

Scholarship Help System

Database Systems

CS F212

Prepared By

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1. System Requirement Specification (SRS)

1.1 Purpose

The scholarship help system will act as a platform where students can view various scholarships listed. The platform receives several applications from the students to avail of the scholarships. The scholarship system provides the details of all the scholarships that can be availed by students, according to his/her eligibility. This platform will facilitate a smooth information flow and increase the students' awareness. This platform provides scholarships to students of different institutes also and receives scholarships from various donor organizations. Those students who want to avail the scholarship should meet the specific criteria as described by the particular scholarship.

Several donors are there to provide the scholarship, and one donor can provide scholarships amount to various scholarships. A student is also allowed to avail of different scholarships among the list of scholarships. Although this system is only meant to show the list of all scholarships a student is eligible for. Administrators have privilege to insert, update and delete scholarship related details. While a student can only view the scholarships after entering his/her details.

1.2 Product Scope

The scope of this system is:

- This platform will be used mainly by the students to view the list of all scholarships they are eligible for.
- The list of scholarship is displayed to the student immediately.
- This system saves time and efforts of users to find the available scholarship.
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- This system will facilitate the students to know the details of all scholarships that they are eligible for.
- The system will provide the facility to add scholarships.

1.3 Product Users & Functions

The system will deal with mainly two types of users:

- **Administrator:** The function of the administrator is to keep the scholarship details up to date. He can add/delete or update any scholarship details.
- **Students:** The function of the student is to enter his/her details and view the eligible scholarships. Student cannot add/edit scholarship details.

1.4 System Features

- System shall support multiple users at the same time.
- The system will be maintaining the data on scholarships without any loss.
- Concurrency and Consistency will be maintained in the system.

1.5 Safety and Security Requirements

1.5.1 Safety Requirements

It is recommended to keep a backup of the database because it might get corrupted or crashed due to some external forces or system failure.

1.5.2 Security Requirements

To maintain the integrity of the data in system, database must only be modifiable to the administrator. A student is not allowed to make any permanent changes in the database.

1.5.3 Software Quality

The software and the database is maintained in a way to avoid any unfriendly behaviour or displaying any wrong information. The system is reliable, fast to search, secured and compatible.

1.6 Function Requirements

The system is used to show the eligible scholarships to students. So appropriate function of check the scholarship criteria with student's credential should be implemented. Further provision to insert rows into table should be implemented using appropriate functions and are accessible only to the administrator of the system.

