

# **GOVERNMENT DATABASE MANAGEMENT SYSTEM**

## **PROJECT REPORT**



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# DECLARATION



“We do hereby declare that this submission is our own work conformed to the norms and guidelines given in the Ethical Code of Conduct of the Institute and that, to the best of our knowledge and belief, it contains no material previously written by another person nor material (data, theoretical analysis, figures, and text) which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgement has been made in the text.”

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## ACKNOWLEDGEMENT

We would like to express our special thanks and gratitude to our teacher Mrs. Indu Gupta ma'am as well as our college Delhi Technological University which gave me the golden opportunity to do this interesting project on the topic "Government Database System", which also helped me in doing a lot of research and discovering many new things on the subject matter.

Secondly, we would also like to thank our parents, friends and classmates who helped us a lot in finalizing this project within the limited time frame which had been given to us. We're really thankful to all of them.

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 such a great curriculum which helps us to improve our learning skill as well 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. It 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.

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 it into the public. Thus, all of this work is highly data intensive. Consequently, the information system and management within the government and its departments must be effective and efficient.



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, 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, which is a highly unreliable and primitive method.

Additionally, the large number of these applications can make it difficult to keep track 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 government functionalities such as citizenship, passports, VISA, etc.

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 directly execute 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 different 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 email and 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 email 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.

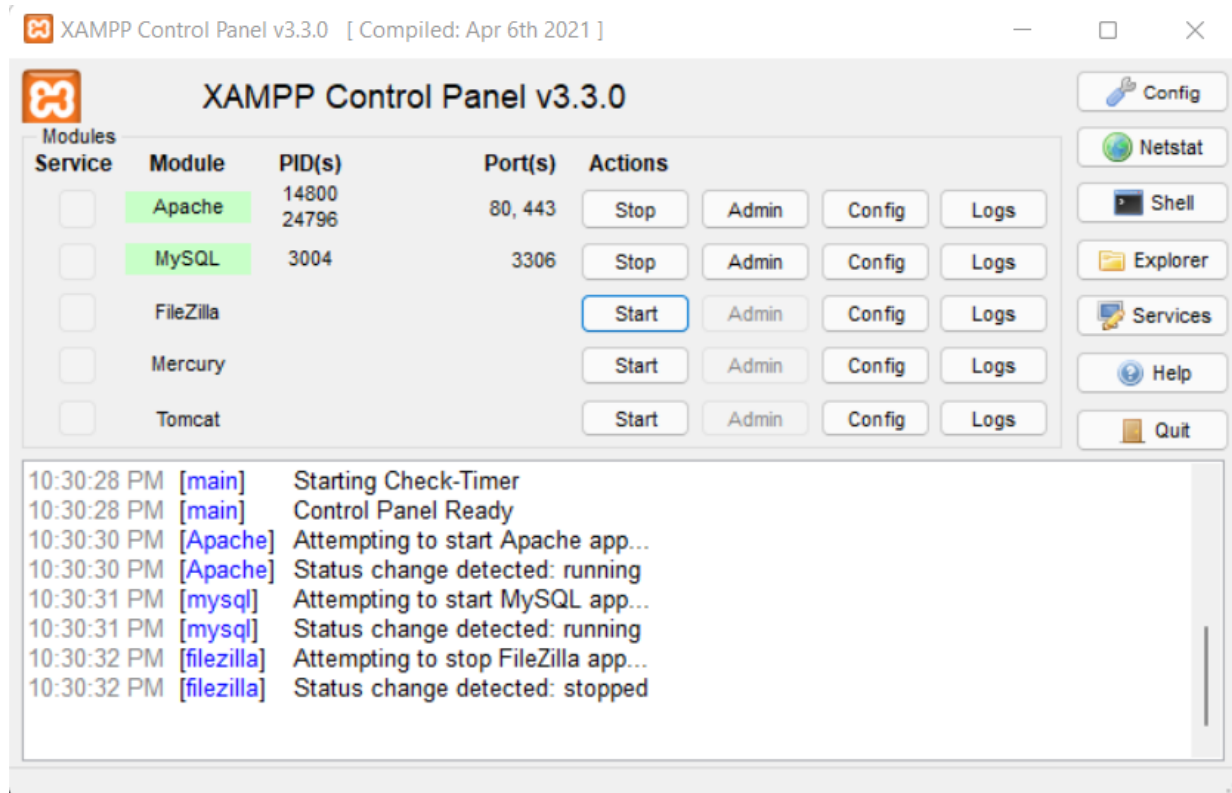
Administrator takes responsibility to register new user, register new employees, and register new data fields onto the database. A manager can edit/create some or whole part of those service added onto the website according to the requirement.

