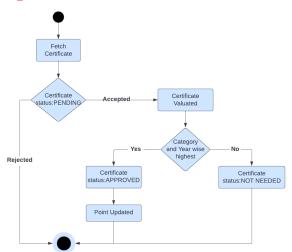
App Interface

- Responsive UI allowing smaller screen use.
- Dashboard for easy access to essential information & links to various pages in website.
- Includes pages for uploading and viewing certificates.
- Notification panel, A sidebar to show activity points.
- User-friendly and engaging experience

- Utilizes Node.js backend system with MongoDB as the database and Amazon S3 for storage.
- Manages authentication, authorization, and report generations.
- Facilitates certificate upload and retrieval.
- Calculates number of points a certificate deserves based on KTU Guidelines.

- Stores student and teacher details as documents, implemented using MongoDB.
- Stores notification and details for each certificate, also tracking the approval and rejection of each certificate.
- Fast read & write operations to database

Flow diagram



Unit Testing

- Black-box testing to assess individual units for proper functionality.
- Ensured code units functionality without internal code knowledge.
- Integration Testing
 - Conducted API testing using Postman to validate the integration of different components.
 - Checked API endpoint interaction for seamless data flow.

Future Scopes

- Development of a cross-platform mobile app using responsive design.
- Enhance the system with Al capabilities for detecting invalid or proxy certificates.
- Scaling to University level use.

Conclusion

SkillVine has successfully achieved several objectives, enhancing the way student activity points allocation is handled. Through seamless integration and automation of the certificate recording, evaluation, and awarding process, SkillVine has significantly reduced manual efforts, saving valuable time and resources for both students and teachers

Thank you!