SCHOLARSHIP MANAGEMENT WEB PORTAL FOR GNDEC

PROJECT SYNOPSIS

OF MAJOR PROJECT

BACHELOR OF TECHNOLOGY

Computer Science and Engineering

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TABLE OF CONTENTS

INTRODUCTION

The **Scholarship Management Web Portal for Guru Nanak Dev Engineering College (GNDEC)** is an advanced, user-friendly platform designed to streamline and manage the entire scholarship process for students. This portal allows students to apply for various scholarships, track their application status, and submit necessary documents online. It also provides easy access to detailed information about available scholarships, including eligibility criteria, deadlines, and application procedures. By centralizing all scholarship-related activities, the portal ensures transparency, efficiency, and accessibility, making it easier for students to apply and stay updated on their applications.

For the administrative staff at Guru Nanak Dev Engineering College, the Scholarship Management Web Portal significantly reduces the manual workload involved in reviewing and processing scholarship applications. The portal enables administrators to efficiently track applications, verify student eligibility, approve or reject applications, and manage the disbursement of funds. Additionally, the portal helps in maintaining organized records of all scholarship applications and approvals, which are crucial for future reference, audits, or reporting purposes.

In conclusion, the Scholarship Management Web Portal for Guru Nanak Dev Engineering College plays a vital role in enhancing the accessibility, efficiency, and transparency of the scholarship application and management process. It is a modern solution that bridges the gap between students and financial aid, providing a streamlined, paperless, and efficient way to manage scholarships.[1]

RATIONALE

The Scholarship Management Web Portal for Guru Nanak Dev Engineering College (GNDEC) is essential to streamline the scholarship application, verification, and disbursement process. The current manual or semi-automated methods often lead to delays, errors, and inefficiencies, making it difficult for students to access financial aid smoothly.

Key Reasons for Implementation:

1. **Efficiency & Automation** – The portal will reduce paperwork, automate application processing, and minimize human errors.
2. **Transparency & Fairness** – A centralized system ensures unbiased scholarship allocation based on predefined eligibility criteria.
3. **Easy Accessibility** – Students can apply, track application status, and receive notifications online, reducing the need for physical visits.
4. **Data Security & Accuracy** – Secure authentication and database integration will protect student data and prevent fraud.
5. **Time & Cost Savings** – The digital process will significantly reduce administrative workload and processing time for both students and authorities.
6. **Better Record Management** – A centralized database will store and retrieve student scholarship records efficiently for future reference.

OBJECTIVES

The Objectives of the project:

1. To design a web portal to facilitate students to apply for available scholarships.
2. To facilitate college authorities to manage scholarship beneficiaries and required documentation.
3. To develop a user-friendly Interface for students and authorities to track status of scholarship applications and Report generation required for different purposes.

LITERATURE REVIEW

EXISTING SYSTEM

Existing system is fully manual work and also all the process in scholarship done manually Various types of reports, registers and bills are being prepared on a periodic basis manually. It have lot of paper works which results in various difficulties in terms of time and storage space. Report preparation is done in manually which result in more man power and maintenance of the results are also done manually it occupies more space and less fault tolerance.[2]

PROPOSED SYSTEM

Eliminating the constraints of the current manual approach is the primary goal of the suggested system. The suggested system is capable of overcoming the majority of the shortcomings of the current one. The suggested system's primary advantages are its speed and accuracy. Data redundancy does not exist. Searching time can be decreased because all the information is saved on a computer. Because computer systems are more secure, information may be more securely stored. The suggested approach offers data security and largely mitigates the shortcomings of the current system. By adding automation and validation checks, the suggested system seeks to improve upon the shortcomings of the current manual approach, hence cutting down on errors and processing time. The key benefits are:

Redundancy Reduction: By preventing redundancy, the system increases efficiency through a variety of validation processes.

Fast Data Processing and Access: The system handles data processing and offers fast information access.

Specialization: Compared to the previous system, the new system's primary focus is on cutting down on time consumption.

Paperwork Reduction: The system drastically lowers the quantity of paperwork needed by automating procedures.[3,4]

SYSTEM METHODOLOGY

The methodology for developing the Scholarship Management Web Portal forGuru Nanak Dev Engineering College (GNDEC) involves a structured approach to ensure efficient design, development, and implementation. Below is a brief overview of the methodology:

1) **REQUIREMENTS ANALYSIS:** The requirements analysis phase ensures that all stakeholders' needs are identified and addressed.
    - Gather requirements from students, faculty, and administrative staff.
    - Identify different types of scholarships available.
    - Define user roles (Admin, Student, Clerk).

