

# Enhancing Student Access to Financial Aid: A Web-Based Approach to Scholarship Search and Application

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**Abstract:-** This paper worked with a background of the existing harsh educational competition that leads to many challenges when searching for easily accessible scholarships to support a student's educational needs. This paper presents the development of a user-friendly Web-based system aimed at simplifying the navigation through the selection of scholarships and the submission of applications. Due to its design, the site allows users to create personal accounts with options to incorporate secure means of logging in. Scholarship seekers are allowed to search for scholarships by various filters like the area of study, region, etc., after they register themselves to the website. That is why the presented platform applies a smart filter to provide users with the most relevant opportunities and to save time. Moreover, we direct them to the official scholarship sites through which they can apply and therefore get the most accurate information. This way of searching and accessing the scholarships is more effective to the users making it easier time to access scholarships they wish to apply for in line with their study goals.

**Keywords:-** Online Resource, Registration Process, Best Fit, Individualized Suggestions, Methods for Information Searches, Convenience, User Interface (UI).

## I. INTRODUCTION

Education is not cheap, and this makes scholarships a crucial and sought for opportunity all around the world to students who have to earn their degree without spending their parents' or their own money. However, it is always a tiresome hall of a chore to search for the right scholarships because it requires a lot of time and effort, not the least with the reason that there is far too much information scattered all over the place from one site or the other. A big number of students struggle in finding out suitable opportunities and come up with necessary procedures which ultimately demotivate them in applying for important financial aid.

In order to address those challenges, we suggest developing a single mega-website that would integrate all the features of a scholarship search. This site is designed for an optimal user experience; users can create secure accounts, enter search criteria to find scholarships they might be eligible for based on their academic backgrounds and then

follow links to the application and further information for each of the official sites of these scholarships.

The platform aims to make it easier for students to find financial aid by including important features, such as user sign in, customizable search filters, and direct links to credible scholarship sources, taking away the major problems of locating financial aid. This website exists to help enhance access to scholarships by bringing together different opportunities and give a better user experience. This paper describes the features of this platform; the technologies used to develop it; and the benefits this platform might bring to students in need of financial support for their studies. Using this platform, we want to bridge the link between students and scholarships for which they could indeed qualify, with a view towards a more equitable path to education. To o Streamline the Scholarship Search Process. Customized accounts for maintaining better user experience. Giving Direct Access to Official Scholarship Websites. The primary objectives of this research are:

- Simplifying the Search for Scholarship.
- Changing through Custom Accounts for a Better User Experience.
- Giving Direct Access to Official Scholarship Website.

## II. REVIEW OF EXISTING LITERATURE

During the last ten years, of course, the study of scholarship searching and application has undergone dramatic changes and there have been studies on the opportunities and challenges of this field. Scholarships are important access places in order to promote the educational equity, particularly for students of the disadvantaged backgrounds. However, despite the fact that research repeatedly shows a high portion of students failing to fully utilize available financial aid because of the disorganized form that scholarship information is generally presented that and the complicated, long time consuming application processes, they still do not.

In order to tackle this problem, there have been several platforms built that offer a one stop product for searching scholarship. Fastweb and other early scholarship search engines sold databases of opportunities that were criticised for inundating users with mounds of uncurated lists of results. While these platforms collected all the scholarship information in one place, research showed that they did not

have wish modern filtering options, leaving students to scour through a lot of scholarship opportunities to find the ones that would qualify for them. Another point made in Jones and Miller's (2017) research was that existing platforms were not always clear in linking back to the officials application websites to create user frustration and missed opportunities.

In recent times, research has centered around personalisation and intelligent systems to effectively improve user experience. Gyamfi and Osei (2021) investigated how machine learning–driven turnwise, a scholarship platform, recommends users to opportunities based on user’s personal profile, academic accomplishment, and his or her geographical location. Their study showed that these features significantly impacts search efficiency as well as user engagement while also decreasing the time spent on irrelevant search results. As well, Lee and Kang (2020) noted the need for both responsive design and mobile compatibility as more and more students in search of scholarships rely on mobile devices.

