UNIVERSITY OF POONCH RAWALAKOT

Scholarship Zone

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Scholarship Zone

1. Introduction

Scholarship zone is a digital platform designed to streamline the entire process of managing scholarships. It enables students to view eligible scholarships, apply online, upload required documents, and track their application status. Simultaneously, it empowers university administrators to manage scholarship offerings, review applications, verify student eligibility, and make informed decisions efficiently. Traditionally, scholarship processes in our university is managed manually or semi-digitally using emails and physical forms. This results in inefficiencies, delays, and errors. A centralized online system will address these issues by ensuring a transparent, fast, and accessible platform for both students and the administration.

1.1 Importance of the Project

Scholarship zone simplifies and automates the entire scholarship process, making it more efficient, accessible, and transparent. It centralizes data for easy tracking and decision-making, supports report generation for performance analysis, and promotes an eco-friendly digital environment by reducing paper use.

1.2 Existing Work and Related Technologies

Several universities and higher education institutions around the world have developed or adopted scholarship portals for internal and external funding opportunities. Examples include:

- **MIT's Scholarship System (USA)**: Allows students to apply for financial aid and track eligibility.
- **HEC [URL 3] Pakistan Online Scholarship Portal**: Used by universities in Pakistan to manage HEC funded scholarships.
- **University of Melbourne Scholarship Portal (Australia)**: Provides a unified application platform for all internal scholarships.

2. Objectives

The **objective** of the scholarship zone is to **develop a centralized, user-friendly, and automated platform** for university that efficiently handles the end-to-end scholarship process ranging from scholarship announcement and student application to evaluation, approval, and fund disbursement within the university. This system aims to replace manual or semimanual methods with a digital solution that improves transparency, accessibility, and administrative productivity.

- **To simplify the scholarship application process** by allowing students to register, view available scholarships, apply online, and upload supporting documents through a single portal.
- **To assist university administrators** in managing scholarship listings, setting eligibility criteria, and reviewing student applications in a streamlined and organized manner.
- **To maintain a secure and centralized database** of student profiles, academic records, financial need assessments, and application histories.
- **To enable real-time tracking of application status** so students can view updates and receive notifications regarding their application progress or decisions.
- **To support document verification workflows** for ensuring authenticity and completeness of submitted materials.
- **To generate reports and analytics** for administrative use, including tracking scholarship usage, budget allocation, and student performance trends.
- **To implement role-based access control** to ensure that students, reviewers, and administrators only access information relevant to their roles.
- **To reduce processing time and administrative workload** through automation of routine tasks such as shortlisting, emailing, and recordkeeping.

3. Problem Statement

Most universities still rely on **manual or semi-digital methods** to manage scholarship applications, which often involve physical forms, in-person submissions, spreadsheet tracking, and scattered communication channels. These outdated processes result in inefficiencies, delays, data mismanagement, and lack of accessibility for students.

3.1 Why It's a Problem (current gaps)

The manual scholarship process presents several critical gaps that hinder its effectiveness. Firstly, it is time-consuming and labor-intensive, requiring students to physically submit forms and documents, which can easily be lost or delayed. Secondly, there is a lack of transparency, as students have no real-time way to track their application status, often leading to confusion and repeated inquiries. Thirdly, coordination between administrative staff and departments is poor, resulting in miscommunication and inconsistent decision-making. Additionally, manual data entry increases the risk of human errors, affecting the accuracy and fairness of the selection process. The absence of centralized data storage makes it difficult to access historical records or generate reports for analysis and auditing. These limitations collectively reduce efficiency, accountability, and equal access to scholarship opportunities.

3.2 Need for a Solution

To overcome the challenges of the manual scholarship process, there is a clear need for a digital, centralized Scholarship zone. Such a solution would automate application submission, document verification, and approval workflows, significantly reducing the time and effort required from both students and administrative staff. By allowing students to apply online and track their application status in real-time, the system enhances transparency and reduces confusion. It also ensures better coordination between departments like the DSA office and Admin by providing a shared platform for reviewing and processing applications. Moreover, centralized data storage improves accuracy, prevents data loss, and enables easy retrieval of records for reporting and analysis. Overall, a digital solution not only streamlines the scholarship process but also promotes fairness, efficiency, and accessibility for all stakeholders.

