GOVERNMENT DATABASE MANAGEMENT SYSTEM

PROJECT REPORT

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Our special thanks go to our university i.e., Delhi Technological University for providing us such a great platform and such good teachers for overlooking our project and its progress. Having sucha great curriculum which helps us to improve our learning skill aswell as presenting our work in the form of a report, such as this kind of project work will definitely go a long way in our quest to improve our skills.

ABSTRACT

The government is the biggest producer and supplier of information in a country. Itis split into multiple departments for distribution of labor. Efficient storage, maintenance and management of the vast amount of data stored within these government departments is of utmost importance. Due to advancements in information and communication technology (ICT), various e-government solutions and applications have been implemented to improve government functioning.

However, keeping track of many such applications is tedious for consumers as well as the application developers. Therefore, in this project, we aim to build an all-in-one government database system which administers various government functionalities such as citizenship, passports, VISA, etc.

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INTRODUCTION

The main business of the government consists of data processing and using information within its own departments and also dispensing a limited amount of itinto the public. Thus, all of this work is highly data intensive. Consequently, the information system and management within the government and its departmentsmust be effective and efficient.

Efficient storage, maintenance and management of the vast amount of data storedwithin these government departments is of utmost importance. Due to advancements in information and communication technology (ICT), various e-government solutions and applications have been implemented to improvegovernment functioning.

However, these easy-to-use applications have still not been implemented in many crucial departments of the government. For example, in the Department of Motor Vehicles, a lot of information like license examinee certification, license trial permitand examination results are all examined, transferred and stored in papers, whichis a highly unreliable and primitive method.

Additionally, the large number of these applications can make it difficult to keeptrack of each one- for the user as well as for the application developer. Routine upkeep and maintenance alone would sanction the creation of a whole new division inside departments, which would complicate things more.

Hence, in this project, we aim to resolve both of the above problems. We build an**all-in-one government database system** which administers various governmentfunctionalities such as citizenship, passports, VISA, etc.

SPECIFICATION

The system will be built using the following tools:

1. **XAMPP-** XAMPP is an abbreviation for cross-platform, Apache, MySQL, PHP and Perl. XAMPP is a completely free, easy to install Apache distribution containing MariaDB, PHP, and Perl. The XAMPP open-source package has been set up to be incredibly easy to install and to use. XAMPP is the most popular PHP development environment. We will particularly be making use of the Apache and MySQL localhost servers that it provides.

2. **Visual Studio Code**- Visual Studio Code is a code editor redefined and optimized for building and debugging modern web and cloud applications. Visual Studio Code is free and easy to use with an interactive UI.

3. **phpMyAdmin**- phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the Web. phpMyAdmin supports a wide range of operations on MySQL. Frequently used operations can be performed via the user interface, while you still have the ability to directlyexecute any SQL statement.

SYSTEM USERS

User

This user will register to be a member to use the online system of this online government database management system. This online system is used for registering for various difference facilities provided by government that are: - registering/applying for PAN card, registering for Citizenship, registering for Welfare, registering for automobiles, applying for passport, registering for a property, applying for the Aadhar Card, etc.

Here new users can register themselves and apply for different government documents. In order to register initially a user is required to provide their name, their emalid their mobile number and also required to create a password so that their portal can also be accessed by them and those who know their password and thus it helps in securing the database. Also registered can also login into their respective account just by providing their emalid and their password.

Administrator & Employees

Administrator or manager is the person who will manage the entire system. He is allowed to edit some of the database in order to improve the user convenience, or he can edit format of the information that are to be requested by the user while registering onto the website. This type of user will also do maintenance and control the application of this system. An employee can check for the accuracy of the personal information provided by the user to check whether he/she is the appropriate participant to receive the services requested by them or not.

Administrator takes responsibility to register new user, register new employees, and register new data fields onto the database. A manager can edit/create some or whole part of those service added onto the website according to the requirement.

OBJECTIVES

- Providing a single platform for user to request for different services in online mode.

- Easy access for the user.

- Convenient to get information regarding different facilities provided by government.

- Provide the path to register for any of the services like register for Aadhar car, Pan card, etc.

