

Child Education Sponsorship Database

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Chapter One

1.1 Detailed Explanation

Our database for child education sponsorship is designed to manage and organize data related to programs that support children's education through sponsorships. The database is crucial for non-profit organizations and charities, and schools engaged in sponsorship of children's financial needs, educational supplies, and other necessities.

Such databases are critical to non-profit organizations, charities, and educational institutions that promote sponsorship programs so that children may receive financial, educational and other forms of support. The main things that are included and needed for our system to be successful are entities and tables representing our different entities.

1.2 Scope and Objectives

1.2.1 Scope

The main objective of this project is to develop a secure and optimized data management system for child education sponsorship programs. The system deals with the efficient management of donors' contributions, management of the sponsored children's academic and personal progress, as well as the evaluation of the changes brought about by the sponsorships among the beneficiaries. The storage of information will be safe and organized in a database that stakeholders can easily pull when undertaking their reports and decisions. This project will therefore focus on major areas of concern in sponsorship management such as transparency, accountability, and efficiency in sponsorship management.

1.2.2 Objectives

- i. Record details of donation made by sponsors
- ii. Supervise children's academic performance and assessment.
- iii. Assess long term impacts on children's education sponsorship
- iv. Ensure accuracy and consistency with regards to data

1.3 Stakeholders

1.3.1 Sponsors and Donors

Sponsors and donors are major sources of funds for the child education sponsorship program. They can be registered citizens and legal entities who can provide sponsorship in form of fees, books, exercise, clothes, and other requirements for child education. Sponsors may be as closely connected to the beneficiaries, so they have opportunities to observe the activity of the children they sponsor; on the other hand, there may be great donor organizations who contributed to the program in general and not to the specific student.

Its key is the transparency and accountability of the sponsors and donors concerning the usage of the sponsorship and the characteristics of the sponsored pupils as well as the general effect of the sponsorship on education. These needs are targeted to be met and well-supported through the database system, specifically for ease of tracking donations, as well as the generation of reports, and to establish a high level of trusted and extensible functionality.

1.3.2 Children

Children are the target beneficiaries of the child education sponsorship program. These are students who come from impoverished families and or low income earners families; thus they would be tendered sponsorships which enable one to pay fees and other needs in order to attend schools as and when needed.

Each child's record is filed in the database, and program administrators, sponsors, and donor organizations can observe their achievements in classes, their progression, and their overall development in the future. The overall control of the necessary information about every child with the help of the system allows tracking how sponsorship money brings changes to the student's lives and allows working with the education and social development of children.

1.3.3 Program Administrators

The program administrators are responsible for the child education sponsorship program and have to guarantee its adaptation and harmonization with the mission and objectives of the organization. Some of them are as follows; work plans for the program, identification and engagement of stakeholders, supervision of resources, and last but not least assessment of program performance.

The program administrator works directly with the sponsors, donors, and schools to coordinate all functional aspects of the program such as how funds are disbursed, the support of beneficiaries, and evaluations of effectiveness. Also, the program administrator applies the data from the sponsorship database and produces reports and analyses of program results to improve the program's performance and increase its influence.

1.3.4 Staff

Managing beneficiary records, processing sponsorship donations, and overseeing all communication between and among the sponsors, beneficiary children, and other stakeholders are the duties of staff working for the child education sponsorship program.

This group may consist of administrative employees such as data entry clerks and coordinators, who among other things, are required to update on the progress of the children, cross-check on endorsement details, and answer the sponsors' queries, respectively. Staff members also assist the program manager in the implementation of the program priorities, record and report formation, and submission of figures received in terms of the program and the positive impact it has on the beneficiaries.