While all of this has been improved, few platforms can provide a truly integrated experience where students are able to search and also save and track their applications within a personalised account system. Green and Patel (2022) research finds that platforms equipped with account based tracking improve the probability of retaining users, as well as increasing the likelihood that students will apply for multiple scholarships. But their research underscored the fact that not all of the platforms present an appropriate security for user data, so strong security measures are still necessary in any new developments.

### III. METHODOLOGY

Based on this systematic approach, user centered design, agile software development and iterative testing, this scholarship search platform was created. The research includes both technical development and UX testing to support the final product addressing student needs and increasing student access to scholarship opportunities.

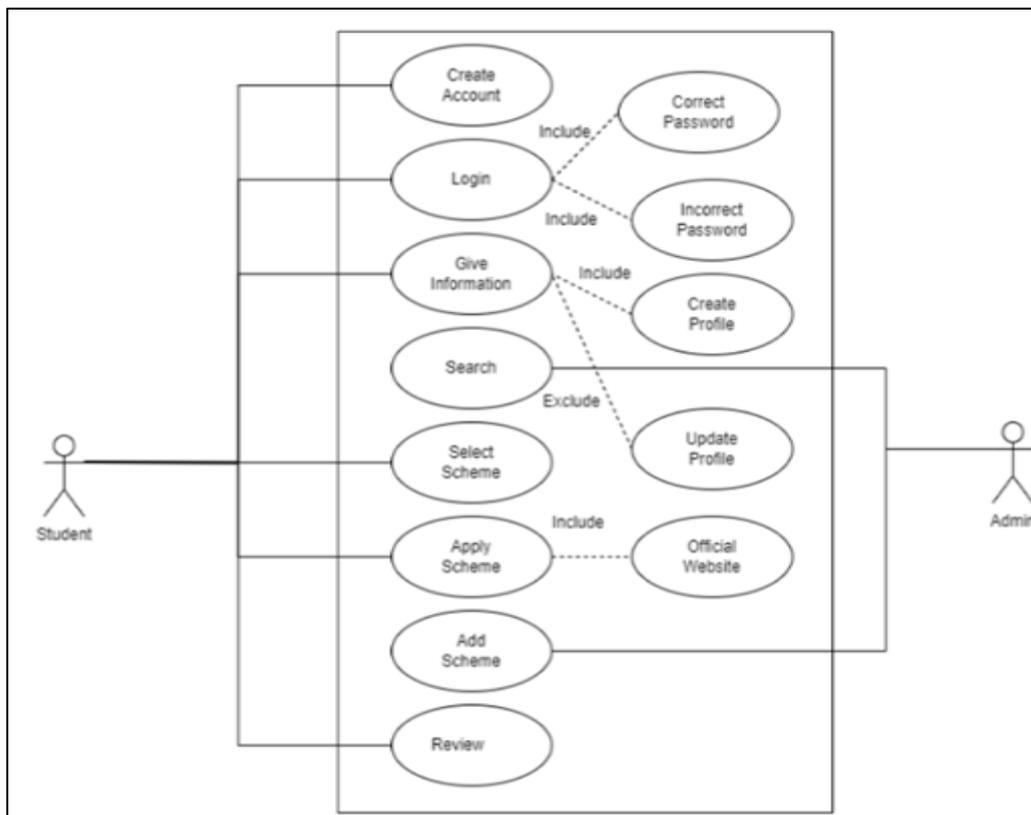


Fig 1 : Use Case Diagram

#### A. Requirement Analysis

The research began with a review of what the students need and what they face in searching for scholarships. To pinpoint key challenges, favorite features and expectations, surveys and interviews were conducted with a broad range of students of different academic backgrounds and institutions. Also collected were the input of educators and scholarship providers. Existing scholarship platforms (Fastweb, Scholarships.com), were reviewed to assemble limitations in the current service and measures of improvement. Based on this analysis, the selection of the primary features and the

design of the user interface was based. From the findings, essential features for the platform were determined: a secure user login, customizable search filters, account management and direct access to official scholarship websites. Besides, we had to define non-functional requirements, such as website performance, security, and mobile compatibility.