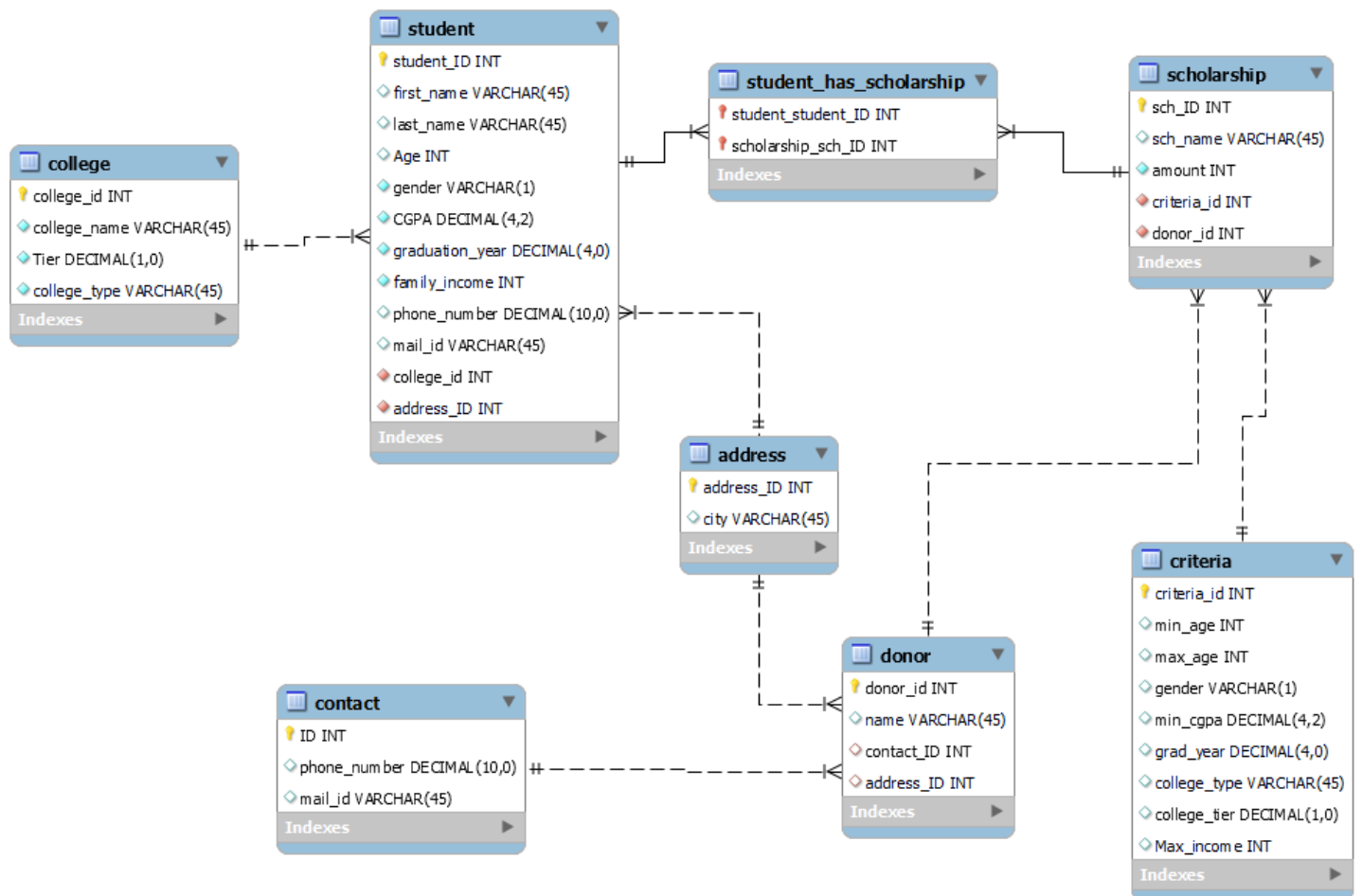
1.7 Software Requirements

- Any windows-based operating system
- MySQL Server Database

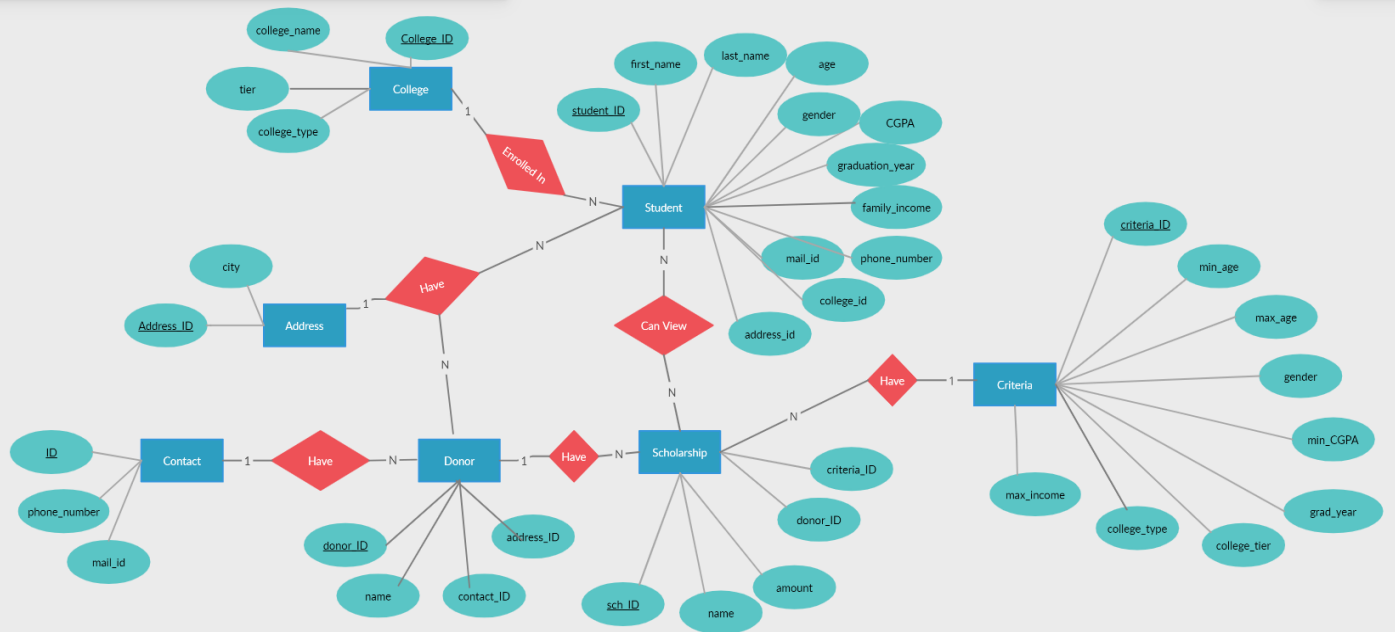
2. System Modelling

A) ER Diagram

The ER diagram for the database is as follows:



B) Schema Design



C) Data Normalisation

In this section, each table is analysed and will be normalised up to BCNF.

