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ROLL NUMBER: 22DCO04

BATCH : 01

Experiment No. 06 – SRS Document

Aim: To develop Software Requirement Specification (SRS) document in IEEE format for the selected case study.

Theory:

An SRS is basically an organization's understanding (in writing) of a customer or potential client's system requirements and dependencies at a particular point in time (usually) prior to any actual design or development work. It's a two-way insurance policy that assures that both the client and the organization understand the other's requirements from that perspective at a given point in time. The SRS document itself states in precise and explicit language those functions and capabilities a software system must provide, as well as states any required constraints by which the system must abide. The SRS also functions as a blueprint for completing a project with as little cost growth as possible. The SRS is often referred to as the "parent" document because all subsequent project Software Engineering Lab management documents, such as design specifications, statements of work, software architecture specifications, testing and validation plans, and documentation plans, are related to it. SRS should address the following: a) Functionality. What is the software supposed to do? b)

External interfaces. How does the software interact with people, the system,,s hardware, other hardware, and other software? c) Performance. What is the speed, response time, recovery time of various software functions, etc.? d) Attributes. What are the portability, correctness, maintainability, security, etc. considerations? e) Design constraints imposed on an implementation. Are there any required standards in effect, implementation language, policies for database integrity, operating environment(s) etc.?

1. INTRODUCTION

1.1 PURPOSE

The abstract of this presentation focuses on the importance of raising funds for the education of under privileged students. Education is a fundamental right that every child should have access to, but unfortunately, not all children are given the opportunity to receive an Education.

1.2 INTENDED AUDIENCE AND READING SUGGESTIONS

We employed a mixed-methods approach to gather data from various stakeholders involved in the education of under privileged students. The quantitative data was collected through surveys while the qualitative data was obtained through interviews and focus group discussions.

1.3 PROJECT SCOPE

we hope to inspire you to take action and make a difference in the lives of these students. By donating to organizations that provide education

and support to these students, we can help break the cycle of poverty and give them a chance to succeed.

1.4 REFERENCES

1. Smith, J. (2018). The Impact of Education on Poverty. Journal of Education and Development, 42(2), 67-83.
2.Johnson, M. (2019). Addressing the Educational Needs of Low-Income Students. Educational Leadership Review.

2. OVERALL DESCRIPTION

2.1 PRODUCT PERSPECTIVE

1) User Perspective:

- User-Friendliness: Ensure the website is easy to navigate and use, making it accessible to a wide range of potential donors.
- Donor Experience: Focus on creating a positive experience for donors, including smooth donation processes and clear communication.
- Mobile Optimization: Make sure the website is mobile-responsive to accommodate users on various devices.

2) Payment Processing Perspective:

- Secure Transactions: Implement robust security measures to protect donor information during payment processing.