2) **SYSTEM DESIGN:** The Portal is designed to streamline the application, evaluation, and distribution of scholarships. The system ensures transparency, efficiency, and ease of access for students, faculty, and administrators.
    - Architecture: A three-tier architecture (Frontend, Backend, Database).
    - Database Design: Tables for student details, scholarship details, application status, and approvals.
    - UI/UX Design: User-friendly interface for easy navigation.

3) **TECHNOLOGY STACK:** The methodology for selecting the technology stack for the Scholarship Management Web Portal is based on scalability, security, ease of maintenance, and user experience. The portal is designed to facilitate students, administrators, and faculty members in managing scholarship applications efficiently.
    - Frontend: HTML, CSS, JavaScript, React.js.
    - Backend: Node.js , Python, PHP
    - Database: MySQL

4) **DEVELOPMENT PHASES:** The development of the Scholarship Management Web Portal for GNDEC follows a structured software development methodology to ensure efficiency, reliability, and scalability.

i. **Module-wise Development:**
   - Student registration & login.
   - Scholarship listing & search functionality.
   - Online application submission
   - Admin verification & approval workflow
   - Notifications via email/SMS

ii. **Integration:** Connect frontend with backend and database.

5) **TESTING & VALIDATION:** The Scholarship Management Web Portal for GNDEC follows a systematic methodology for testing and validation to ensure functionality, security, and efficiency.
   - Unit Testing: Test individual modules.
   - System Testing: Ensure smooth end-to-end functionality.
   - User Acceptance Testing (UAT): Validate with stakeholders.

6) **DEPLOYMENT & MAINTANANCE:** This approach allows for iterative development and continuous feedback, ensuring the system meets the needs of students and administrators while adapting to changes.
   - Provide periodic updates and security patches.
   - Monitor system performance and gather feedback for improvements.

SYSTEM STUDY

FEASIBILITY STUDY

The main objectives of feasibility study is to test the technical, operational and economics feasibility of developing a system. This is done before developing a system. This is done by investigating the existing system in the area under investigation and generation ideas about the new system.

1. TECHNICAL FEASIBILITY

The system must be evaluated from the technical view point first. The assessment of this feasibility must be based on an outline design of the system requirement in terms of input, output, programs, procedure and staff. Having identified the outline of the system, the investigation must go on to suggest the type of equipment. Required material of developing thesytem and the method of running the system.

Technologies used: HTML, CSS. Python, JS, React, Node.js, Database mysql.

2. ECONOMICAL FEASIBILITY

This developing system must be justified by cost and benefit criteria to ensure that effort is concentrated on project which will give best return at the earliest. One of the factors which affect the development of a new system is the cost it would requires Sinse the system is developed as a part of our study, there is no manual cost to be spent for the proposed system.

3. OPERATIONAL FEASIBILITY

Proposed project would be beneficial only if they can be turned into information system that'll meet the organization operating requirements. One of the main problems faced during the development of a new system is getting acceptance from user. Being general purpose software there are no resistance from the users because this will be more beneficial to the users while surfing websites which contains thousands of pages.

SYSTEM REQUIREMENTS SPECIFICATION

The Scholarship Management Web Portal for Guru Nanak Dev Engineering College (GNDEC) is designed to streamline the scholarship application process, track eligibility, and manage awards for students. The system will support students, administrators, and faculty in managing scholarships efficiently. Here are some main SRS:

1) **HARDWARE REQUIREMENTS:** The system will require a combination of server-side and client-side hardware to ensure smooth performance, security, and accessibility. The hardware setup can be categorized into the following:
   - **Server Requirements (For Hosting)**
     - Processor: Intel Xeon
     - RAM: Minimum 16GB (32GB recommended for high traffic)
     - Storage:1TB SSD
     - Operating System: Windows Server / Linux
     - Network: High-speed internet connection
   - **Client-Side**
     - Desktop/Laptop: Minimum Intel i3
     - Browser Compatibility: Google Chrome, Mozilla Firefox, Edge
     - Internet Connection: Minimum 10 Mbps for smooth access
     - Mobile Devices: Android/iOS compatibility for student access
   - **Networking & Security Infrastructure**
     - Firewall & Security Appliances: For data protection and prevention of cyber threats
     - Load Balancer: To manage high traffic and prevent downtime
     - Backup Server: To ensure data recovery and redundancy

2) **SOFTWARE REQUIREMENTS:** The system will provide a centralized platform for students, administrators, and faculty members to interact efficiently. To ensure the portal's functionality and performance, the system will require a set of hardware, software, and network resources.

