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Seat No: 425

Project ID: 25

Project title: Student Database Management

Technical Components

Component	Tech Stack
Backend	Express.js Node.js
Frontend	Angular(Js Frame work)
Database	MongoDB(NOSQL Database)
API	REST Ful API / GraphQL APIs

Implementation Timeline

Phase	Deadline	Status	Notes
Stage 1	02/05/2024	IN progress ▾	Planning and Requirement gathering
Stage 2		Not started ▾	Design and Prototyping
Stage 3		Not started ▾	DB Designing
Stage 4		Not started ▾	Backend Implementation
Stage 5		Not started ▾	Testing & Implementation

PROBLEM STATEMENT:

Design a web application that caters to the needs of administrators and students within an educational institution. The website should provide the following functionalities:

Administrator Functionality:

- The admin should be able to filter the student name list based on various criteria such as department, gender, year, student status, hostel/dayscholar, community, quota, seat category, etc.
- The filtering mechanism should allow the admin to efficiently search and retrieve specific student information based on the selected filters.
- The admin should have the ability to export the filtered name list for further analysis or reporting purposes.
- The admin should have the ability to import an excel sheet of their choice. They should be able to select a specific file in the excel sheet, filter the sheet. They should be able to export the filtered sheet.

Student Functionality:

- Upon logging in, each student should be directed to their personalized dashboard.
- The student dashboard should display relevant information such as course schedule, grades, attendance, upcoming events, and any other pertinent details tailored to the individual student.

PROJECT-FLOW:

User Authentication

- Implement a secure login system for both administrators and students.
- Ensure proper user role management (admin vs. student) to control access to respective functionalities.

Administrator Dashboard

- Design an intuitive admin dashboard interface.
- Incorporate filtering options for the student name list based on the specified criteria (department, gender, year, student status, hostel/dayscholar, community, quota, seat category, etc.).

- Implement the filtering functionality using appropriate database queries and user interface elements.
- Provide an export option to generate a CSV file of the filtered student name list.

Filtering Functionality

- Identify the relevant database tables and columns required for the filtering options.
- Implement dynamic query generation based on the selected filters.
- Optimize the database queries for efficient data retrieval.
- Ensure the filtering options are user-friendly and responsive.

CSV Export

- Develop a function or module to generate a CSV file from the filtered student data. Provide a download button or link for the admin to initiate the CSV export.
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- Ensure the exported file is properly formatted and contains the relevant student information.

Excel Sheet Import

- User Interface: Design a user-friendly interface for administrators to upload Excel sheets.
- Data Parsing: Implement a mechanism to parse the uploaded Excel sheet and extract relevant student data.
- Field Mapping: Allow admins to map fields from the Excel sheet to the system's database columns for filtering.

Field Filtering

- Custom Field Selection: Provide a feature for admins to select specific fields from the imported Excel sheet for filtering.
- Dynamic Query Generation: Develop a mechanism to generate dynamic queries based on the selected fields for data filtering.
- User Interface Enhancement: Enhance the filtering interface to accommodate Excel sheet field selections.

Display Filtered Data

- **Data Presentation:** Format and display the filtered student data in a clear and organized manner.
- **Interactive Interface:** Create an interactive dashboard to showcase the filtered results effectively.
- **Real-Time Updates:** Ensure the displayed data reflects any changes made to the filtering criteria.

Export Filtered Name List

- **Export Functionality:** Provide an option for admins to export the filtered data into a CSV file.
- **Download Feature:** Include a download button or link for admins to initiate the export process.
- **Data Formatting:** Ensure the exported file maintains proper formatting and contains the necessary student information.

Data Retrieval and Presentation

- Identify the database tables and columns required to fetch the student's academic information.
- Develop efficient database queries to retrieve the necessary data.
- Format and present the data in a clear and visually appealing manner on the student dashboard.

Testing and Deployment

- Conduct thorough testing, including unit tests, integration tests, and end-to-end tests, to ensure the application's functionality and reliability.
- Implement appropriate error handling and logging mechanisms.
- Deploy the web application to a suitable hosting platform, ensuring scalability and security.

Maintenance and Updates

- Establish a maintenance plan to address bug fixes, security updates, and feature enhancements.
- Gather user feedback and incorporate necessary improvements in future iterations of the application.

Functional Requirements:

- **User Authentication:**
 - Secure login system for administrators and students.
 - Role-based access control to manage user permissions.
- **Filtering Functionality:**
 - Dynamic query generation for efficient data retrieval.
 - User-friendly interface for selecting and applying filters.
- **CSV Export:**
 - Module to generate CSV files from filtered student data.
 - Download option for administrators to access exported data.
- **Excel Sheet Import**
 - User-Friendly Interface & Data Parsing:
 - Design a user-friendly interface for administrators to upload Excel sheets.
 - Implement a mechanism to parse the uploaded Excel sheet, extract relevant student data, and facilitate seamless data integration.
 - Field Mapping & Filtering:
 - Allow admins to map fields from the Excel sheet to the system's database columns for efficient filtering and data management.
 - Enable administrators to select specific fields for filtering, enhancing data retrieval and analysis capabilities.
- **Student Dashboard:**
 - Data retrieval and presentation for academic information.
 - Responsive design for optimal user experience.