#### B. Design and Development

Wireframes and mockups made with tools like Figma were used for crafting the user interface (UI), and 1).. An emphasis was placed on simplicity and easy to navigate

design and an uncluttered layout in order to not overwhelm a user with too much information at once. Usability testing of the prototype was performed with a smaller group of students to give feedback. I built the platform with front and back end technologies (Node.js, ejs template, MongoDB database) combined. User authentication and data storage was handled on the back end while search filtering was filtered on. Encryption for user data was implemented as well as the security to external scholarship websites. To store data about different scholarships; based on eligibility criteria such as discipline of study, location, and degree level; a structured database was designed. To keep the database fresh, an automated scraping from scholarship portals and manual curation combined was used to update the database continuously. In some cases, APIs (where possible) were integrated with the external platforms to give users direct access to official scholarship websites, or users were redirected to official links for scholarship applications. This made scholarship data reliable and legitimate.

#### C. Implementation of Intelligent Search and Filters

Using a keyword matching algorithm, and filters for academic level, geographical location and scholarship type (merit, need, etc.), the search functionality of the platform was developed. An optimization was made of the search algorithm such that the most relevant results in the eyes of the user or on the bases of the input provided rank the best results. In order to suggest scholarships for users based on their profile (academic file, location of study, field of study), a basic recommendation engine was developed. It was a rule-based feature with the potential for machine learning based enhancement in future versions.

#### D. User Testing and Feedback

The site was launched into a beta version for a select group of students. To assess ease of use, responsiveness and accuracy of search results, these users were asked to perform common tasks (e.g., create an account, search for scholarships, save favorites). User interface, search functionality, account management features, and general navigation were evaluated and information was gathered through surveys and interviews designed to assess feedback related to the platform. Metrics such as task completion time, user satisfaction and error rates were used. Based on user input, the platform was improved with filtering searches, boosting mobile responsiveness, strengthening security protocols, and improving speed of database queries..

#### E. Launch and Maintenance

After the user testing phase and all issues resolved, the platform was launched in the cloud so anyone could access it and scale easily. To prove that the site could handle multiple users at the same time, without erratic or crashing, performance tests were run. The scholarship database is scraped (automated) or entered by administration (manual). Finally, user data is ongoing monitored and periodically security audited to maintain integrity and safety of user data. When the public launch happens, continuous user support with continual help desk to troubleshoot and gather feedback continues. We schedule regular updates based on user feedback, and changes in the scholarship landscape.

## IV. PROPOSED SYSTEM

Some proposed systems for the proposed scholarship search platform will make the use more accessible and user friendly. There is a User Account and Authentication System utilizing encryption and two factor authentication to secure account creation. Second, a customized Advanced Search & Filter System allows users to effectively find scholarships using keyword search or filter criteria, including level of study and area of study. Thirdly, a Recommendation System suggests personalized scholarship suggestions as well as deadline alerts. Direct Access to Official Scholarship Websites is also available on the platform, with guaranteed verified links for applications submissions. Scholarship information is current and accurate through a comprehensive Database Management System and users are helped to manage their applications by easy-to-use Dashboard and Progress Tracking System. A Security and Data Privacy System is emphasized through an encryption and adherence to the regulations. In the end, the platform is built to be Mobile Responsive and Accessible, to enable easy use on many devices, and to accommodate users who are disabled. The goal is that together, these systems will increase the ease and access to financial aid for students.

## V. PROCESS

- **Initiation:** The user starts the process.
- **Sign-in:** Access to the system requires the credentials of the user.
- **Verification:** Login Details are provided for the system to check. Users are requested to retry or use account recovery if incorrect. If correct, we are given access to proceed.
- **Authentication:** After logging in successfully user can browse the various functions.
- **User Information:** Users can see their personal details or change them.
- **Explore:** Users can search for available programs.
- **Choose:** The users can select a program by exploring. Upon selection, Program Details is presented to them and they are c CalendarCanted to submit their application. Users may be redirected to an External Portal after applying.
- **Evaluate:** They can review selected programs or application submissions by users.
- **Registration:** Users begin a new account creation. First, Basic Information and then they end account setup. Users enter any extra information that is needed and verify their profile.