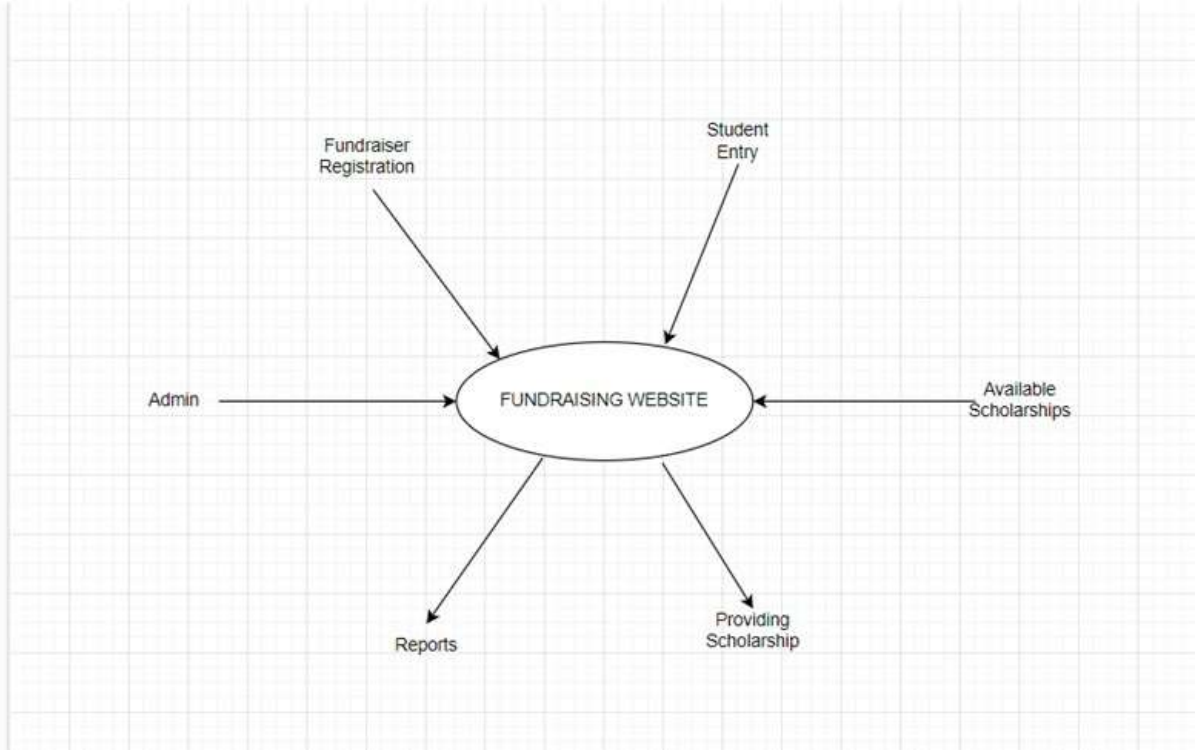
- Payment Options: Support various payment methods, including credit/debit cards, PayPal, and possibly cryptocurrency, to accommodate donor preferences.

3) Feedback and Improvement Perspective:

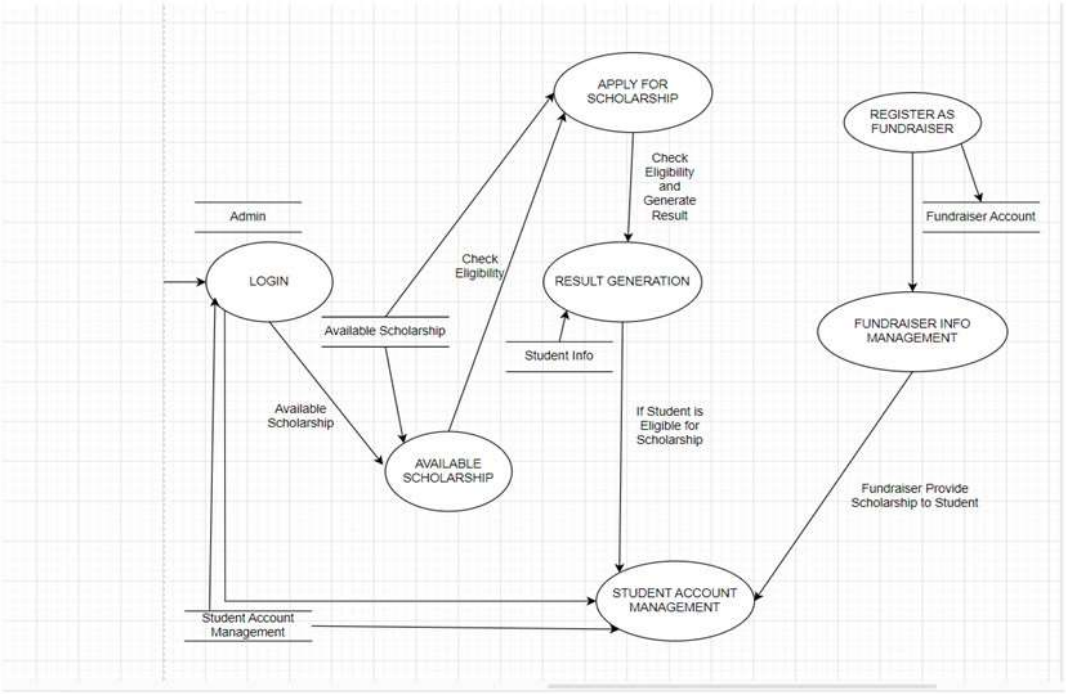
- Feedback Mechanisms: Collect feedback from users, both donors and fundraisers, to continuously improve the website's functionality and user experience.
- Iterative Development: Plan for ongoing updates and enhancements based on user feedback and changing fundraising trends.