4. Problem Scenario

The manual scholarship process in our university is often time-consuming, error-prone, and inefficient. Students must physically collect and submit forms, which can lead to delays, lost documents, and missed deadlines. Administrators face challenges in verifying eligibility, sorting applications, and tracking documents, often resulting in data inconsistencies and human errors. Communication gaps between departments and applicants can cause confusion and lack of transparency, making it difficult for students to know the status of their applications. The manual process consumes significant time and resources, leading to frustration for both students and staff. **Fig 1** depicts manual scholarship process hurdles.
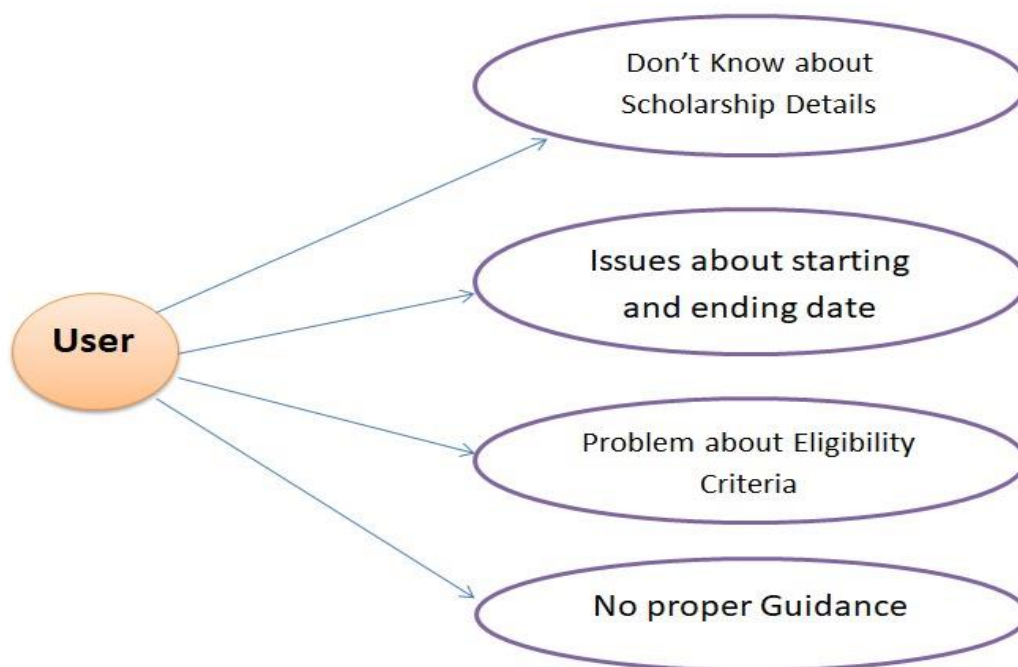

Fig 1(Manual scholarship process hurdles)