# 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 card, Pan card, etc.
- Helps government to improve the quality of the service and also to maintain the database safely and securely.



# DESIGN & IMPLEMENTATION



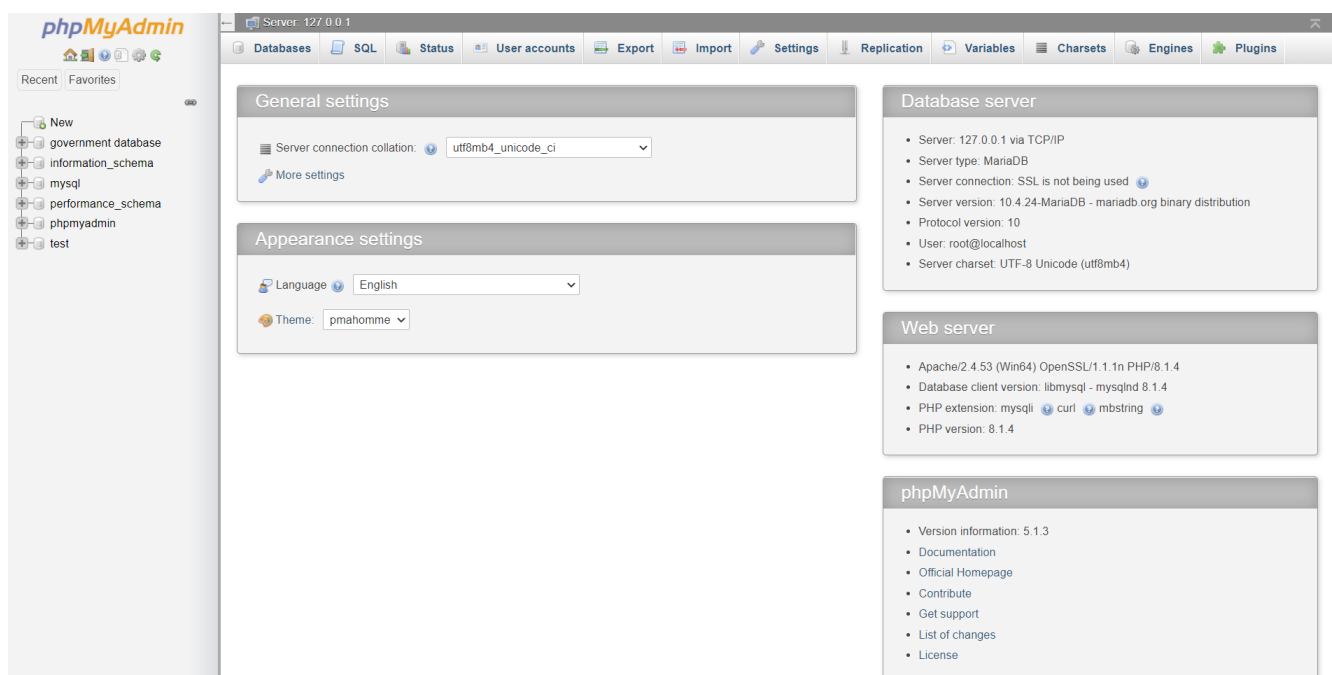
Firstly, we had to set up a website for our database system. For this purpose, we used two essential components of XAMPP- Apache and MySQL. Apache is used to create a local server, and MySQL is used as a database for our website.

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 the phpMyAdmin 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 own attributes.



After adding the SQL code to SQL query interface provided by XAMPP, a database is created *government database*, and we end up with all our tables with their 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 our database, where we can register users, and their various governmental information to their respective tables.