2.2 PRODUCT FEATURES

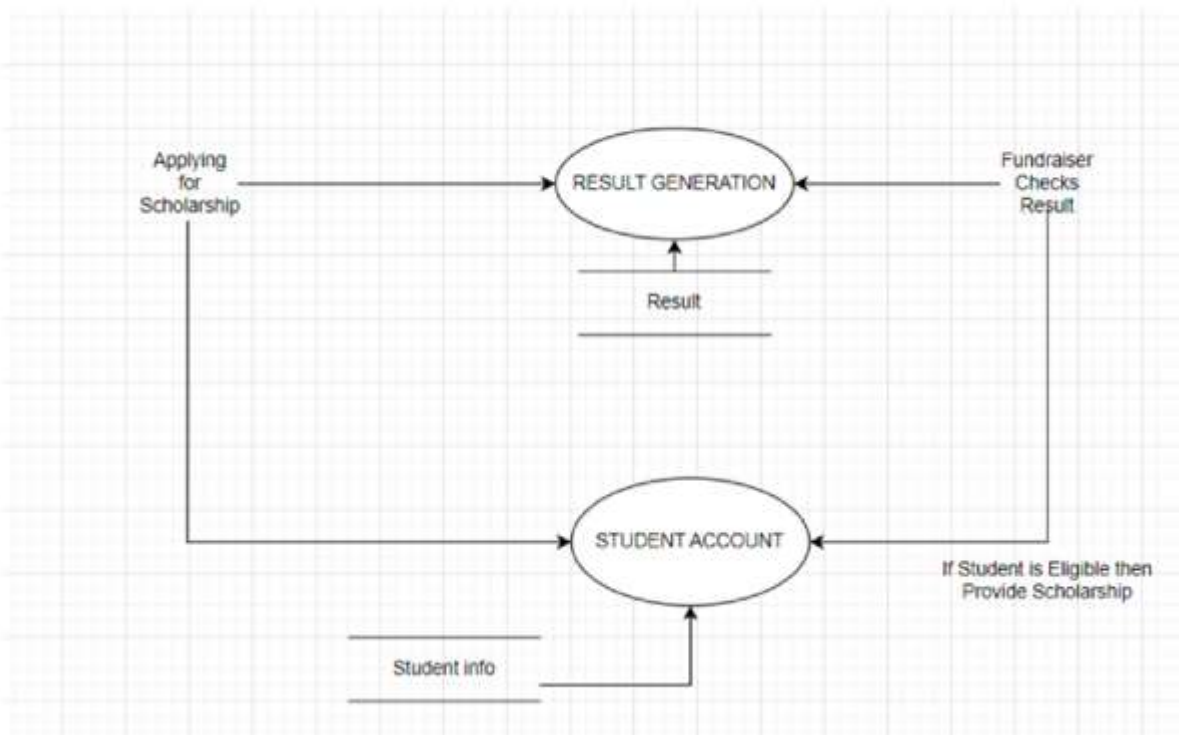
DFD 0 :



DFD 01 :


APPLY FOR SCHOLARSHIP
REGISTER AS FUNDRAISER
Check Eligibility and Generate Result
Admin
Fundraiser Account
LOGIN
Check Eligibility
RESULT GENERATION
Available Scholarship
FUNDRAISER INFO MANAGEMENT
Student Info
Available Scholarship
If Student is Eligible for Scholarship
AVAILABLE SCHOLARSHIP
Fundraiser Provide Scholarship to Student
STUDENT ACCOUNT MANAGEMENT
Student Account Management

