Project data structure

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Subject

Scholarship application tracker and management system:

\*System Overview\*

The Scholarship Application Tracker and Management System is designed to manage and track scholarship applications for students. The system will allow administrators to add, update, and delete scholarship opportunities, as well as track student applications and award scholarships.

\*Data Structures Used\*

1. \*Arrays\*: To store scholarship opportunities and student applications.

2. \*Linked Lists\*: To manage the list of scholarship opportunities and student applications.

3. \*Stacks\*: To implement the undo and redo functionality for administrators.

4. \*Queues\*: To manage the list of student applications waiting to be reviewed.

5. \*Hash Tables\*: To store student information and scholarship opportunities for efficient lookup and retrieval.

6. \*Trees\*: To implement the search functionality for scholarship opportunities and student applications.

\*System Components\*

1. \*Scholarship Opportunity Management\*:

- Add new scholarship opportunities

- Update existing scholarship opportunities

- Delete scholarship opportunities

- Display list of scholarship opportunities

2. \*Student Application Management\*:

- Add new student applications

- Update existing student applications

- Delete student applications

- Display list of student applications

3. \*Application Review and Award\*:

- Review student applications

- Award scholarships to selected students

- Display list of awarded scholarships

4. \*Reporting and Analytics\*:

- Generate reports on scholarship opportunities and student applications

- Display analytics on scholarship awards and student demographics

\*System Requirements\*

1. \*Hardware\*:

- Server with minimum 8GB RAM and 256GB storage

- Database server with minimum 16GB RAM and 512GB storage

2. \*Software\*:

- Programming language: Java or Python

- Database management system: MySQL or PostgreSQL

- Web framework: Spring or Django

3. \*Network\*:

- High-speed internet connection

- Secure network protocols (HTTPS, SSL/TLS)

\*System Implementation\*

1. \*Design\*:

- Create a detailed design document outlining the system architecture, components, and data structures.

- Create a prototype to test and refine the system design.

2. \*Development\*:

- Implement the system using the chosen programming language, database management system, and web framework.

- Conduct unit testing, integration testing, and system testing to ensure the system meets the requirements.

3. \*Deployment\*:

- Deploy the system on the production server.

- Configure the database and network settings.

- Conduct user acceptance testing (UAT) to ensure the system meets the user requirements.

\*System Maintenance\*

1. \*Regular Backups\*:

- Schedule regular backups of the database and system files.

2. \*Software Updates\*:

- Regularly update the programming language, database management system, and web framework to ensure the system remains secure and stable.

3. \*Performance Monitoring\*:

- Monitor the system performance and optimize the database and network settings as needed.

4. \*Security Audits\*:

- Conduct regular security audits to identify and address potential security vulnerabilities.

This proposal outlines a comprehensive Scholarship Application Tracker and Management System using data structures. The system will provide an efficient and effective way to manage scholarship opportunities and student applications.