- Helps government to improve the quality of the service and also to maintain the database safely and securely.
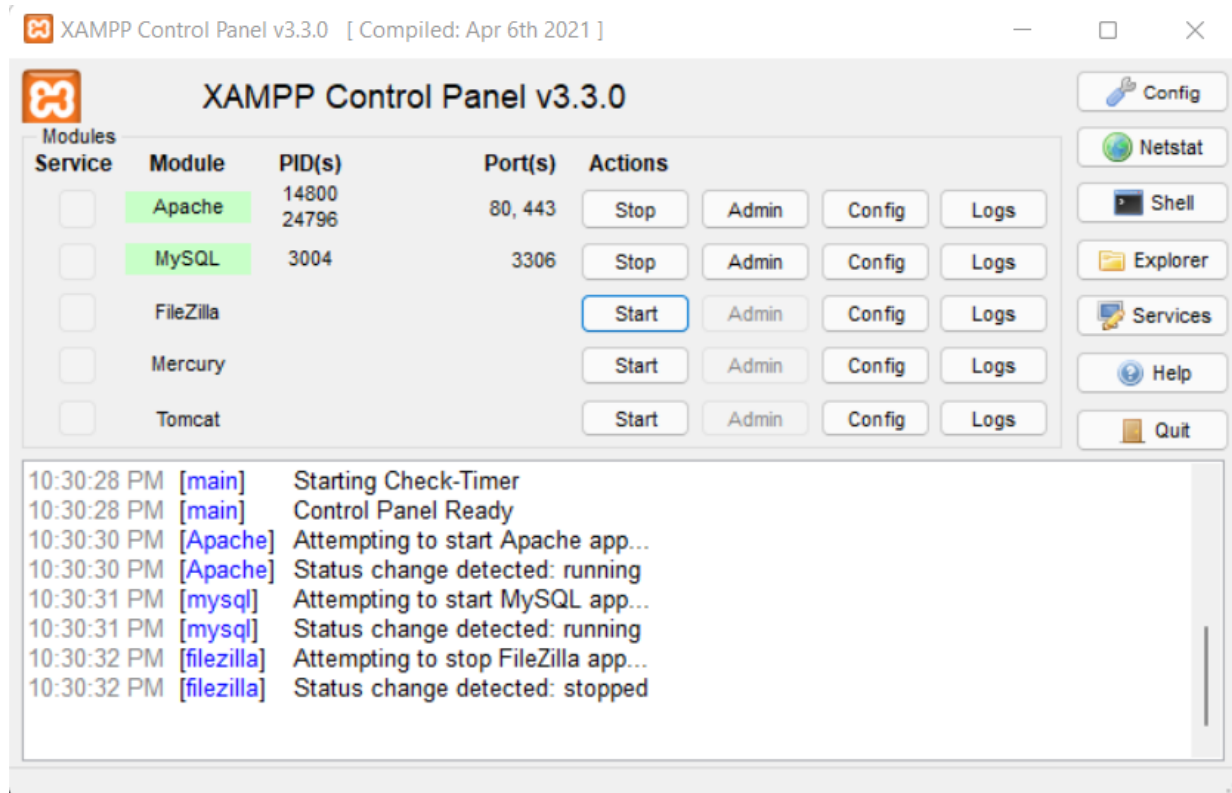
Firstly, we had to set up a website for our database system. For this purpose, we used two essential components of XAMPP- Apache and MySQL. Apache is used to create a local server, and MySQL is used as a database for our website.

We installed XAMPP and started its Apache and MySQL servers. This allows us to build a website offline, on a local web server on our own computer.

XAMPP Apache + MariaDB + PHP + Perl

Welcome to XAMPP for Windows 8.1.4

After successfully setting up our XAMPP localhost, we can now navigate to thephpMyAdmin tool through it, where we will be setting up our database environment. The phpMyAdmin interface looks like this. Here, we can finally set up a new database for our project and add its various constituent tables and their ownattributes.
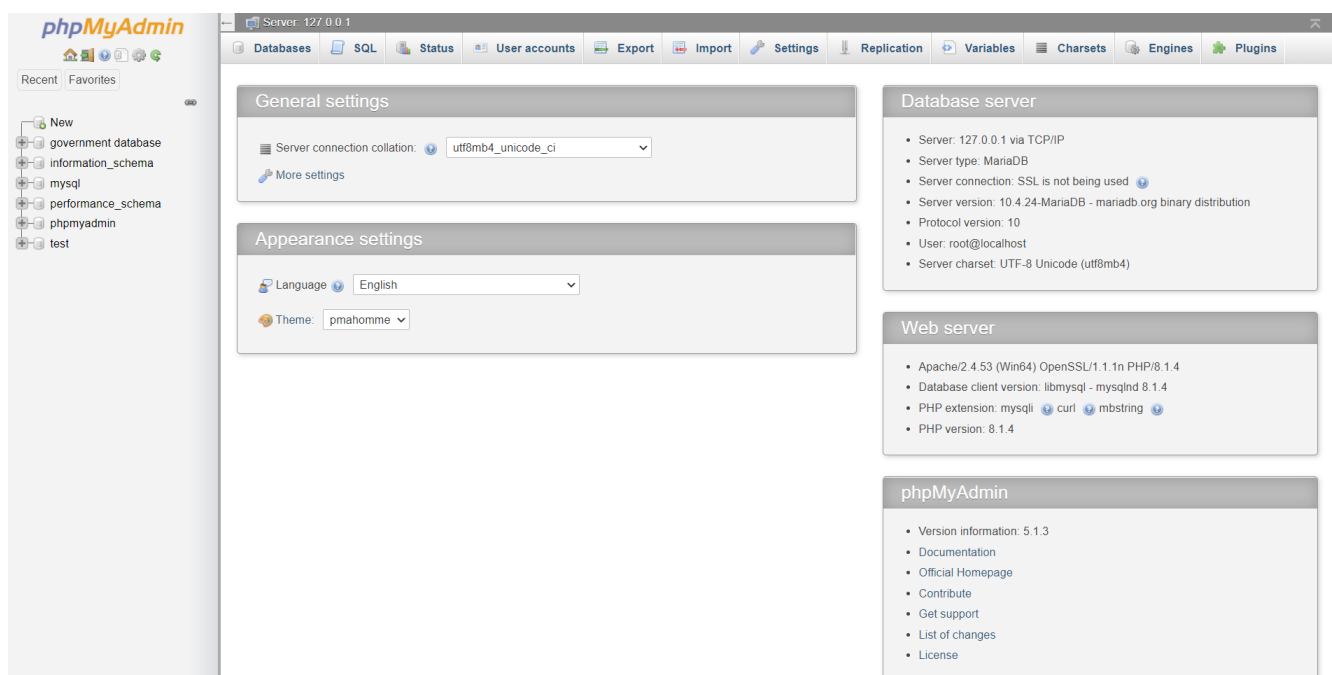
After adding the SQL code to SQL query interface provided by XAMPP, a database iscreated *government database*, and we end up with all our tables with them respective attributes defined as planned, so our database is up and running