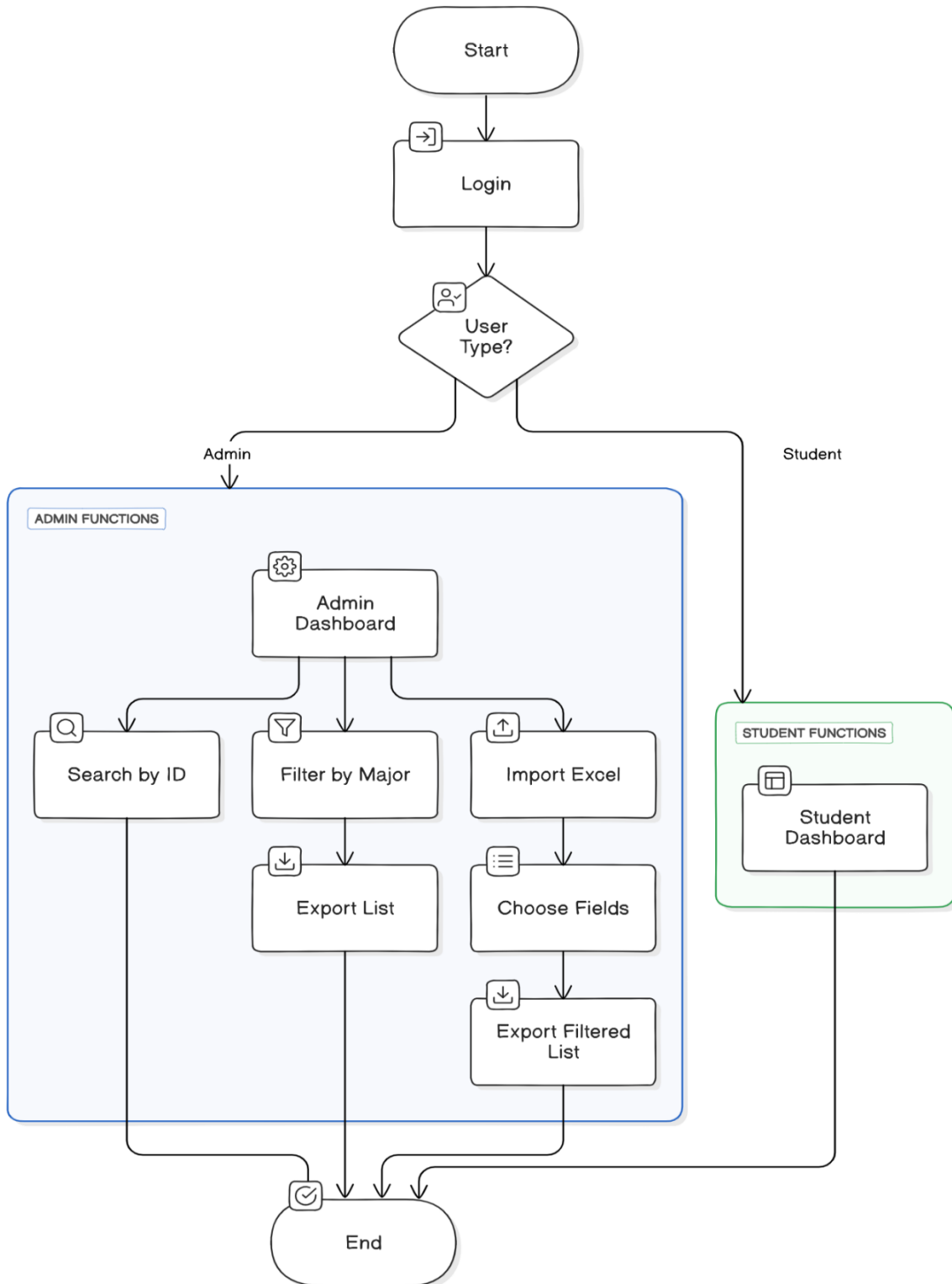
Conclusion

The Student Management System project successfully addresses the needs of administrators and students within the educational institution. By providing advanced filtering options, personalized dashboards, and a user-friendly interface, the system enhances operational efficiency and student