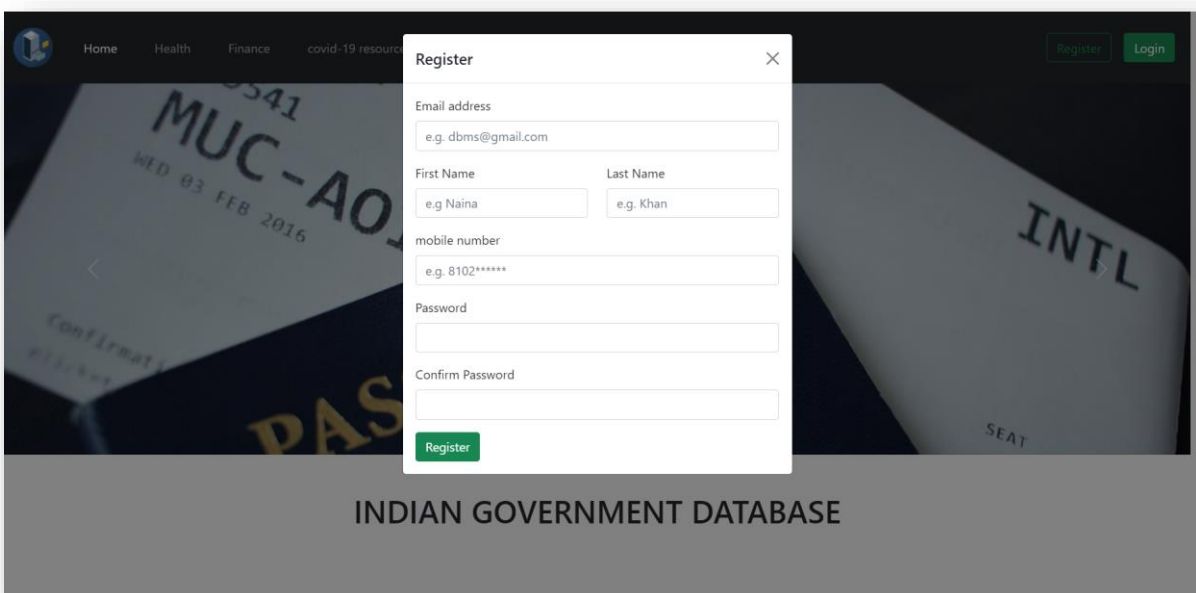
For example, we can register a user, whose information will be stored in the *users*

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 the database to store that information.

# MODULES

## Register A User

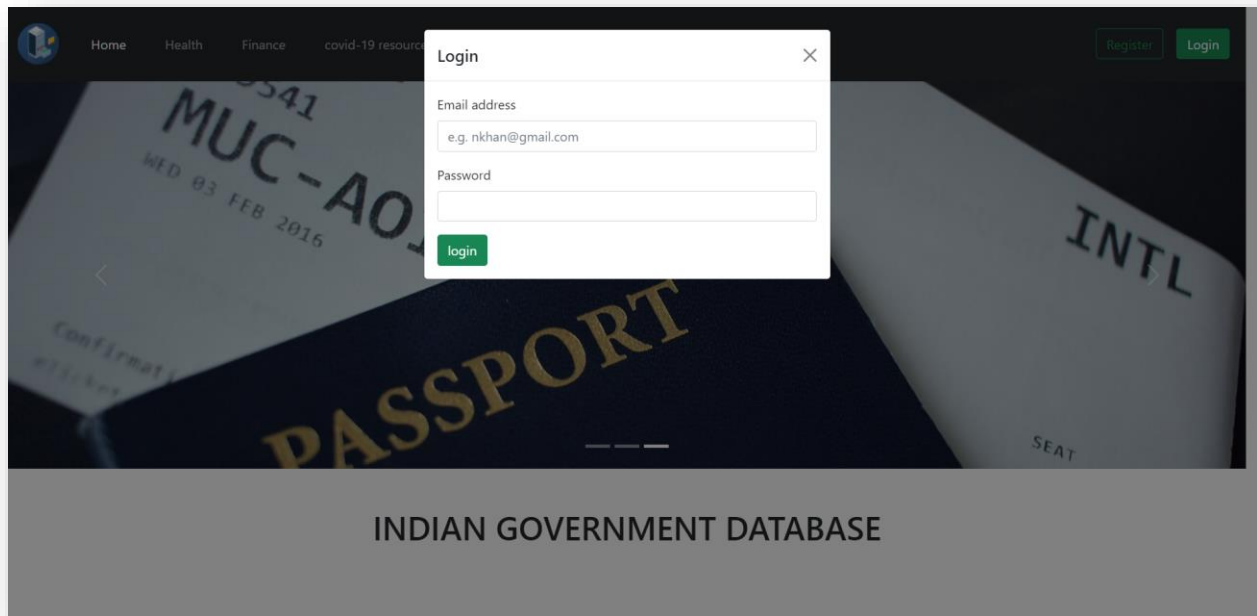
The main aim of this module is to register a new user to the database system. It tracks all the information and details of the user.