With this setup, we can finally set up a simple website to enable us to use the database as intended. We use **Bootstrap** and **PHP** to create a simple website that is connected to ourdatabase, where we can register users, and their various governmental information to their respective tables.
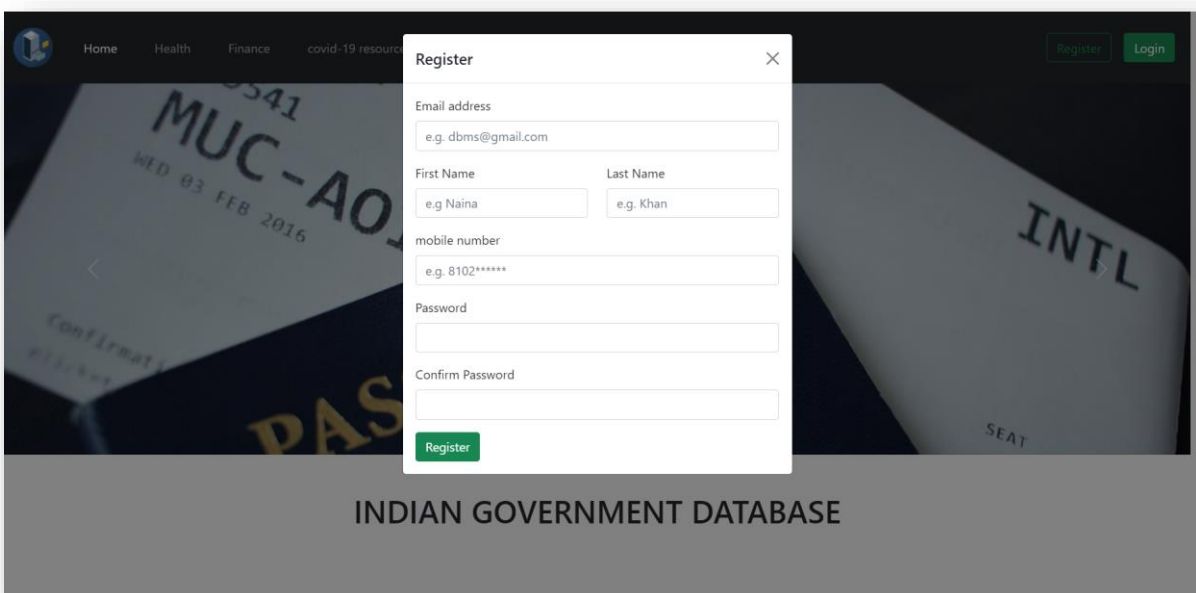
For example, we can register a user, whose information will be stored in the *users*

table, and use this to login with the setup password and email ID. Then we can choose one of the many services provided on the page to register important information about government offered services for the user and connect that to thedatabase to store that information.

Register A User

The main aim of this module is to register a new user to the database system. It tracks all the information and details of the user.