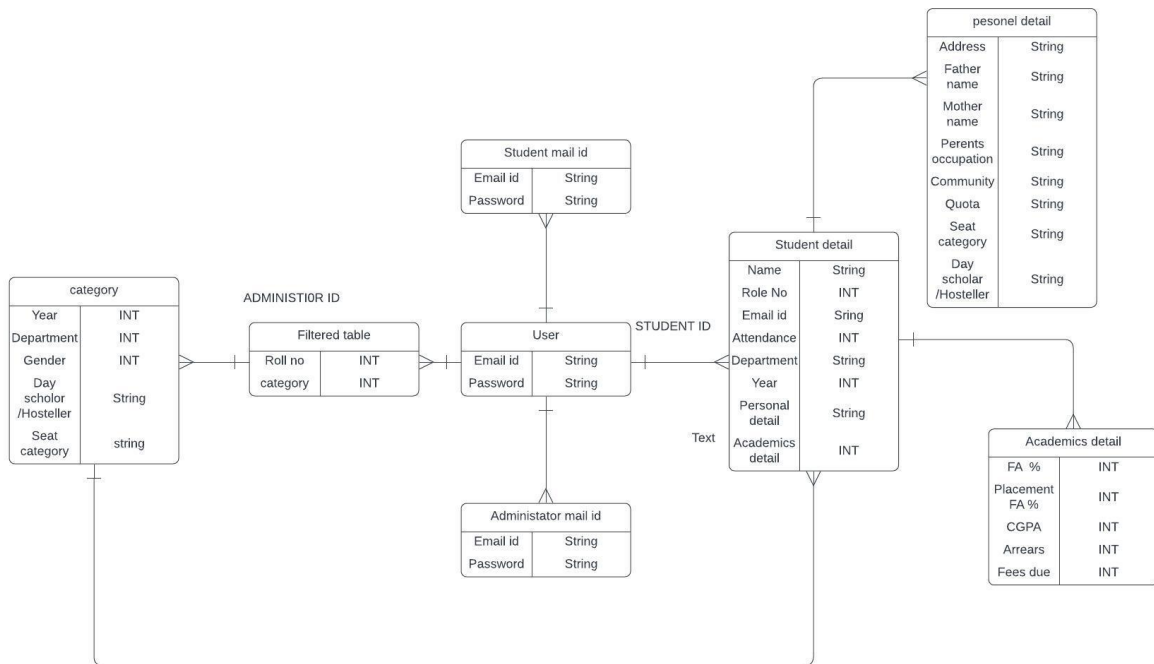
engagement. Continued maintenance, updates, and user feedback integration will ensure the system remains relevant and effective

FLOW CHART:

User Login and Dashboard Navigation



ER DIAGRAM (DB DESIGN)



Sign in with Google

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FILTER ▶

IMPORT

ADMIN PORTAL

SS

search

ADMIN PORTAL

SS

search

PERSONEL

NAME

DEPARTMENT

YEAR

DAYSCHOLAR/
HOSTELLER

FATHER NAME

MOTHER NAME

PARENTS NO

PARENTS
OCCUPATION

PARENTS PH NO

STUDENT PH NO

ADDRESS

MOTHER NAME

COMMUNITY

QUOTA

SEAT CATEGOTY

BLOOD GROUP

ACADEMICS

FA %

PLACEMENT FA %

CGPA

ARREAR COUNT

SSIG TARGET

SGPA

ADMIN PORTAL

SS

×

FILTER ▾

BOY

GIRL

HOSTEL

DAY SCHOLAR

I YEAR

IMPORT

search

COUNT

EXPORT

S NO	NAME	YEAR	DEPARTMENT	ROLL NO	PHONE NO
1	SUDHARSAN	II	ECE	7376221EC323	98765 43210
2	RITHIK V	II	AIDS	7376221AD345	87654 32109
3	MUGUNDHAN KV	II	AIML	7376221AM123	76543 21098
4	VELAVAN PL	II	CSE	7376221CS134	65432 10987
5	VIKASH J	II	MECH	7376221ME234	54321 09876
6	NITHISH KUMAR R	II	MECHT	7376221MT233	43210 98765
7	ARSHAT	II	EEE	7376221EE111	32109 87654
8	ATHEEESH	II	EIE	7376221EI111	21098 76543
9	RAM R	II	IT	7376221IT287	10987 65432
10	RAVI V	II	ECE	7376221EC350	09876 54321
11	SUNDAR S	II	AIDS	7376221AD321	98765 43210
12	GABRIEL G	II	AIML	7376221AM154	87654 32109
13	SANJAY V	II	CSE	7376221CS369	76543 21098
14	MATHIAZHAGAN G	II	MECH	7376221ME164	65432 10987
15	NIDHARSAHAN V	II	MECHT	7376221MT164	98765 43210
16	DEEPAN	II	EEE	7376221EE256	98765 67890
17	BANU	II	EIE	7376221EI276	87654 56789

ADMIN PORTAL

SS

×

FILTER ▸

IMPORT

search

SEARCH

HOSTELLER

EXPORT

IMPORT

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