- **Frontend Technologies (User Interface)**
  - Languages: HTML, CSS, JavaScript
  - Frameworks: React.js
- **Backend Technologies(Server-Side)**
  - Languages: Node.js , Python , PHP
  - Frameworks: Django for Python
  - APIs: Restful APIs for data exchange between frontend & backend
- **Database Management System**
  - Relational Database: MySQL (for structured data)

SYSTEM DESIGN

The system design follows a Modular Architecture that separates different functionalities into distinct modules, allowing for scalability, maintainability, and flexibility.

1) **SYSTEM FLOW CHART:** The System Flow Chart for the Scholarship Management Web Portal for Guru Nanak Dev Engineering College (GNDEC) illustrates the step-by-step flow of processes within the system. It provides a visual representation of how various components interact with one another and how data moves through the system. This chart is crucial for understanding the system architecture and the sequence of operations, ensuring clarity in both development and operation.

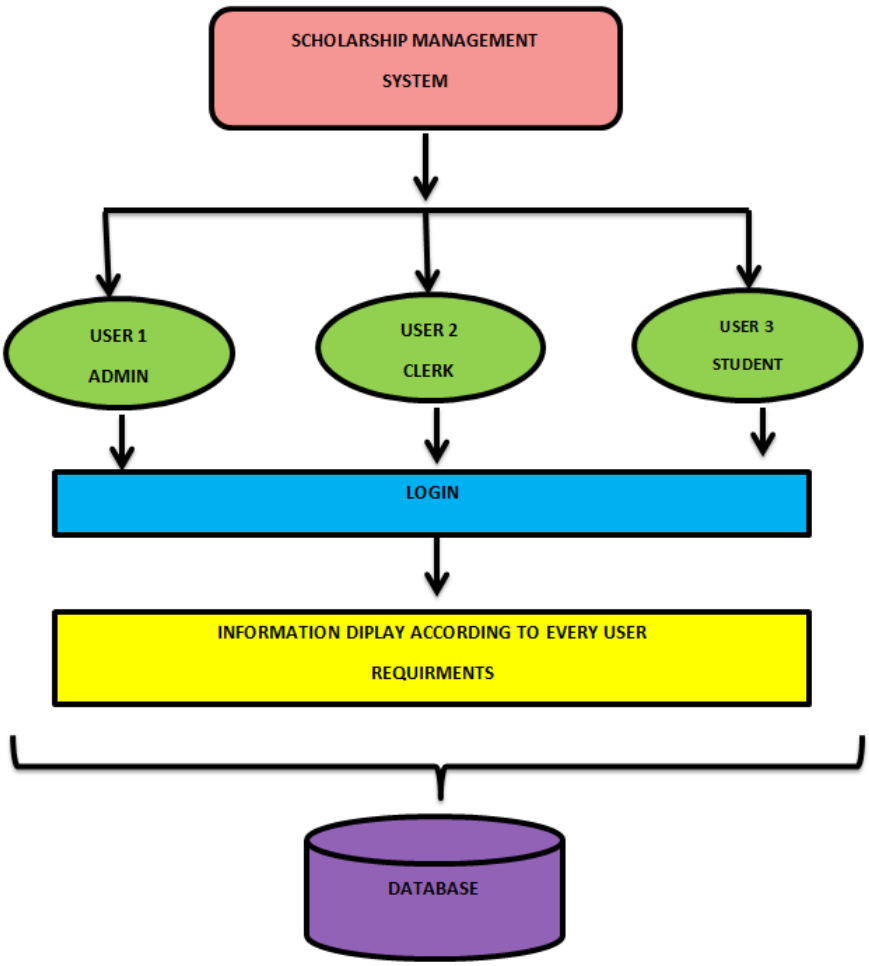

FIGURE 1: FLOW CHART OF SYSTEM

2) **ADMIN:**The Admin Flowchart is following:

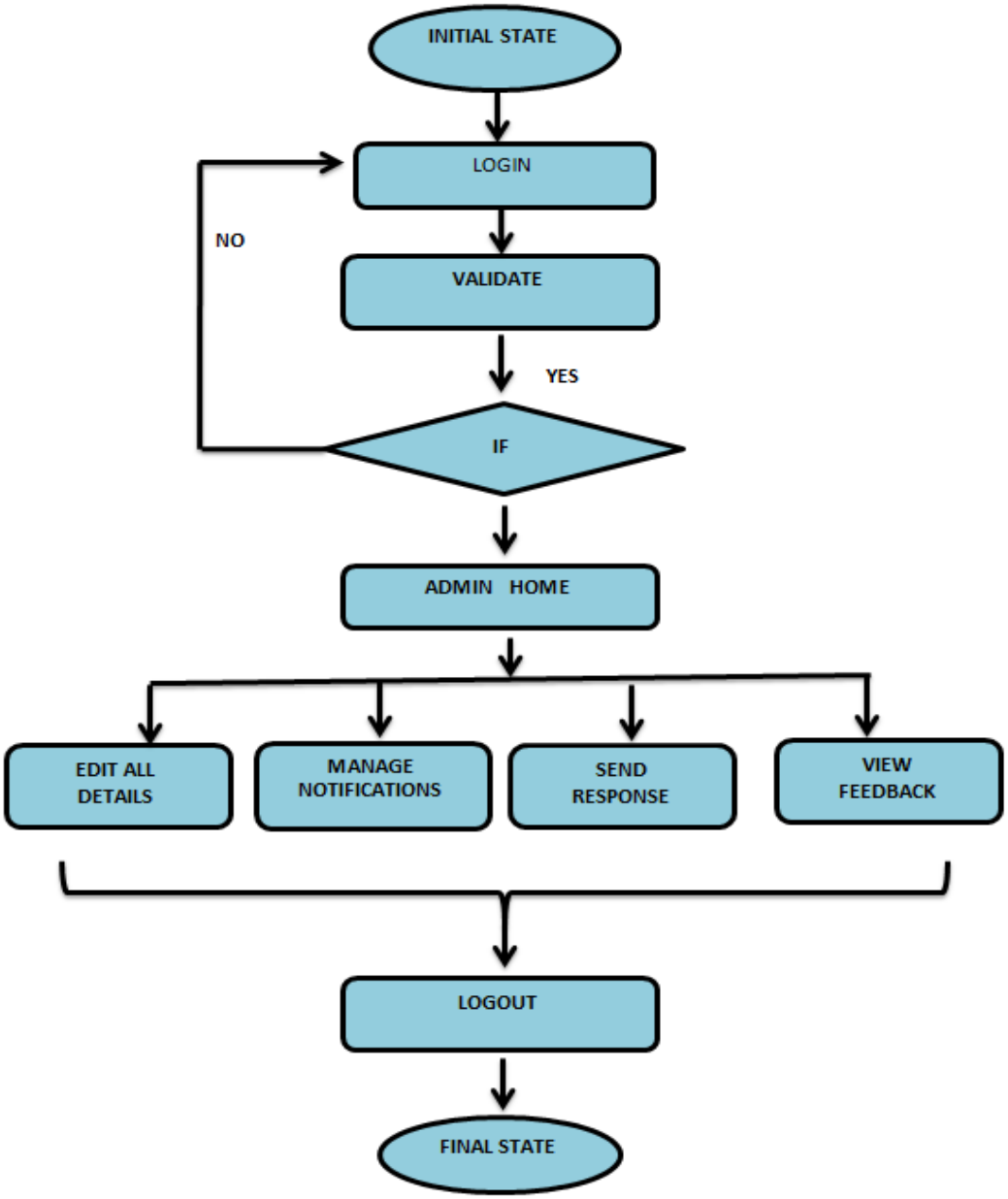

FIGURE 2: FLOW CHART OF ADMIN

The detailed description of figure 2 is as follows:

LOGIN: Firstly admin can login on this scholarship web portal.

VALIDATE: In this section, login information is verified if it is true then admin will go on home page otherwise go to login section again and fill correct login information.

ADMIN HOME PAGE: After successfully login on the portal then admin can reach on Home page and check all needed details. Admin can be edit all details, manage notifications and view feedback.