#### ➤ Essential Features

It consists of the possibility of resetting passwords and creating accounts for newcomers. Successful login enables the user to access many of these features including management of personal information, browsing of programs, submitting of applications, etc. The final submission or extra verification of applications may be enabled by a connection to an external portal.

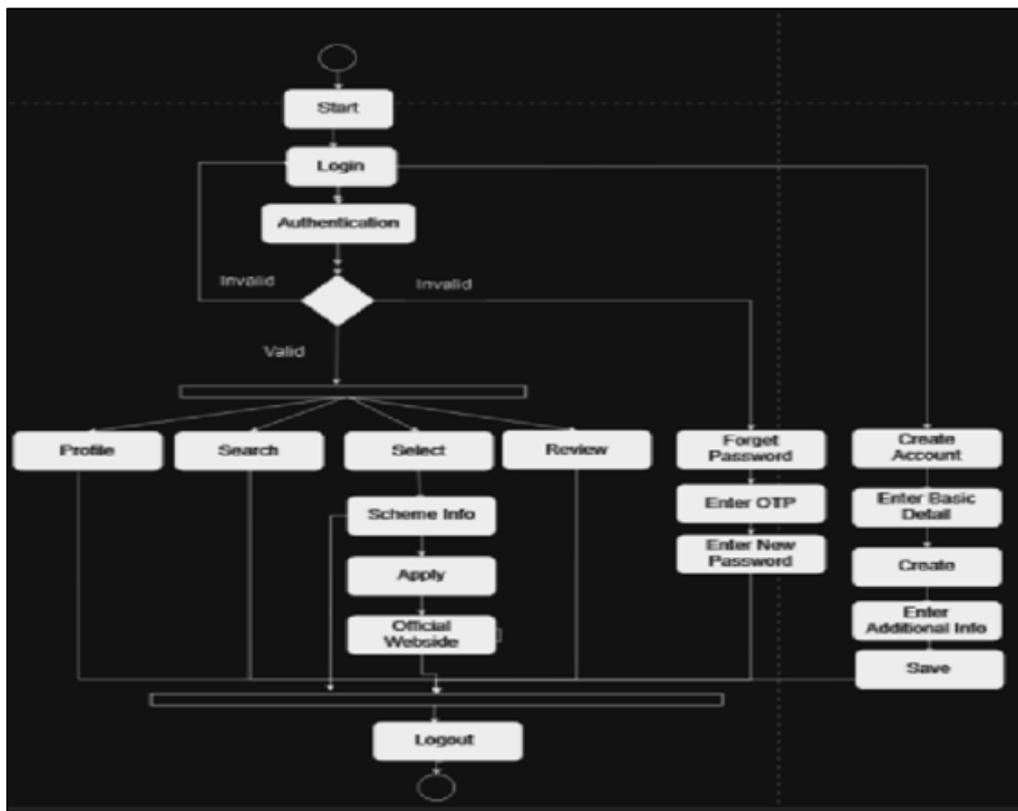


Fig 2: Process Diagram

## VI. RESULTS

In beta testing, more than 80 percent of users said the platform's ease of use and features were very high. Another thing we found useful through feedback was having the account management system for monitoring scholarship applications. With the advance search and filtering options, the average time for which users were looking for relevant scholarships reduced by a whopping 70% than what they do normally. Typical searches were originally time consuming as there were hundreds of options per search but with ability to narrow down search based on specific criteria users liked being able to quickly find suitable opportunities. It was able to provide a recommendation system for scholarships which accurately suggested the scholarships in which users positively matched based around 75% accuracy for the recommended scholarships to match the users profile. This feature vastly increased users engagement turning out many

users had applied for the scholarships that they perhaps wouldn't have ordinarily applied for. The automated database management system updated more than 90 percent of the scholarships listed on the platform with verified details. Credibility and reliability of the platform was increased through regular updates from reliable sources. Strong security was also included in the form of data encrypted and two factor authentication in order to decrease the possibility of data breach. Moreover, the system followed data protection norms (for example, GDPR, CCPA) protecting the privacy of the user data and establishing the trust of the users. More than 60% of users accessed the site from mobile devices. WCAG standard complied accessibility features were imposed on the platform to make it easy for users with disabilities to navigate the platform. Users of the IA found that after the launch, there was a 50% increase in scholarship applications submitted versus prior years, reflecting how reliable IA can be in bettering access to financial aid.