Login In

The main purpose for developing this module is to protect and secure the details of the user. This Login Module is the main module in this project Government Database Management System which has been developed on php and MySQL.
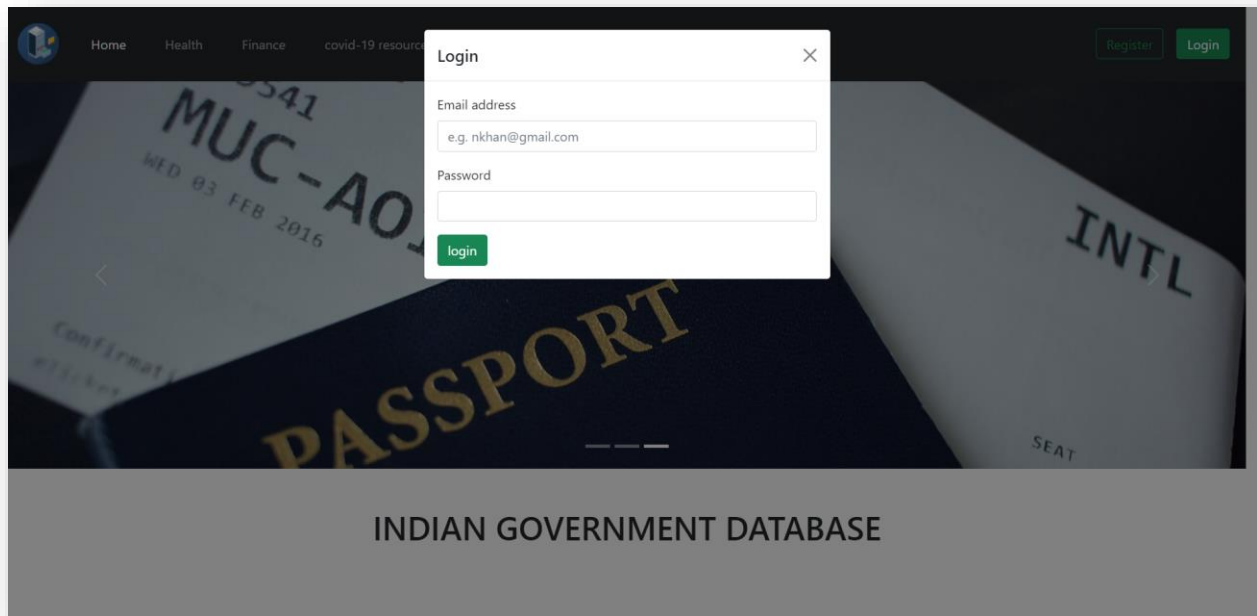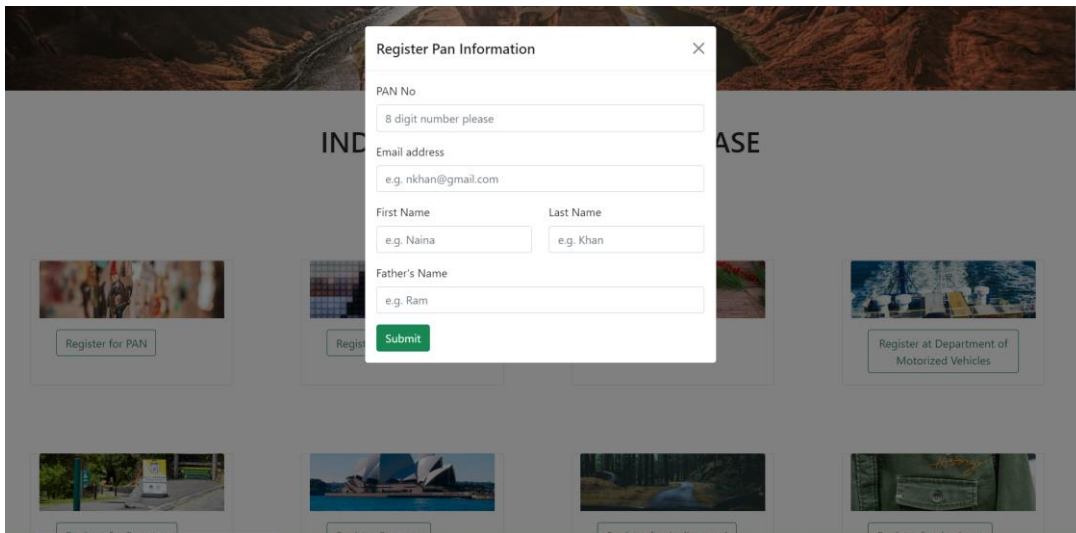
Provided Services to A Registered User
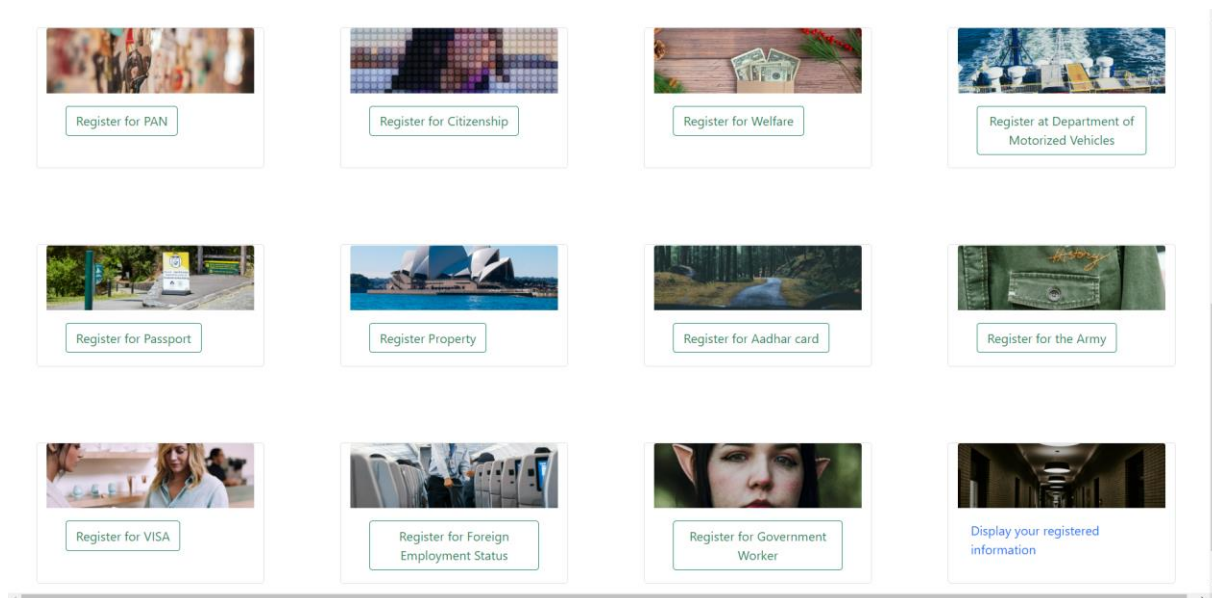
1. Register for PAN