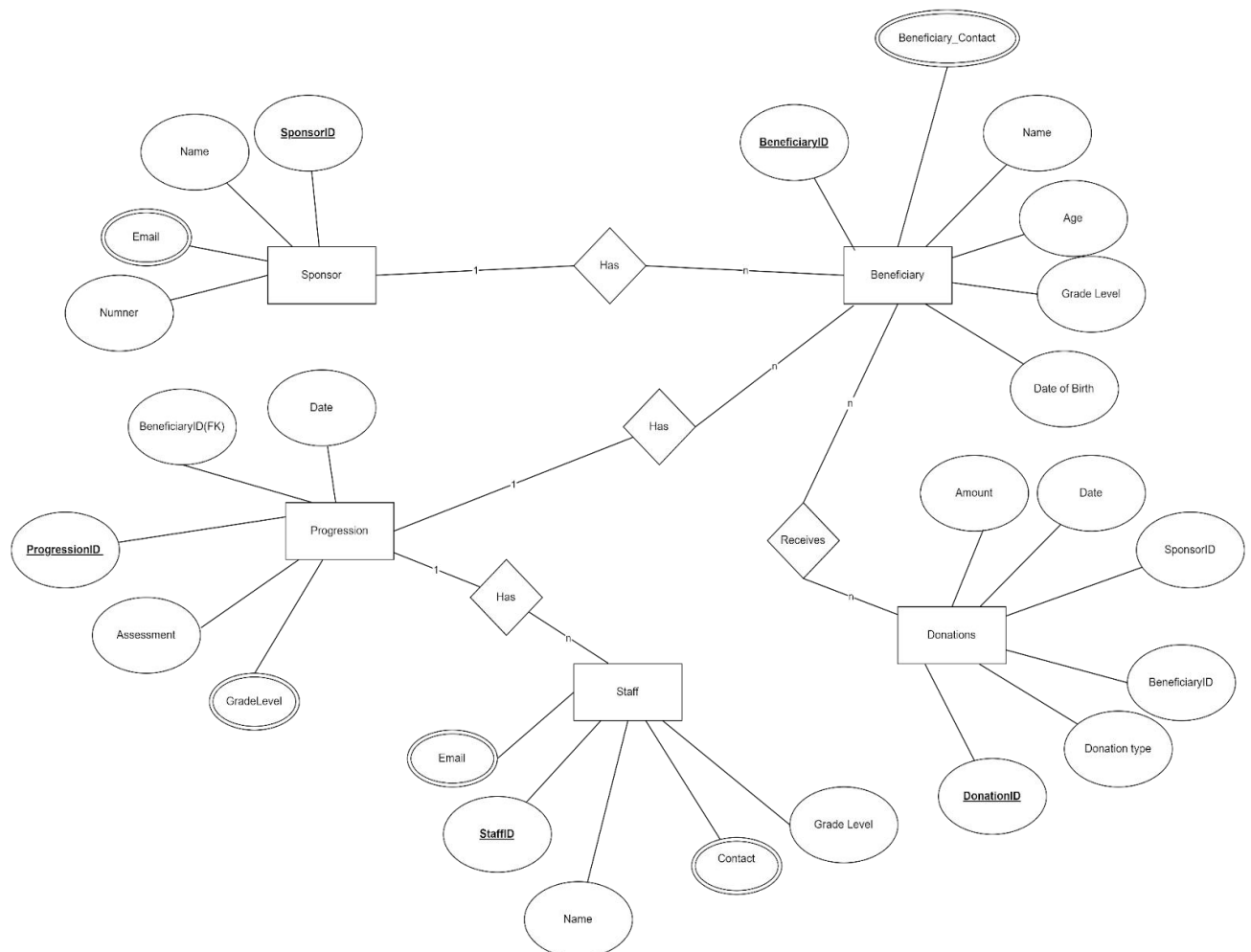
Chapter Two: Entity Relationship Diagram

2.1 Design

The entity relationship diagram (ERD) consist of critical entities like; Donors/sponsors, beneficiaries, donation and, academic progress.

2.2 Relationships

- i. A sponsor can make multiple donations.
- ii. Beneficiary has a record access to impact assessments
- iii. Beneficiary can have multiple sponsors
- iv. Each beneficiary has one or multiple impact assessments
- v. Each donation is tied to one sponsor
- vi. A staff can take many beneficiaries



Chapter Three: Database Schema

3.1 Normalization

Normalization is basically the process of structuring tables or a database to remove data redundancy and to coordinate data. In this case, we will attempt to get our database to be in at least the third normal form (3NF). The steps of normalization involve:

1. 1NF (First Normal Form): Duplicate records should be avoided and each record must be labeled with a unique numerical value.
2. 2NF (Second Normal Form): Remove partial dependencies concerning non key attributes which have dependency on part of composite primary key.
3. 3NF (Third Normal Form): A transitive dependency is when non-key fields depend on other non-key fields which should be removed.

For this reason, when designing our database schema to contain these tables, we are able to achieve optimal efficiency and reduce on data anomalies.

3.2 Tables and Fields

Sponsors

Name	Data Type	Constraints
SponsorID	INT	Primary Key
Name	VARCHAR(255)	Not Null
Contact	VARCHAR(255)	Not Null
Email	VARCHAR(255)	Unique

Beneficiaries

Name	Data Type	Constraints
BeneficiaryID	INT	Primary Key
Name	VARCHAR(255)	Not Null
Contact	VARCHAR(255)	Not Null
Age	INT	Not Null
Grade Level	VARCHAR(255)	Not Null

Donation

Name	Data Type	Constraints
DonationID	INT	Primary Key
Amount	INT	Not Null
Date	DATE	Not Null
SponsorID	INT	Foreign Key
BeneficiaryID	INT	Foreign Key

Progression

Name	Data Type	Constraints
ProgressionID	INT	Primary Key
Scores	INT	Not Null
Date	DATE	Not Null
Grade_Level	VARCHAR(255)	Not Null
BeneficiaryID	INT	Foreign Key