5. Proposed Solution

The existing manual scholarship process poses several challenges, including inefficiency, lack of transparency, and increased chances of errors. Students are required to submit physical applications and often face delays or confusion in tracking their application status. Admins and DSA Officers must manually review and process each application, which is time-consuming and prone to miscommunication or data loss. The absence of a centralized system makes coordination difficult and limits visibility into the overall process. The proposed Scholarship Portal, as illustrated in the diagram, addresses these issues by providing a centralized digital platform where students can easily apply and view their application status. Admins and DSA Officers can securely access, review, and approve or reject applications directly through the portal. This automated system streamlines the entire workflow, enhances transparency, reduces paperwork, and improves overall efficiency for all users involved in the scholarship process. **Fig 2** represents problem solution.
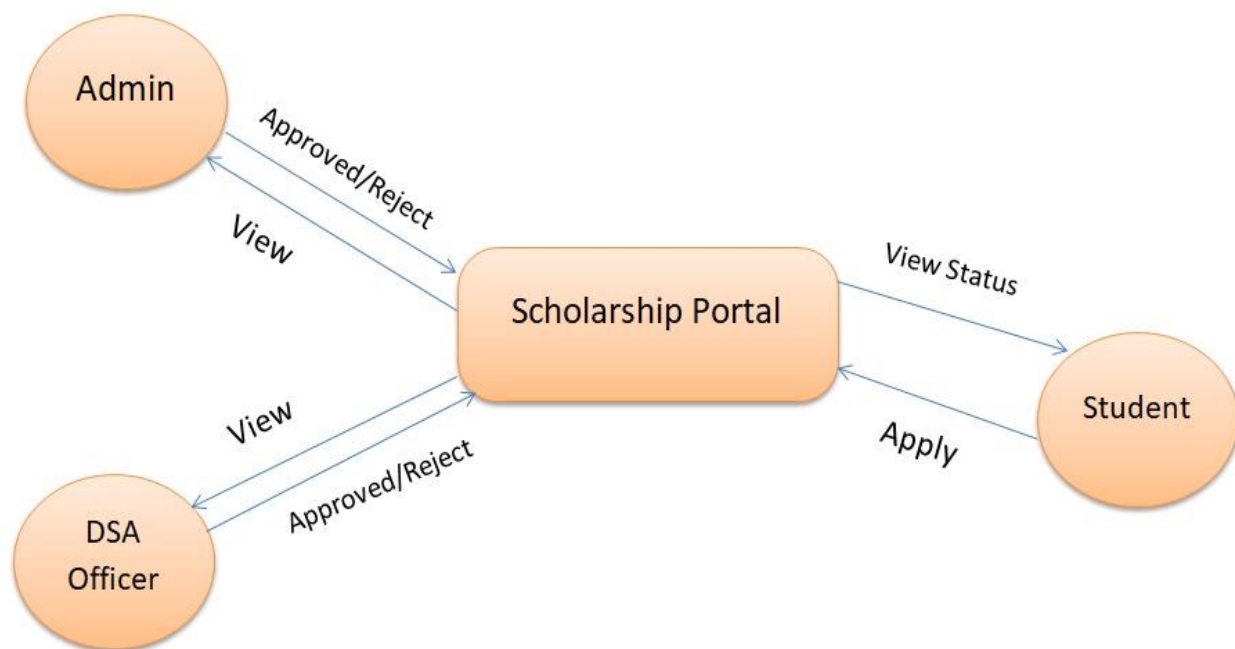
Fig 2 (problem solution)

5.1 Restating the problem

The existing scholarship management process in university is largely manual, leading to **inefficiencies, human errors, and lack of transparency**. Students struggle with unclear application procedures, lost documents, and no visibility into the application status. Administrators and scholarship committees face challenges in organizing applications, verifying data, and ensuring timely decisions. This disorganized system results in **delays, student dissatisfaction, and resource mismanagement**

5.2 Proposed Digital Solution

To address these challenges, a **web-based** Scholarship Management System, **scholarship zone** is proposed that automates the complete scholarship process. This system will have distinct user interfaces and functionalities for **students**, **administrators**, and the **scholarship committee**, providing a seamless and efficient workflow.

5.2.1 Student panel

The student panel will provide the following features:

- User registration and secure login
- Access to scholarship listings with eligibility criteria
- Online application form submission
- Document upload facility (academic records, income certificate, etc.)
- Real-time application status tracking
- Notifications on application progress, missing documents, or final results

5.2.2 Admin panel

The admin panel will offer tools to manage and monitor the entire scholarship process:

- Manage student accounts and scholarship applications
- Create, edit, and publish new scholarship opportunities
- Assign applications to the relevant scholarship committee
- Oversee document verification and approval workflows
- Generate analytical reports for decision-making and audits
- Communicate results and feedback to students

5.2.3 Scholarship committee panel

The scholarship committee panel is designed to facilitate fair and structured application evaluation:

- Access to assigned student applications with supporting documents
- View academic performance and financial need data
- Add comments, recommendations, or final decisions
- Filter and shortlist applicants based on pre-defined criteria
- Collaborate with other committee members securely

5.3 Technologies to be used

The proposed system will be built using the following technologies:

Technology Stack:

- **Front-End:** HTML, CSS, Bootstrap, JavaScript
- **Back-End:** PHP, Laravel [URL 1]
- **Database:** MySQL
- **Authentication:** Firebase or Laravel Passport
- **Notifications:** Email + Dashboard
- **Document Storage:** Firebase Storage / Cloud File System
- **Hosting and Infrastructure**: University's internal server or cloud platforms like AWS, Firebase, or Azure

5.4 Benefits of the proposed solution

The proposed Scholarship zone offers several significant benefits that directly address the limitations of the manual process. By automating key tasks such as registration, application submission, verification, and approval, the system greatly reduces administrative workload and saves valuable time. It enhances transparency by allowing students to track their application status in real-time, reducing confusion and follow-up inquiries. Centralized data management ensures that all records, including student profiles and application histories, are securely stored and easily accessible. The system improves accessibility by enabling students to apply from anywhere, removing physical barriers.

6.Methodology

6.1 Development Approach (Agile)

The development of the scholarship zone will follow the **Agile methodology**, which is a flexible, iterative approach that allows for continuous improvement and user feedback throughout the development cycle. Key Agile principles to be followed:

- **Incremental development** in short sprints (1–2 weeks)
- **Daily stand-ups** for team coordination
- **Continuous testing and feedback incorporation**
- **Adaptive planning** to accommodate changing requirements

This approach ensures that the system remains user-centered, functional, and adaptable to evolving university needs.

6.2 System architecture overview

This architecture follows a modular and layered approach, integrating both traditional and cloud based technologies to ensure scalability, security, and ease of maintenance.

6.2.1. Client Layer (Front-End)

- **Technologies:** HTML, CSS, Bootstrap, JavaScript
- **Role:** Responsible for the user interface (UI) and user experience (UX). It includes forms for application submission, dashboards for students, administrators, and reviewers.
- **Features:**
  - Responsive design using Bootstrap
  - Real-time interaction and validation using JavaScript

6.2.2. Application Layer (Back-End)

- **Technologies:** PHP with Laravel Framework [URL 1]
- **Role:** Handles business logic, data processing, authentication, authorization, and communication between the front-end and the database/storage layers.
- **Features:**
  - RESTful API support for scalability and integration
  - Secure session handling and role-based access control

6.2.3. Data Layer (Database)

- **Technology:** MySQL
- **Role:** Stores structured data such as student information, scholarship programs, application status, reviewer feedback, and award records.
- **Features:**
  - Relational schema to ensure data integrity
  - Indexing and optimization performance
  - Backup and recovery

6.2.4. Authentication & Authorization

- **Technologies:** Firebase Authentication or Laravel Passport.
- **Role:** Securely manage user identities and permissions.
- **Options:**
  - Firebase Auth: Quick setup, supports social logins (Google, Facebook), and 2FA.
  - Laravel Passport: More control over API authentication, token-based, suitable for university-based systems with internal SSO.

6.2.5. Notification System

- **Channels:** Email & Dashboard Alerts
- **Role:** Keep users informed about application progress, deadlines, and decisions.
- **Features:**

o Laravel Notification system for sending real-time dashboard alerts

o SMTP integration for email (Gmail, Mail trap, Send Grid, etc.)

6.2.6. Document Storage

- **Technologies:** Firebase Storage / Cloud File System
- **Role:** Secure storage of supporting documents (transcripts, ID cards, income proof, etc.)
  - **Features:**
  o File upload/download with access.
  o Scalable cloud storage for large files
  o Metadata support (timestamps, owner info)

6.2.7. Hosting & Infrastructure

- **Options:** University Internal Server: For localized access and data residency compliance.
           Cloud Platforms:

  AWS: Scalable EC2, S3, RDS for deployment.

  o Firebase [URL 2]: Hosting + Authentication + Storage (ideal for server less architecture).

  o Azure: Enterprise-level security, App Services, and database hosting.