Here user is asked for their PAN no. (8-digit PAN no) their emailid, their first and last name and for their father's name.
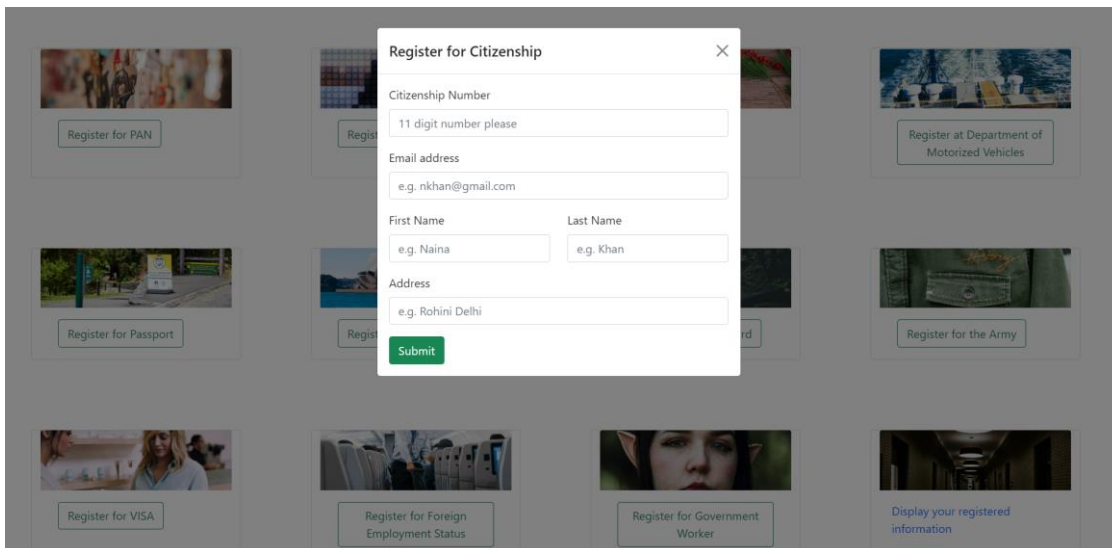
2. Register for Citizenship

Here user is required to provide their personal details like their citizenship number, their emailid, their first and last name and their current address.

3. Register for Department of Motorized Vehicles

Here user's information regarding their license number, their name, emailid, blood group and the type of vehicle they drive are asked in order to register their license number.

4. Register for Passport

Here user is required to provide their personal details like their passport number, their emailid, their first and last name and their current address.

5. Register Property

Here user is required to provide their personal details like their property ID, their emailid, owner's first and last name, their mobile number, area of the property and their current address.
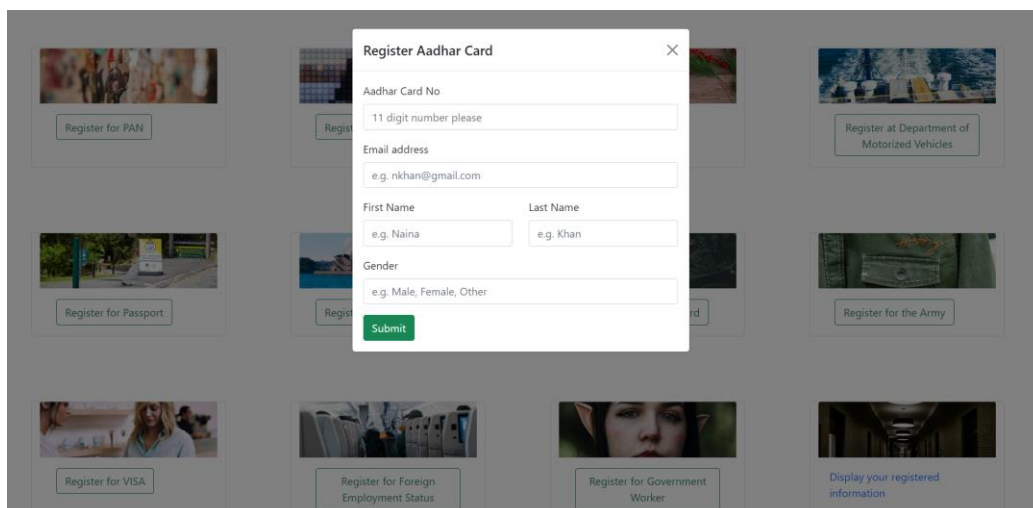
6. Register for Aadhar Card

Here user is required to provide their personal details like their Aadhar card number, their emailid, their first and last name and their gender in order to register for their Aadhar card.
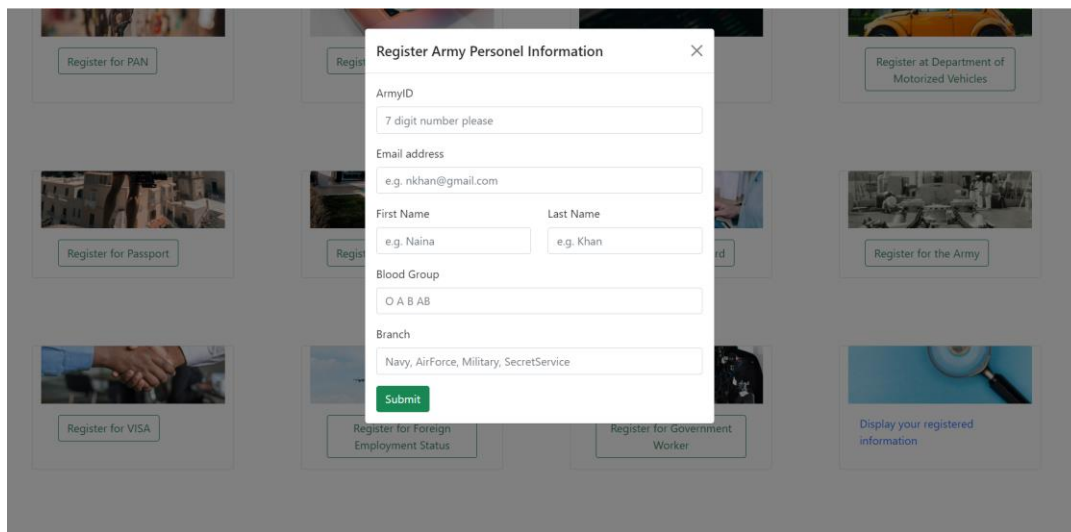
7. Register for Army