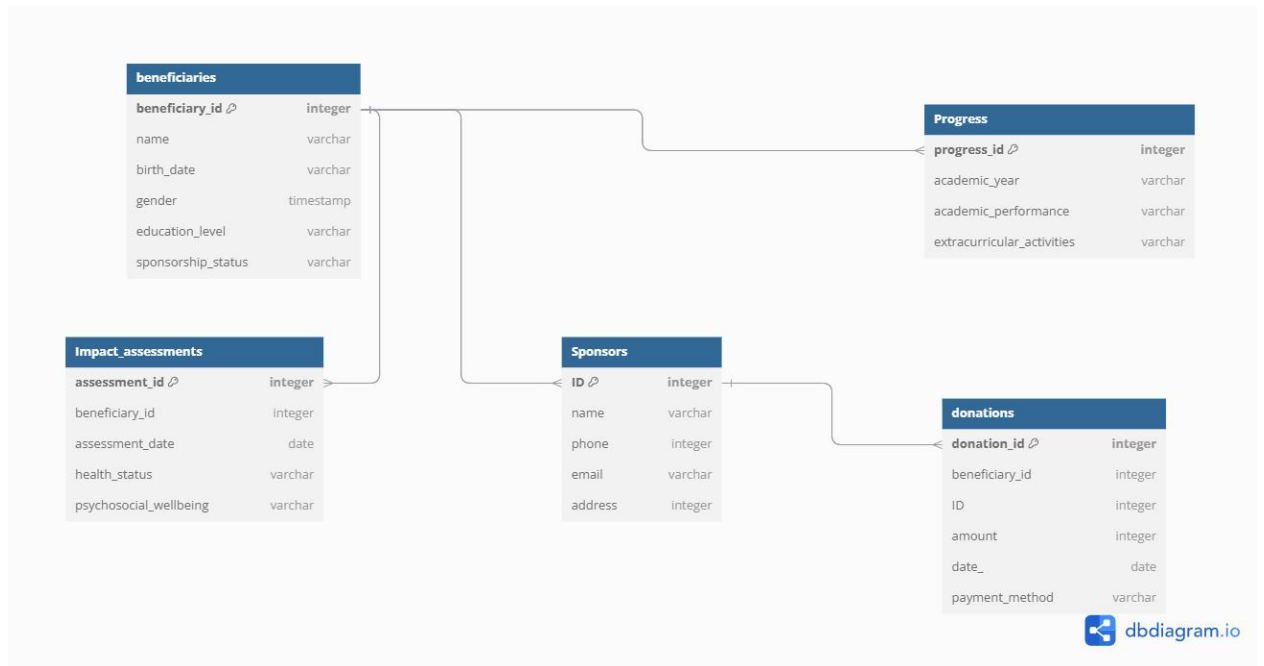
Staff

Name	Data Type	Constraints
StaffID	INT	Primary Key
Name	VARCHAR(255)	Not Null
Contact	VARCHAR(255)	Not Null
Email	VARCHAR(255)	Unique
Grade_Level	VARCHAR(255)	
BeneficiaryID	INT	Foreign Key

3.3 Indexes

Indexing is one of the important aspects in the database design process, that improves the query response time of queries. For this database, the following indexing strategies have been implemented to ensure optimized data retrieval and consistency:

- i. Primary Keys: Primarily each table has its record label generated as an identification number for each record on that particular table. These indexes guarantee all operations like search , updates, and deletions are optimum.
- ii. Foreign Keys: Foreign key columns are automatically indexed to improve the performance of the JOIN process and enable the Sponsor, Donation, and Beneficiary tables to enforce performance.
- iii. Unique Indexes: Example is Email in the Sponsor and Staff table has unique constraints allowing only correct record format to be inputted and no two records can be the same. This also makes the unique index useful for speeding up the search for email address.
- iv. Query-Specific Indexes: Fields employed in WHERE conditions, are indexed to make the fast search within time-bound.



Chapter Four: SQL Implementation

4.1 Database creation

CREATE DATABASE Education_Sponsorship;

4.2 Data Manipulation

4.2.1 Create

Create a new Sponsor

```
INSERT INTO Sponsor ( Name, Contacts, Donation, )  
VALUES ('Lisa Lee', 'lisalee@hotmail.com', '50,000');
```

4.2.2. Read

Read donation history

```
SELECT DonationID, Date, Amount  
  
FROM Donations;
```

4.2.3 Update

Update progress grades

```
UPDATE PROGRESSION  
  
SET TestScores = 50  
  
WHERE ProgressionID = (  
FROM Children WHERE Name = 'John')
```

4.2.4 Delete

Delet a record

```
DELET FROM Sponsors  
  
WHERE Name = 'Michael';
```

4.3 Advanced Queries

Such kinds of requests and queries will address issues with the complex retrieval and manipulation of data within the database. Examples of queries to be carried out are;

Calculation of total donations, Report for academic assessment, getting list of any stakeholders, averages and progress reports.