6.2.8. Integration & Scalability Considerations

- **CI/CD:** GitHub Actions or GitLab CI for automated deployment
- **API Integrations:** Possible third-party APIs (Govt databases, SMS gateways)
- **Load Balancing & Auto-Scaling:** For high-traffic seasons (e.g., application deadlines)

7. Project Scope

The scope of our project is that a student can easily use this application from anywhere and he/she can simply open the site, login to the dashboard and check for details, fill up the form and then submit it to the admin. No need to manually get out the print of the application and submit it into the admin office.

The system includes:

- User (Student/Admin) registration/login
- Application form filling, document upload
- Admin dashboard for reviewing and approving applications
- Merit list generation and PDF exports
- Notification system for important updates
- Reporting and analytics

8. Brief Feasibility Study: -

- **Technical Feasibility:**

The proposed Scholarship Web Portal is technically feasible due to the utilization of modern web technologies such as:

1. **Frontend**: HTML, CSS, JavaScript, and Bootstrap for a responsive and user-friendly interface.
2. **Backend**: PHP and Laravel for robust server-side functionality.
3. **Database**: MySQL for efficient data management.

- **Operational Feasibility:**

Designed to be intuitive, reducing admin workload and helping students access scholarships easily.

- **Economic Feasibility:**

Minimal hardware requirements and open-source tools ensure cost-effectiveness.

- **Legal Feasibility:**

System ensures data privacy and integrity through secure login and encryption.

9. Solution Application Areas

- University scholarships (need-based, merit-based)
- Departmental and external financial aid
- Emergency funds and stipends
- Government-funded programs
- Transparent Selection Process
- Document Management
- Application Tracking

- Reporting and Analytics
- Notifications and Reminders
- Policy Compliance & Audit
- integration with Academic Records

10. Functional requirements

Student panel:

Functionality	Description
Register/Login	Students can login with specific id and password to access the web portal
Scholarship Search	Students can search, view details online, using filters like eligibility criteria, deadline etc.
Apply Online	Students can submit scholarship applications easily.
Upload Documents	Students can attach required documents like transcripts, ID proof etc.
Receive Notifications	Students will Get alerts for application updates, deadlines or new scholarship opportunities.
Application Tracking	Students can track the status scholarship applications, staying updated on approvals, rejections, or pending actions.
View History of Submissions	Students can access a record of past scholarship applications, including status and details.
Profile Management	Students can update personal and academic information.

Admin panel:

Functionality	Description
Login	Secure login with email and password

Scholarship Management	Create, edit and delete scholarship opportunities.
User Management	View, activate, deactivate, or delete users
Application Management	Review, approve, or reject scholarship applications.
Document Verification	Verify uploaded documents for authenticity.
Notification Management	Send notifications to students about application status and updates through emails.
Reporting and Analytics	Generate reports on scholarship applications, approvals, and rejections.
System Configuration	Configure system settings, eligibility criteria, and deadlines.
Profile management	Admin can update personal information.

Scholarship committee panel :

Functionality	Description
Committee Login	Committee members can securely log in using Committee Login credentials.
Dashboard Access	Displays overview of assigned applications, pending reviews, deadlines, and notifications.
View Assigned Applications	Committee members can access applications assigned to them by the admin.
View Application Details	Full view of student data including academic records, financial documents, essays, and uploaded files.
Application Filtering & Sorting	Filter applications by program, department, GPA, financial status, or submission date.
Evaluate Applications	Committee members can assess applications based on predefined evaluation criteria (e.g., merit, need, extracurricular).
Scoring Mechanism	Enter numerical scores or qualitative remarks for each evaluation parameter.