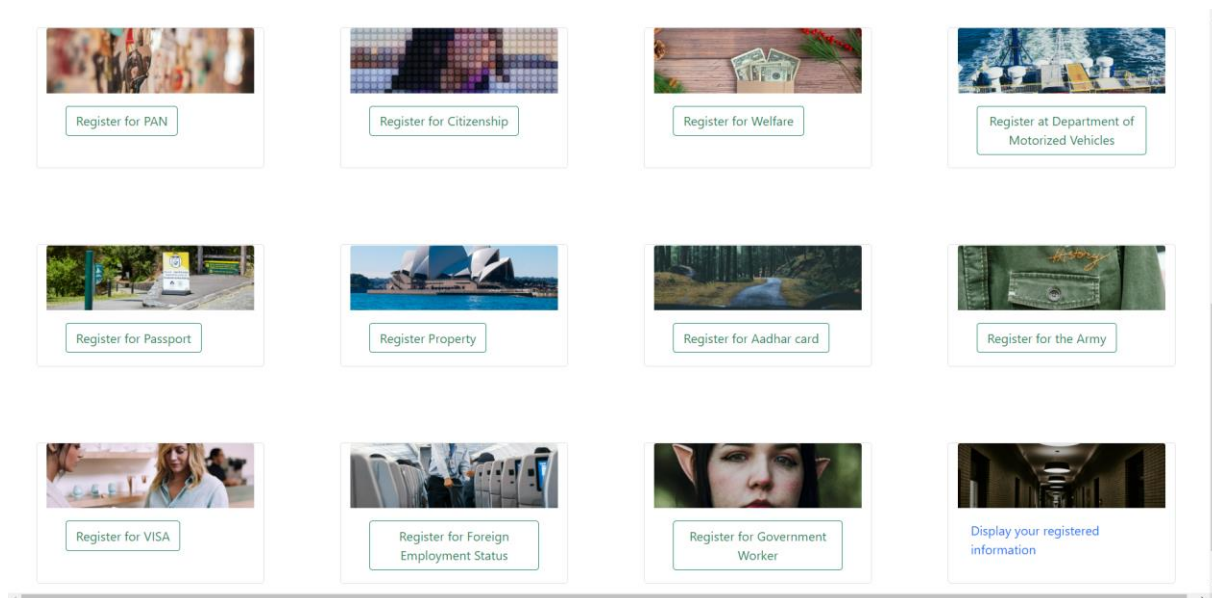
The screenshot displays a web application interface for the 'INDIAN GOVERNMENT DATABASE'. A modal window titled 'Register' is open, featuring a close button (X) in the top right corner. The form contains the following fields: 'Email address' (with placeholder 'e.g. dbms@gmail.com'), 'First Name' (with placeholder 'e.g. Naina'), 'Last Name' (with placeholder 'e.g. Khan'), 'mobile number' (with placeholder 'e.g. 8102\*\*\*\*\*'), 'Password', and 'Confirm Password'. A green 'Register' button is located at the bottom of the form. The background of the application shows a navigation bar with links for 'Home', 'Health', 'Finance', and 'covid-19 resources', along with 'Register' and 'Login' buttons. The main content area displays a blurred image of a passport with visible text like 'MUC-AO', 'MED 03 FEB 2016', 'CONFIRMATION', 'PAS', 'INTL', and 'SEAT'.