DFD 02 :


Applying for Scholarship
RESULT GENERATION
Fundraiser Checks Result
Result
STUDENT ACCOUNT
If Student is Eligible then Provide Scholarship
Student info

2.3 USER CLASS and CHARACTERISTICS

Donors:

Characteristics:

- Individuals or organizations interested in supporting educational causes and initiatives.
- May include parents, alumni, philanthropists, and businesses.
- Varying levels of financial capacity and motivations for giving.

Needs and Expectations:

- Easy and secure donation process.
- Clarity about the educational projects and institutions they can support.
- Receipts and acknowledgments for their donations.
- Options for specifying the educational areas or programs they want to fund.

Educational Institutions:

Characteristics:

- Schools, colleges, universities, and educational nonprofits.
- Seeking funding for specific projects, scholarships, or infrastructure improvements.
- Diverse sizes and missions.

Needs and Expectations:

- Tools for creating and managing fundraising campaigns.
- Customization options for campaign pages, including images, videos, and project descriptions.
- Access to donation tracking and reporting.
- Assistance in promoting campaigns to their alumni and communities.

Students and Scholarship Recipients:

Characteristics:

- Students in need of financial assistance.
- Ambitious individuals looking for scholarship opportunities.
- May include high school students and college students.
- Needs and Expectations:
- Access to scholarship listings and application processes.
- Clear information about eligibility criteria and application deadlines. ● Assistance in navigating the scholarship application process.

2.4 OPERATING ENVIRONMENT

Distributed Database:

- This database platform is used to manage user data, fundraising campaigns, and donations.
- A distributed database means that data can be stored in multiple locations, increasing scalability and redundancy.

Client/Server System:

- The client/server system is used for communication and data access between users and the website.
- Users (clients) use the website to explore educational campaigns and make donations.
- The server is responsible for data storage and processing.

Operating System: Windows:

- The operating system is Windows-based and is used for both server and client computers.
- Windows OS provides a reliable and secure platform.

Database: Firebase Realtime Database:

- Firebase Realtime Database is a NoSQL cloud-hosted database service.
- It stores and manages user profiles, fundraising campaign details, donations, and other data in real-time.

Platform: React:

- React is a JavaScript library for building user interfaces.
- It is used for developing the frontend of the website, creating interactive and dynamic user interfaces.
- React can be integrated with various backend technologies,

  including Node.js, Java, PHP, or others, for full-stack web

  development. 2.5 DESIGN and IMPLEMENTATION

  CONSTRAINTS

1) Global Schema:

Constraint: The global schema for the fundraising website must support a diverse set of data types, including user profiles, campaign details, donations, and multimedia content (e.g., images and videos).

Reason: To accommodate various types of information related to educational campaigns and donors.

2) Fragmentation Schema:

Constraint: Data fragmentation must ensure that user data, campaign data, and donation records are appropriately distributed across the distributed database.

Reason: To achieve load balancing, scalability, and redundancy while maintaining data integrity.

3) Allocation Schema:

Constraint: The allocation schema must consider data locality, network latency, and fault tolerance when distributing data across distributed database nodes. Reason: To optimize data retrieval performance and ensure high availability.

4) SQL Commands for Queries/Applications:

Constraint: The SQL commands used for database queries and applications must be optimized for performance, security, and data integrity.

Reason: To ensure efficient retrieval and manipulation of data for user profiles, campaign management, and donation processing.

5) Response Generation for Global Queries:

Constraint: Global queries, such as retrieving campaign statistics or donor trends, require combining data from various distributed fragments.

Reason: To provide comprehensive insights into fundraising activities, the response generation process must efficiently aggregate data from multiple sources.

6) Implementation using Centralized DBMS:

Constraint: The fundraising website's initial implementation should use a centralized database management system (DBMS) before transitioning to a distributed system.