3) STUDENT: The Student Flowchart is following:

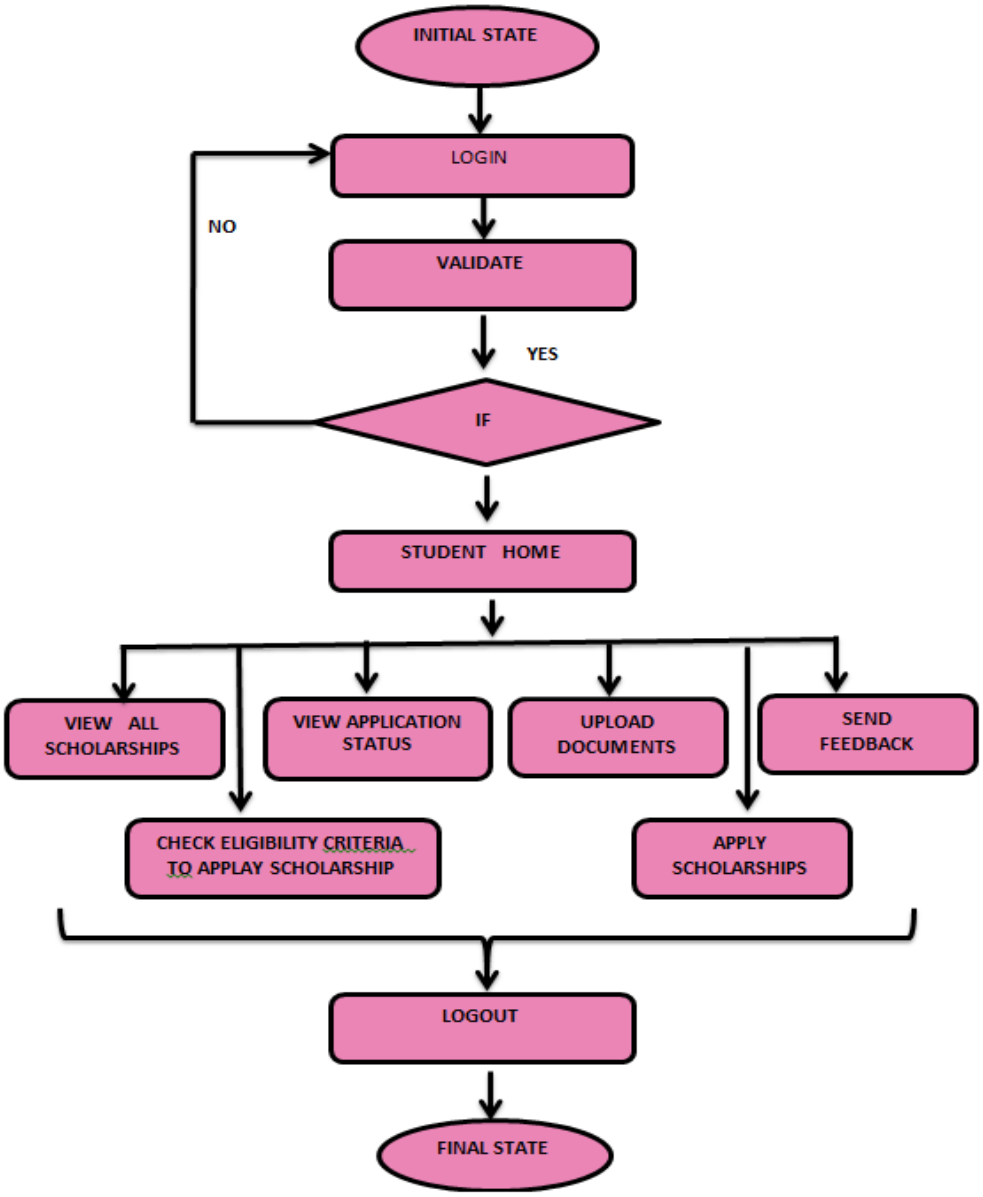

FIGURE 3: FLOW CHART OF STUDENT

The detailed description of figure 3 is as follows:

LOGIN AND VALIDATE: Firstly Student login on this scholarship web portal.

STUDENT HOME PAGE: After successfully login on the portal then student can reach on Home page and check all needed details. Student can be view all scholarships, view appl. Status, apply scholarship and send feedback etc.