## 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.



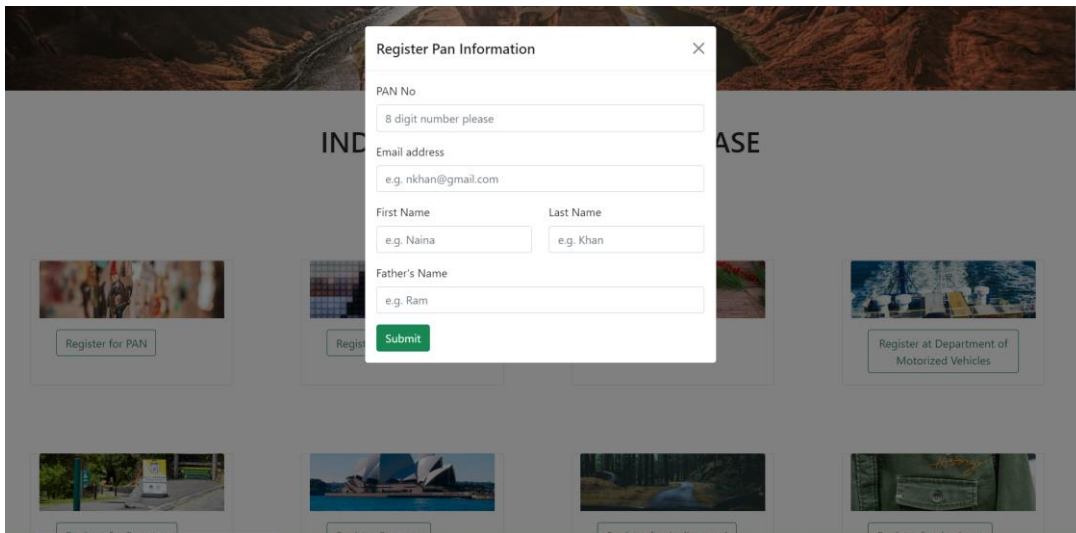
## Provided Services to A Registered User





## 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.



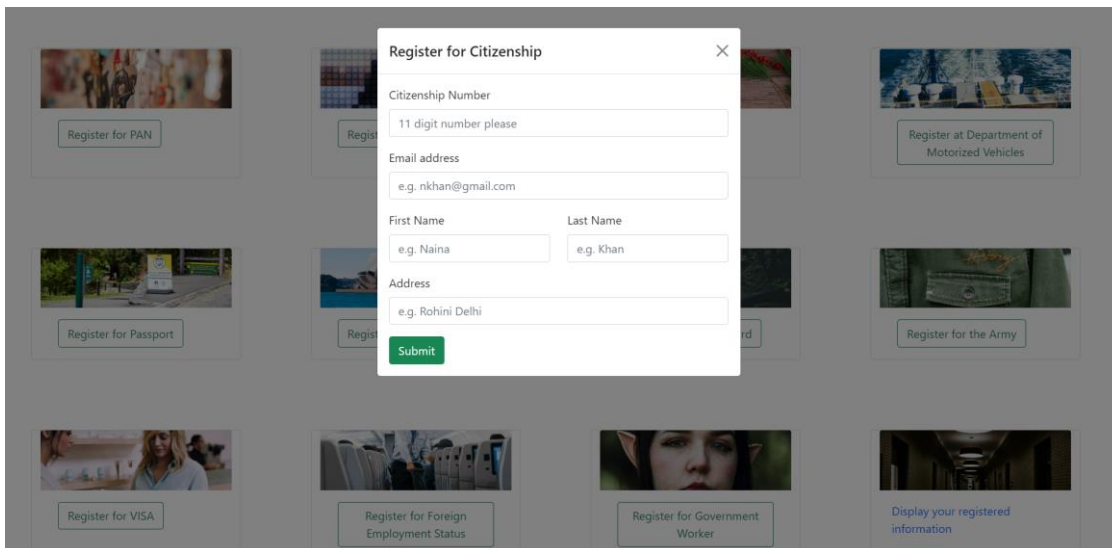
The screenshot shows a web interface with a grid of service tiles in the background. A modal form titled "Register Pan Information" is centered on the screen. The form contains the following fields:

- PAN No: 8 digit number please
- Email address: e.g. nkhan@gmail.com
- First Name: e.g. Naina
- Last Name: e.g. Khan
- Father's Name: e.g. Ram

A green "Submit" button is located at the bottom of the form.