(i) Table: **Address**

<u>Address_ID</u>	Street_no	City
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1st Normal Form (1NF)

It's already in 1st NF because it does not have repeating groups or data redundancies present in it. Also, it does not have Composite Primary Key.

2nd Normal Form (2NF)

It's already in 2nd NF because there is no Partial Dependency and also it does not have Composite Primary Key.

3rd Normal Form (3NF)

It's already in 3rd NF because it does not have any Transitive Dependency.

BCNF

It's already in BCNF because for every functional dependency, the left side is the super key of the table.

(ii) Table: **Contact**

<u>Contact_ID</u>	Phone_Number	Mail
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1st Normal Form (1NF)

It's already in 1st NF because it does not have repeating groups or data redundancies present in it. Also, it does not have Composite Primary Key.

2nd Normal Form (2NF)

It's already in 2nd NF because there is no Partial Dependency and also it does not have Composite Primary Key.

3rd Normal Form (3NF)

It's already in 3rd NF because it does not have any Transitive Dependency.

BCNF

It's already in BCNF because for every functional dependency, the left side is the super key of the table.

(iii) Donor

<u>Donor_ID</u>	Name	Contact_ID	Address_ID
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1st Normal Form (1NF)

It's already in 1st NF because it does not have repeating groups or data redundancies present in it. Also, it does not have Composite Primary Key.

2nd Normal Form (2NF)

It's already in 2nd NF because there is no Partial Dependency and also it does not have Composite Primary Key.

3rd Normal Form (3NF)

It's already in 3rd NF because it does not have any Transitive Dependency.

BCNF

It's already in BCNF because for every functional dependency, the left side is the super key of the table.

(iv) College

<u>College_ID</u>	College_name	Tier	College_type
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1st Normal Form (1NF)

It's already in 1st NF because it does not have repeating groups or data redundancies present in it. Also, it does not have Composite Primary Key.

2nd Normal Form (2NF)

It's already in 2nd NF because there is no Partial Dependency and also it does not have Composite Primary Key.

3rd Normal Form (3NF)

It's already in 3rd NF because it does not have any Transitive Dependency.

BCNF

It's already in BCNF because for every functional dependency, the left side is the super key of the table.

(v) Scholarship

<u>Sch_ID</u>	Sch_name	Amount	Donor_ID	Criteria_ID
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1st Normal Form (1NF)

It's already in 1st NF because it does not have repeating groups or data redundancies present in it. Also, it does not have Composite Primary Key.

2nd Normal Form (2NF)

It's already in 2nd NF because there is no Partial Dependency and also it does not have Composite Primary Key.

3rd Normal Form (3NF)

It's already in 3rd NF because it does not have any Transitive Dependency.

BCNF

It's already in BCNF because for every functional dependency, the left side is the super key of the table.

(vi) Student

Student_ID	First Name	Last Name	Age	Gender	CGPA	Graduation Year	Family Income	Contact_ID	Address_ID	College_ID
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1st Normal Form (1NF)

It's already in 1st NF because it does not have repeating groups or data redundancies present in it. Also, it does not have Composite Primary Key.

2nd Normal Form (2NF)

It's already in 2nd NF because there is no Partial Dependency and also it does not have Composite Primary Key.

3rd Normal Form (3NF)

It's already in 3rd NF because it does not have any Transitive Dependency.

BCNF

It's already in BCNF because for every functional dependency, the left side is the super key of the table.

(vii) Criteria

Criteria_ID	Min Age	Max Age	Gender	Min CGPA	Grad Year	College Type	College Tier	Max Income
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1st Normal Form (1NF)

It's already in 1st NF because it does not have repeating groups or data redundancies present in it. Also, it does not have Composite Primary Key.

2nd Normal Form (2NF)

It's already in 2nd NF because there is no Partial Dependency and also it does not have Composite Primary Key.

3rd Normal Form (3NF)

It's already in 3rd NF because it does not have any Transitive Dependency.

BCNF

It's already in BCNF because for every functional dependency, the left side is the super key of the table.