Reason: To simplify the development process and reduce complexity during the early stages, but with the awareness that scalability may be required in the future.

7) Security and Data Privacy:

Constraint: Stringent security measures must be implemented to protect sensitive donor information and financial transactions.
Reason: To ensure user trust and compliance with data protection regulations.

8) Scalability and Performance:

Constraint: The system design must account for potential growth in the number of campaigns, users, and donations.
Reason: To handle increased traffic and data volume without compromising website performance.

9) Compliance with Regulations:

Constraint: The website must adhere to legal and regulatory requirements related to online fundraising and data handling.

Reason: To avoid legal issues and maintain a positive reputation.

10) Cross-Platform Compatibility:

Constraint: The website must be compatible with various devices, browsers, and operating systems.

Reason: To ensure accessibility and usability for a broad user base.

11) Usability and Accessibility:

Constraint: The website's user interface and content must be designed to be user-friendly and accessible to individuals with disabilities.

Reason: To provide an inclusive user experience.

12) Data Backup and Recovery:

Constraint: Robust data backup and recovery mechanisms must be in place to safeguard against data loss or system failures.

Reason: To maintain data integrity and minimize downtime in case of unforeseen events.

2.6 ASSUMPTION DEPENDENCIES

1) Internet Connectivity:

Assumption: Users have reliable internet connectivity to access the website.

Dependency: The website's functionality relies on users' ability to connect to the internet. Lack of connectivity could hinder user interactions.

2) User Device Availability:

Assumption: Users have access to compatible devices (computers, smartphones, tablets) to access the website.

Dependency: The website assumes that users have devices with web browsers to navigate and interact with the platform.

3) Data Accuracy:

Assumption: Data provided by campaign organizers, educational institutions, and donors is accurate and up-to-date.

Dependency: The success of fundraising campaigns and donor trust relies on the accuracy of campaign details, financial information, and impact reports.

4) Payment Processing Reliability:

Assumption: Payment processing services (e.g., credit card processors, payment gateways) are reliable and secure.

Dependency: The website relies on third-party payment processing services to handle financial transactions. Any issues with these services can affect donations.

5) Legal and Regulatory Compliance:

Assumption: Campaign organizers and the platform adhere to legal and regulatory requirements for fundraising, data privacy, and tax implications.

Dependency: Failure to comply with regulations could lead to legal issues and negatively impact the website's reputation.

6) User Trust:

Assumption: Users trust the platform to handle their personal and financial data securely.

Dependency: Trust is crucial for users to make donations. Any breach of trust can harm the website's credibility.

7) Server Uptime:

Assumption: The website's servers are operational and available for most of the time.

Dependency: Downtime or server outages can disrupt user access and donations. It is assumed that server maintenance is scheduled to minimize downtime.

8) Cross-Browser Compatibility:

Assumption: The website is compatible with major web browsers (e.g., Chrome, Firefox, Safari, Edge).

Dependency: Users depend on the website's compatibility with their preferred browsers for a smooth user experience.

9) Data Backup and Recovery:

Assumption: Adequate data backup and recovery procedures are in place.
Dependency: To safeguard against data loss or system failures, it is assumed that regular data backups and recovery mechanisms are implemented.

10) Moderation and Content Review:

Assumption: Content posted on the website by campaign organizers is reviewed and moderated for compliance with community standards.

Dependency: Ensuring that content is appropriate and adheres to guidelines is vital to maintain a positive user experience and prevent misuse.

11) User Support:

Assumption: Adequate user support mechanisms, such as customer service or help resources, are available.

Dependency: Users may require assistance with various issues, and it is assumed that the website offers support to address their queries or concerns.