Here user is required to provide their personal details like their citizenship number, their emailid, their first and last name and their current address.
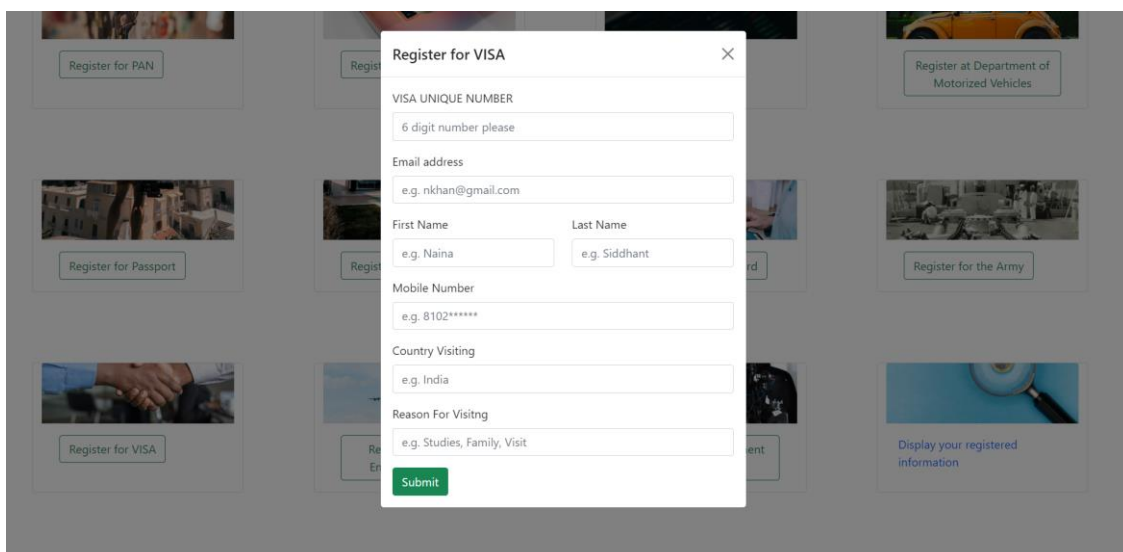

8. Register for VISA

Here user is required to provide their personal details like their citizenship number, their emailid, their first and last name and their current address.

9. Register As Government Worker

Here user is required to provide their details like their Employee ID, their emailid, their first and last name and their job description.

10. Display All the information registered by a user

Here user is required to provide their details like their Employee ID, their emailid, their first and last name and their job description.

FUNCTIONAL ASSUMPTIONS

The government is the biggest producer and supplier of information in a countryside is split into multiple departments for distribution of labor. Efficient storage, maintenance and management of the vast amount of data stored within these government departments is of utmost importance. Due to advancements in information and communication technology (ICT), various e-government solutions and applications have been implemented to improve government functioning.

The Government database management system aims on to build an all-in-one government database system which administers various government functionalities such as citizenship, passports, VISA, etc.

ER DIAGRAM

The entity-relationship (E-R) data model is based on a perception of a real world that consists of a collection of basic objects, called entities, and of relationships among these objects.

The ER Diagram of Our GOVERNMENT DATABASE SYSTEM website is:
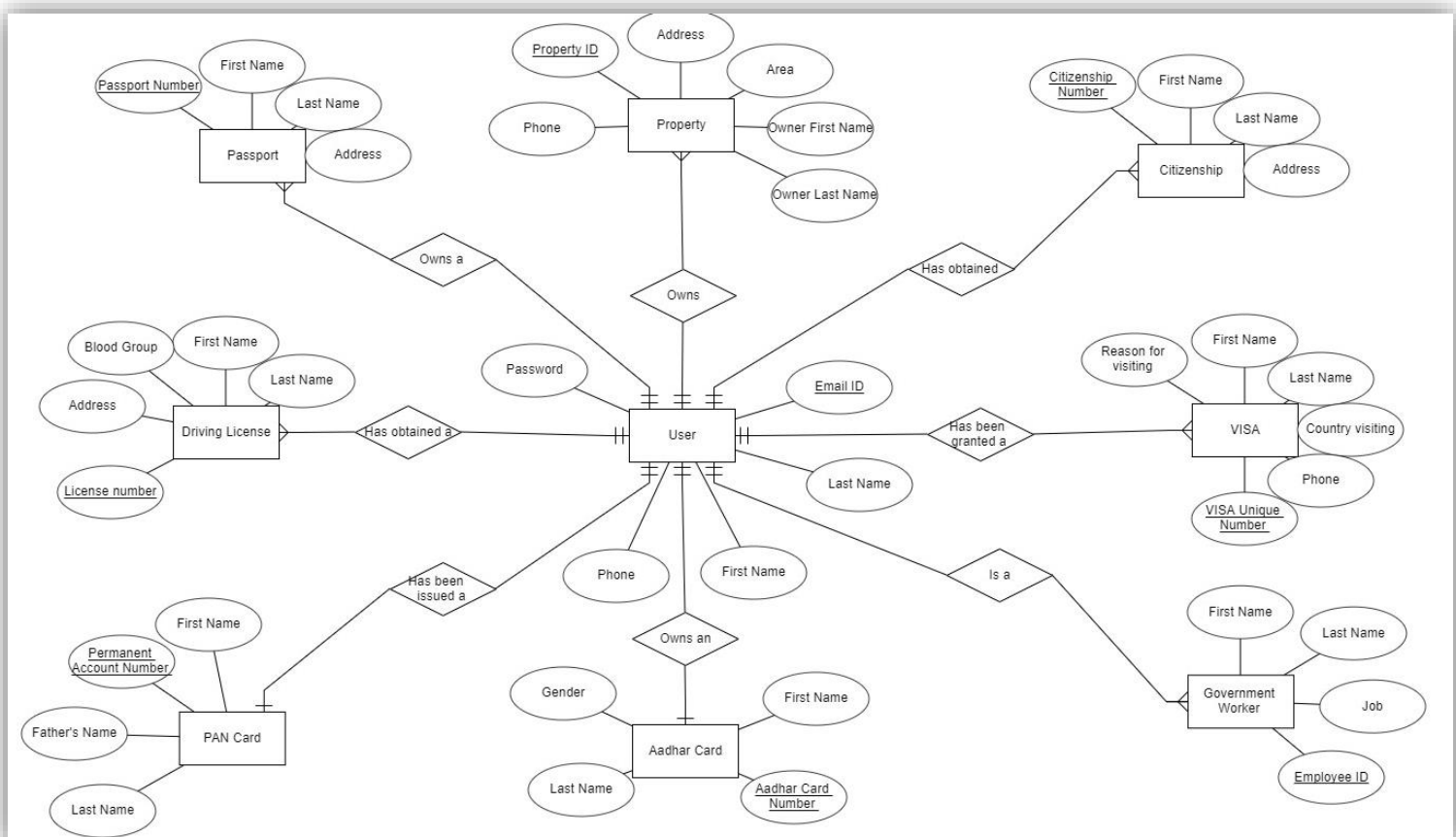
RELATIONSHIP SCHEMA