Save Evaluation Progress	Save partial reviews to return and complete later.
Submit Evaluation	Submit final evaluation and recommendation for selected candidates.
View Evaluation History	Access previously evaluated applications and scoring history.
Secure Logout	Logout of session to prevent unauthorized access.
Session Timeout	Automatic logout after inactivity to maintain system security.

11. Non-Functional Requirements

Category	Requirement
Performance	The system should support at least 1,000 concurrent users without performance degradation.
Usability	The system interface should be intuitive and user-friendly for students, committee members, and admins.
Reliability	The system shall be available at least 99.5% of the time during business hours.
Availability	The system shall be accessible 24/7, except during scheduled maintenance. Downtime for maintenance shall be communicated at least 24 hours in advance.
Scalability	The system should be able to scale horizontally to accommodate growing users and data load. It should support multiple departments and scholarship types without structural changes.
Security	All data must be encrypted in transit (HTTPS) and at rest (AES-256 or equivalent).
Maintainability	The system should be built using modular, well documented code to allow easy updates and debugging.

Portability	The system should be deployable on both cloud platforms (AWS, Firebase, Azure) and on premises servers.
Compatibility	The system must support modern browsers (Chrome, Firefox, Edge) and adapt to different screen sizes.
Auditability	All user actions (e.g., form submissions, evaluations, approvals) should be logged for audit purposes.
Localization (if needed)	The system should support multilingual interfaces if used by international students or universities.

12. Tools and Technologies

- **Front-End**: Html, CSS, Bootstrap, JavaScript
- **Back-End**: Php, Laravel [URL1]
- **Database**: MySQL
- **Version Control**: Git & GitHub

12.1 Hardware Requirements:
  o 8GB minimum Hard Disk
  o 8GB RAM,
  o 2.4 GHz processor

12.2 Software Requirements:
  o VS Code
  o XAMPP
  o Firebase [URL 2]
  o CLI

13. Expertise of Team

With a solid foundation in computer science fundamentals, our team excels in designing, developing, and managing comprehensive software solutions. Our expertise spans:

Full Stack Development: Proficient in front-end technologies (HTML, CSS, Bootstrap, JavaScript) to craft intuitive and responsive interfaces.

Database Expertise: Skilled in MySQL, enabling us to design and optimize databases for efficient data management.

Real-Time Web Applications: Experienced in handling dynamic data and real-time user interactions, ensuring seamless user experiences.

This expertise empowers us to deliver robust, scalable, and user-centric software systems.

14. Milestone:

Milestone	Description	Duration
Requirement Analysis	Define features and flow	Week 1-2
Database & System Design	ERD, schema, and layout planning	Week 3-4
Front-End Development	Responsive UI development (HTML, CSS, JS, Bootstrap)	Week 5-6
Back-End Development	Laravel integration, APIs	Week 7-8
Document Upload & Tracking	Firebase/file system, progress bars	Week 9-10
Integration & Testing	Full system integration and QA	Week 11-12
User Testing & Feedback	Collect user feedback, improve UX	Week 13-14
Finalization & Deployment	Live deployment and performance optimization	Week 15-16
Documentation & Presentation	Report writing, PPT, and demo	Week 17-18

15. References

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➤Used for backend development of SMS.
➤ URL 1: https://laravel.com/docs

Firebase Documentation. (2024). *Firebase Authentication, Real time Database & Cloud Storage.* ➤ Used for authentication, file upload, and data sync.

➤ URL 2: https://firebase.google.com/docs

Higher Education Commission (HEC) Pakistan. (2023). *Scholarship Guidelines, Application Procedure, and Eligibility.* ➤ Covers government-led scholarship portals and processes in Pakistan.

➤ URL 3: https://www.hec.gov.pk

Jabeen, R. (2022). *Design and Implementation of a Web-Based Scholarship Portal for University Students.* Undergraduate Thesis, COMSATS University.

➤ Focuses on interface design, user experience, and PHP/MySQL integration.

Sommerville, I. (2015).
Software Engineering (10th ed.). Pearson Education.

➤ Covers software requirements engineering, system development life cycle (SDLC), functional/nonfunctional requirements.

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