3. SYSTEM FEATURES

- DESCRIPTION and PRIORITY

The fundraising website for education is a high-priority online platform dedicated to supporting educational causes and initiatives. It provides a user-friendly interface for users to discover, engage with, and contribute to various educational campaigns and projects. The website allows educational institutions, individuals, and organizations to create fundraising campaigns, share their stories, and seek financial support for educational programs, scholarships, infrastructure improvements, and other educational endeavors. Donors can explore campaigns, make donations, and track the impact of their contributions. The platform fosters collaboration between fundraisers, donors, and educational institutions, ultimately working towards the advancement of education and learning opportunities.
This website's high priority is attributed to its crucial role in advancing educational empowerment, impacting future generations, promoting accessibility and inclusivity, building donor trust, contributing to social and economic development, ensuring scalability and responsiveness,

upholding legal and ethical compliance, and enhancing the overall user experience.

- STIMULUS/RESPONSE SEQUENCES

Discover Educational Campaigns:

Stimulus: User visits the website's homepage.

Response: The website displays featured educational campaigns, trending initiatives, and a search/browse option for users to explore educational causes.

Explore Campaign Details:

Stimulus: User clicks on a specific campaign or campaign category.

Response: The website presents detailed information about the campaign, including its goals, impact, photos, videos, and the option to make a donation.

Contribute to a Campaign:

Stimulus: User selects the "Donate" or "Contribute" button on a campaign page.

Response: The website guides the user through the donation process, offering options for one-time or recurring donations, and collects necessary information.

Create a Fundraising Campaign:

Stimulus: A registered user chooses to start their educational fundraising campaign.

Response: The website provides tools to create a campaign page, customize content, set fundraising goals, and share their story with potential donors.

Track Donation Impact:

Stimulus: Donor logs in to their account.

Response: The website provides a dashboard showing the donor's donation history, impact reports from supported campaigns, and updates on the progress of ongoing initiatives.

Engage with Educational Institutions:

Stimulus: An educational institution logs in to its account.

Response: The website offers tools for educational institutions to manage their fundraising campaigns, communicate with donors, and showcase the impact of donations on their institution.

Request Support for a Scholarship:

Stimulus: A student or scholarship program seeks financial assistance.
Response: The website provides a platform to create scholarship listings, set eligibility criteria, and facilitate the application and selection process.

Connect with Supporters:

Stimulus: Users express interest in volunteering, mentoring, or advocating for educational causes.

Response: The website offers ways to connect users with educational institutions or campaigns in need of volunteer support.

Report Misuse or Violations:

Stimulus: Users encounter inappropriate content or potential violations of website guidelines.

Response: The website provides reporting mechanisms to address such issues and ensures content moderation and compliance.

Access Educational Resources:

Stimulus: Users seek educational resources related to fundraising, campaign management, or scholarship application.

Response: The website offers a resource center with articles, guides, and tools to help users succeed in their educational initiatives.

4. EXTERNAL INTERFACE REQUIREMENTS

4.1 USER INTERFACES

- Front-end software:

react ● Back-end

software: firebase

4.2 HARDWARE INTERFACES

- Windows.
- A browser that supports CGI, HTML & Javascript.

4.3 SOFTWARE INTERFACES

Software used	Description

Operating system	We have chosen Windows operating system for its best support and user-friendliness.
Firebase	Firebase Realtime Database is a NoSQL cloud-hosted database service.
React	React is a JavaScript library for building user interfaces.

5. NONFUNCTIONAL REQUIREMENTS

5.1 SAFETY REQUIREMENTS

1) Secure User Authentication: Implement strong user authentication, including multi-factor authentication (MFA), to ensure only authorized users access their accounts, and protect sensitive user data.

2) Data Encryption: Use encryption for data transmission (HTTPS) and data at rest to safeguard sensitive information, including user profiles, payment data, and donation records.

5.2 SOFTWARE QUALITY ATTRIBUTES

1.)Usability: Ensure the website is user-friendly, with intuitive navigation, clear calls to action, and responsive design to enhance the user experience.

2.) Performance: Optimize website speed and responsiveness to provide users with fast loading times, smooth interactions, and a seamless browsingexperience, even during peak traffic periods.

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