4) CLERK: The Clerk Flowchart is following:

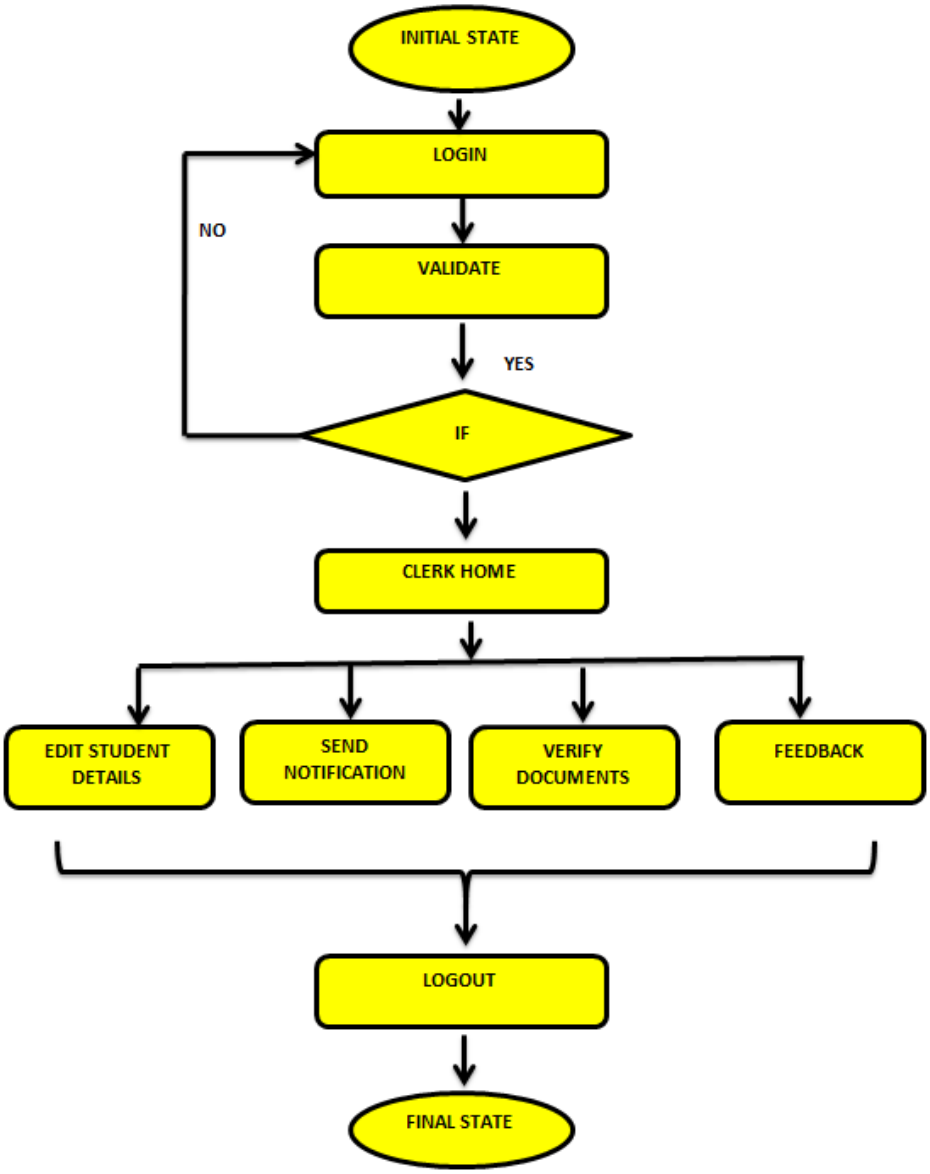

FIGURE 4: FLOW CHART OF CLERK

The detailed description of figure 4 is as follows:

LOGIN AND VALIDATE: Firstly Clerk login on this scholarship web portal. CLERK **HOME PAGE:** After successfully login on the portal then clerk can reach on Home page and check all needed details. Clerk can be edit student details, send notifications, verify documents and feedback etc.

EXPECTED OUTCOMES

The expected outcomes of the Scholarship Management Web Portal for Guru Nanak Dev Engineering College (GNDEC) include a significant improvement in the efficiency and transparency of the scholarship process. Students will benefit from a streamlined application and tracking system, ensuring timely access to scholarships based on merit and need. Administrative staff will experience reduced workload due to automation, quicker processing times, and fewer errors in data handling. The system will also provide better record management, allowing for easy access to past applications and approvals. Enhanced data security, transparency in allocation, and simplified communication through notifications are key benefits. Overall, the portal will create a more user-friendly and reliable scholarship management process, improving both student satisfaction and institutional operations.

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