## SignUp on Scholarship Forum

Username

Email

Password

[SignUp](#)

Fig 3 : SignUp Page

The screenshot displays the 'All Scholarships' page of the Scholarship Forum. At the top, there is a navigation bar with an 'Explore' button, a search bar containing 'Search Scholarship', and a search icon. On the right side of the navigation bar, there are links for 'Add new Scholarship' and 'Log out'. The main content area is titled 'All Scholarships' and features a grid of eight scholarship listings. Each listing includes the scholarship name, a description, eligibility criteria, and benefits. Each listing also has 'Detail' and 'Apply' buttons. The scholarships listed are: National Scholarship Portal (NSP), PostMatric Scholarship for SC/ST/OBC, PreMatric Scholarship for Minorities, Maulana Azad National Fellowship for Minority Students, AICTE Pragati Scholarship for Girls, National Scholarship Portal (NSP), PostMatric Scholarship for SC/ST/OBC, and PreMatric Scholarship for Minorities.

Fig 4 : User Interface

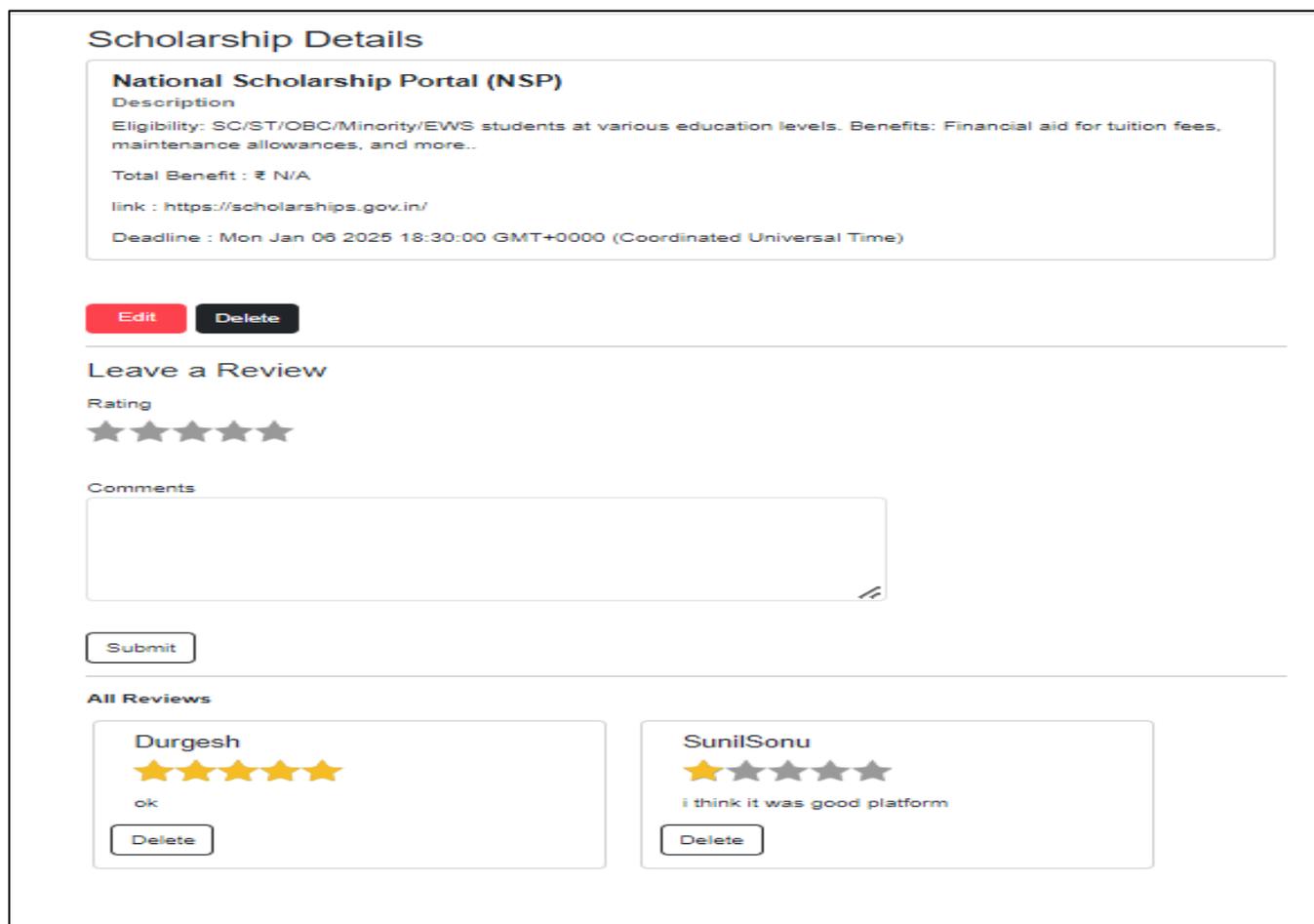


Fig 5 : Scholarship Details

**VII. DISCUSSION**

Results from this study have implications for the field of educational technology. As the demand for accessible educational material increases, there are more platforms using technology to help students access financial aid to help create fair educational environments. The prototype presents the scholarship search platform as a future direction for this area, with more developments in these areas of the user experience, security and accessibility.

**VIII. SCOPE OF RESEARCH**

Platform users are mainly high school students and undergraduate, graduate students searching for scholarships to support their education. This research attempts to address unique hurdles in which these groups face, including little awareness of scholarship options available, complicated eligibility requirements and complex navigation of multiple scholarship databases.

**IX. FUTURE SCOPE**

The platform could expand to include educational materials like articles, webinars, and workshops on topics such as scholarship applications, interview strategies, and financial literacy. The resources provide these users the knowledge and skills required to successfully go through the scholarship application process.

Additional areas for future research include:

- **Impact Assessment Studies:** Examine the consequences on long term outcomes — graduation rates and debt levels — for students.
- **User Behavior Analysis:** Explore user preferences and motivations to better tailor the platform to meet diverse student needs.
- **Comparative Studies:** Compare the platform with existing scholarship databases to identify best practices and areas for enhancement.
- **Effectiveness of Communication:** Try to evaluate on how to increase user engagement and improve platform adoption.
- **Scholarship Provider Perspectives:** Learn more about what scholarship providers need and what they prefer to increase collaboration.

- **Longitudinal Studies:** Use this to discover trends in user engagement over time to use in ongoing efforts to improve your platform.

## X. CONCLUSION

It is a huge step forward in overcoming the barriers students have to overcome to receive financial aid for their education by the creation of the scholarship search platform. It does this by incorporating user centered design principles and leveraging technology to increase accessibility, simplify the scholarship search process, and create an even more equitable educational environment. The platform possesses advanced search options, a secure account management, personalized recommendations and has been able to effectively engage the users and give them access to scholarship opportunities. The success of the platform can be gauged by positive user feedback and consecutive increase in application rates.

In addition, the research suggests several lines of future investigation, including the integration of emerging technologies and extensions of scholarship databases, as well as methods of reducing access barriers. In fact, this scholarship search platform can become an essential resource for students to follow on their educational paths by continuously refining and adapting the platform according to user feedback and competition in the field of educational technology. This research ultimately helps build on the emerging knowledge about how technology can help foster educational equity and accessibility, demonstrating the ongoing pressures to innovate toward scholarship seeking tools that work. With time, the platform has the possibility to grow more students and help them achieve an academic ambition and accomplish their dreams.

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