A database schema is the skeleton structure that represents the logical view of the entire database. It defines how the data is organized and how the relations among them are associated.It formulates all the constraints that are to be applied on the database.
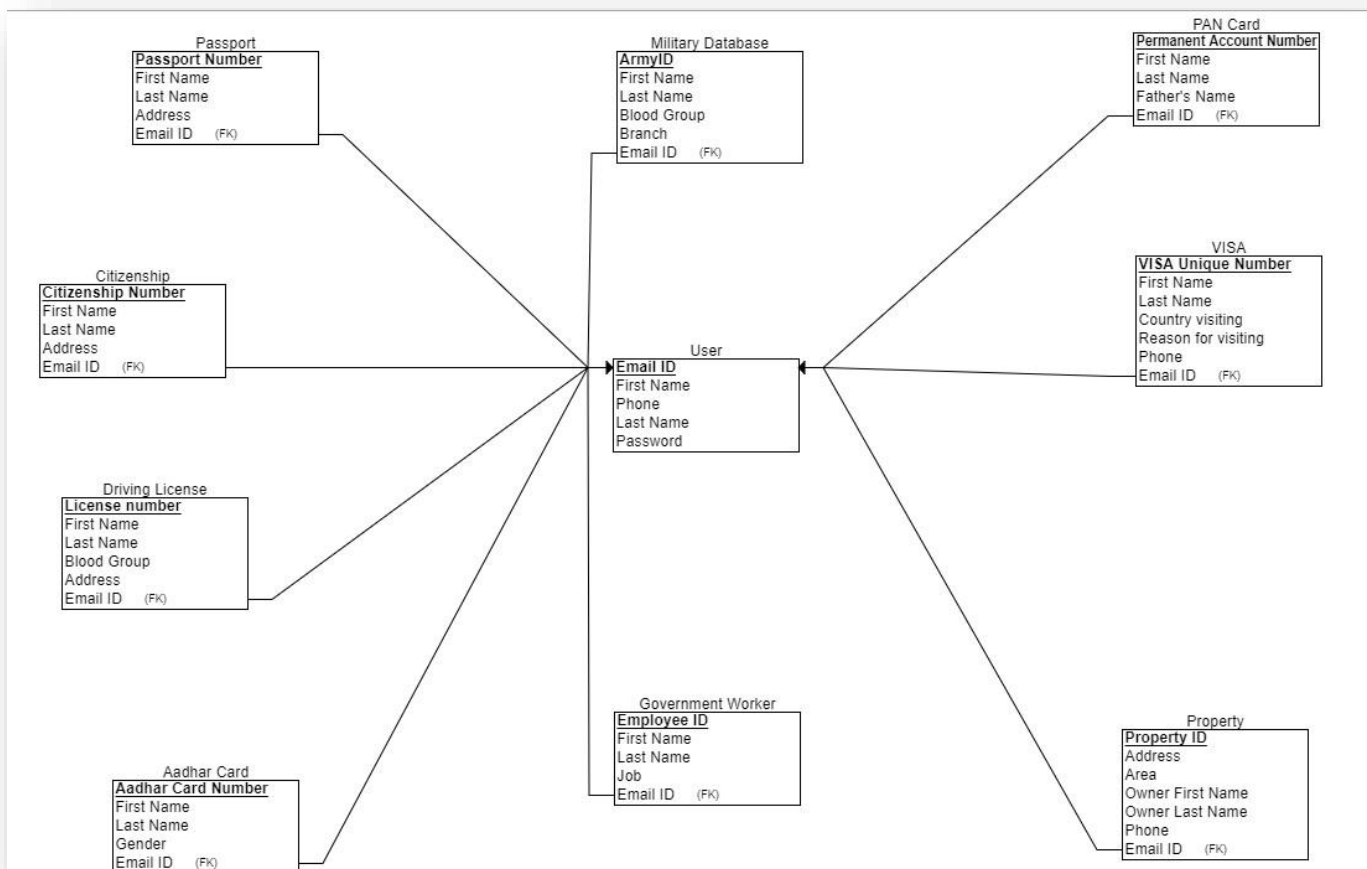
Relation schema defines the design and structure of the relation like it consists of the relation's name, set of attributes/field names/column names, every attribute would have an associated domain.