So after normalisation of all tables, the finalise tables and attributes are given below:

(i) Table: **Address**

<u>Address_ID</u>	Street_no	City
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(ii) Table: **Contact**

<u>Contact_ID</u>	Phone_Number	Mail
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(iii) **Donor**

<u>Donor_ID</u>	Name	Contact_ID	Address_ID
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(iv) **College**

<u>College_ID</u>	College_name	Tier	College_type
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(v) **Scholarship**

<u>Sch_ID</u>	Sch_name	Amount	Donor_ID	Criteria_ID
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(vi) **Student**

Student_ID	First Name	Last Name	Age	Gender	CGPA	Graduation Year	Family Income	Contact_ID	Address_ID	College_ID
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(vii) **Criteria**

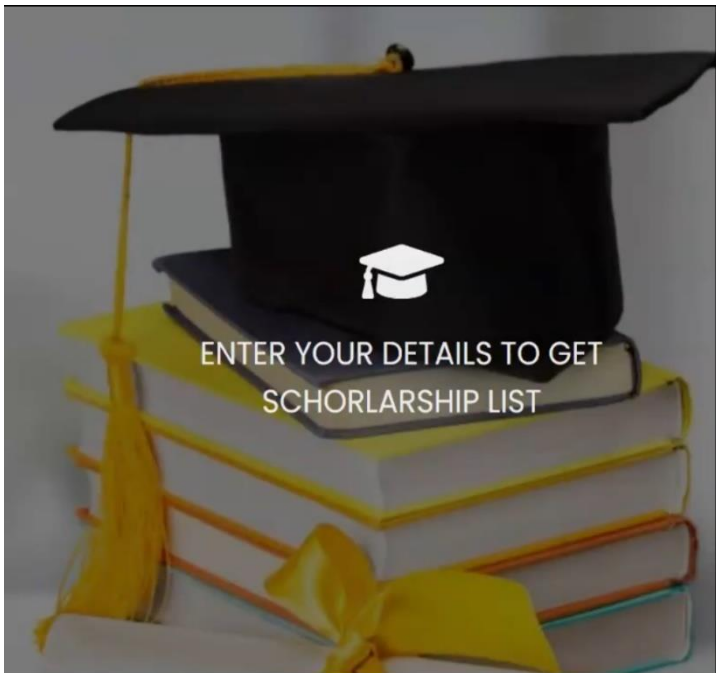
Criteria_ID	Min Age	Max Age	Gender	Min CGPA	Grad Year	College Type	College Tier	Max Income
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D) List of Tables Required

1. Contact
2. Address
3. College
4. Donor
5. Student
6. Scholarship
7. Criteria
8. Student_has_Scholarship

The ERD given in this documentation should be referred to see the detailed entities of each table. It also denotes which entity is a NOT NULL / can be NULL, which are foreign keys, primary keys, etc.

Output Screens



ENTER YOUR DETAILS TO GET SCHORLARSHIP LIST

REGISTER HERE

First Name

Last Name

Age

CGPA

Graduation Year

Family Income

Phone Number

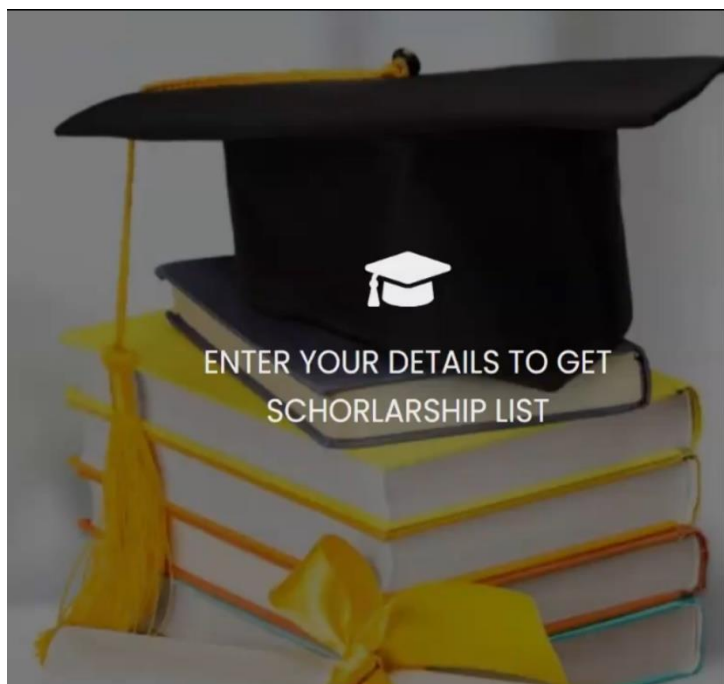
Email

Colledge ID

Address ID

Female

Submit



ENTER YOUR DETAILS TO GET SCHORLARSHIP LIST

REGISTER HERE

Nischal

Khetan

22

8.80

2024

100000

8865482311

nischal@gmail.com

5

4

Female

Submit

Serial No.	Schorlarship	Amount
2	MCN GRANT	200000
13	Gandhi Foundation	10000
19	Bright Futures Scholarship	200000
23	TEACH Scholarship	100000
27	US Presidential Program	30000

Serial No.	Schorlarship	Amount
19	Bright Futures Scholarship	200000
23	TEACH Scholarship	100000