DATABASE DESIGN

Tables

In the Relational database model, a **table** is a collection of data elements organised in terms of rows and columns. A table is also considered as a convenient representation of relations.

A single entry in a table is called a **Tuple or Record or Row**. A tuple in a table represents a set of related data.

A table consists of several records(row), each record can be broken down into several smaller parts of data known as **Attributes**.

When an attribute is defined in a relation(table), it is defined to hold only a certain type of values, which is known as **Attribute Domain.**

User Table

Keeps record of all the users especially their email and password

#	Name	Type	Collation	Attributes	Null	Default
1	**emailID** 🔑	varchar(255)	utf8mb4_general_ci		No	*None*
2	**firstName**	varchar(255)	utf8mb4_general_ci		No	*None*
3	**mobNo**	int(11)			No	*None*
4	**lastName**	varchar(255)	utf8mb4_general_ci		No	*None*
5	**password**	varchar(255)	utf8mb4_general_ci		No	*None*

VISA Table

Keeps record of visa number and other details of user.

#	Name	Type	Collation	Attributes	Null	Default
1	firstName	varchar(255)	utf8mb4_general_ci		No	None
2	lastName	varchar(255)	utf8mb4_general_ci		No	None
3	country	varchar(255)	utf8mb4_general_ci		No	None
4	reason	varchar(255)	utf8mb4_general_ci		No	None
5	Phone	varchar(30)	utf8mb4_general_ci		No	None
6	visaNo 🔑	int(11)			No	None
7	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

Property Table

Keeps record of propertyID, address and other details of user.

#	Name	Type	Collation	Attributes	Null	Default
1	address	varchar(255)	utf8mb4_general_ci		No	None
2	area	varchar(255)	utf8mb4_general_ci		No	None
3	ownerfirstName	text	utf8mb4_general_ci		No	None
4	ownerlastName	text	utf8mb4_general_ci		No	None
5	mobNo	varchar(30)	utf8mb4_general_ci		No	None
6	propertyID 🔑	int(11)			No	None
7	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

Passport Table

Keeps record of passport number, country and other details of user.

#	Name	Type	Collation	Attributes	Null	Default
1	firstName	text	utf8mb4_general_ci		No	None
2	lastName	text	utf8mb4_general_ci		No	None
3	address	text	utf8mb4_general_ci		No	None
4	passportNo 🔑	int(11)			No	None
5	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

PAN Table

Keeps record of pan card number and other details of user

#	Name	Type	Collation	Attributes	Null	Default
1	firstName	varchar(255)	utf8mb4_general_ci		No	None
2	lastName	varchar(255)	utf8mb4_general_ci		No	None
3	fatherName	varchar(255)	utf8mb4_general_ci		No	None
4	panNo 🔑	int(11)			No	None
5	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

Govwork Table

Keeps record of employee id, job and other details of user.

#	Name	Type	Collation	Attributes	Null	Default
1	firstName	text	utf8mb4_general_ci		No	None
2	lastName	text	utf8mb4_general_ci		No	None
3	employeeID 🔑	varchar(30)	utf8mb4_general_ci		No	None
4	job	varchar(255)	utf8mb4_general_ci		No	None
5	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

Dmv Table

Keeps record of license no, blood group and vehicle type of user

#	Name	Type	Collation	Attributes	Null	Default
1	firstName	text	utf8mb4_general_ci		No	None
2	lastName	text	utf8mb4_general_ci		No	None
3	licenseNo 🔑	int(11)			No	None
4	bloodgrp	varchar(4)	utf8mb4_general_ci		No	None
5	address	text	utf8mb4_general_ci		No	None
6	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

Citizen Table

Keeps record of address and other details of user.

#	Name	Type	Collation	Attributes	Null	Default
1	firstName	text	utf8mb4_general_ci		No	None
2	lastName	text	utf8mb4_general_ci		No	None
3	address	text	utf8mb4_general_ci		No	None
4	citizenshipNo 🔑	varchar(255)	utf8mb4_general_ci		No	None
5	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

Army Table

Keeps record of army and other details of user.

#	Name	Type	Collation	Attributes	Null	Default
1	armyID 🔑	int(11)			No	None
2	firstName	text	utf8mb4_general_ci		No	None
3	lastName	text	utf8mb4_general_ci		No	None
4	bloodgrp	varchar(4)	utf8mb4_general_ci		No	None
5	branch	varchar(255)	utf8mb4_general_ci		No	None
6	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

Aadhar Table

Keeps record of Aadhar card number and other details of user

#	Name	Type	Collation	Attributes	Null	Default
1	firstName	text	utf8mb4_general_ci		No	None
2	lastName	text	utf8mb4_general_ci		No	None
3	aadharNo 🔑	varchar(30)	utf8mb4_general_ci		No	None
4	gender	varchar(255)	utf8mb4_general_ci		No	None
5	emailID 🔑	varchar(255)	utf8mb4_general_ci		No	None

CONCLUSION

This project has been a tremendous learning experience for us. We, in our research, were introduced to a plethora of resources available for database management, as well as web site design.

This was a fun project to build and it can be used to inspire and encourage the usage of SQL, database management techniques, and web design elements.

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