## 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.



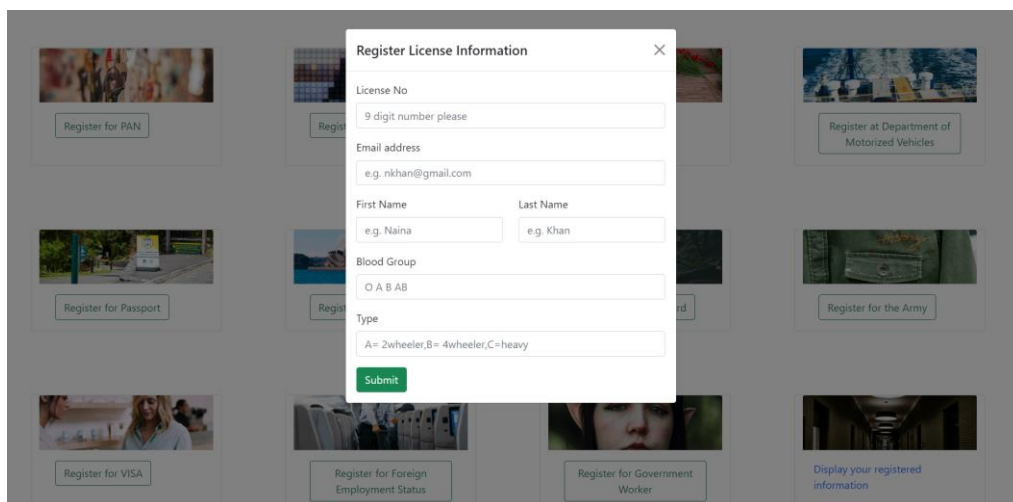
The screenshot shows a web interface with a grid of service tiles in the background. A modal form titled "Register for Citizenship" is centered on the screen. The form contains the following fields:

- Citizenship Number: 11 digit number please
- Email address: e.g. nkhan@gmail.com
- First Name: e.g. Naina
- Last Name: e.g. Khan
- Address: e.g. Rohini Delhi

A green "Submit" button is located at the bottom of the form.

### 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.



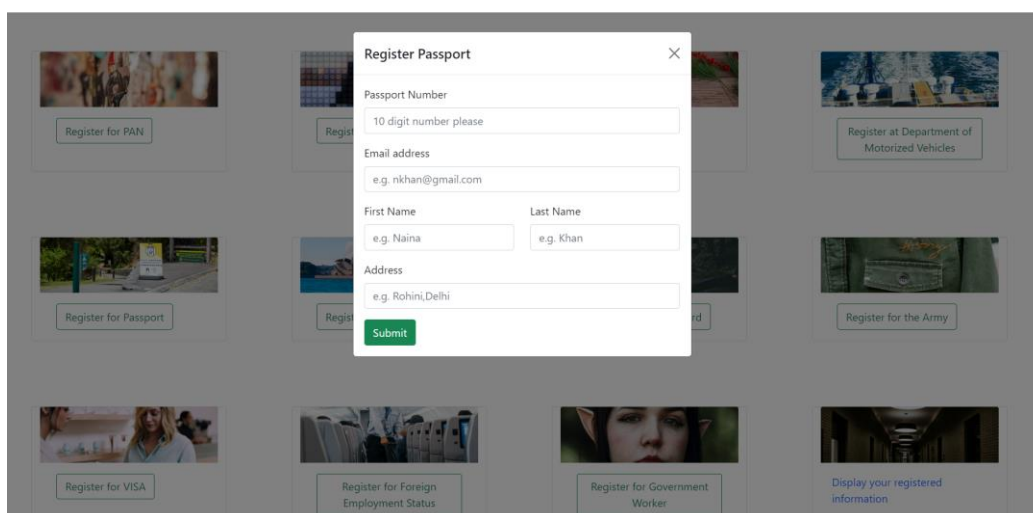
The screenshot shows a web application dashboard with a grid of service tiles. A modal form titled "Register License Information" is open in the center. The form contains the following fields and options:

- License No**: A text input field with the placeholder "9 digit number please".
- Email address**: A text input field with the placeholder "e.g. nkhan@gmail.com".
- First Name**: A text input field with the placeholder "e.g. Naina".
- Last Name**: A text input field with the placeholder "e.g. Khan".
- Blood Group**: A text input field with the placeholder "O A B AB".
- Type**: A text input field with the placeholder "A= 2wheeler,B= 4wheeler,C=heavy".
- Submit**: A green button at the bottom of the form.

The background dashboard includes tiles for "Register for PAN", "Register for Passport", "Register for VISA", "Register for Foreign Employment Status", "Register for Government Worker", "Register for the Army", and "Display your registered information".

### 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.



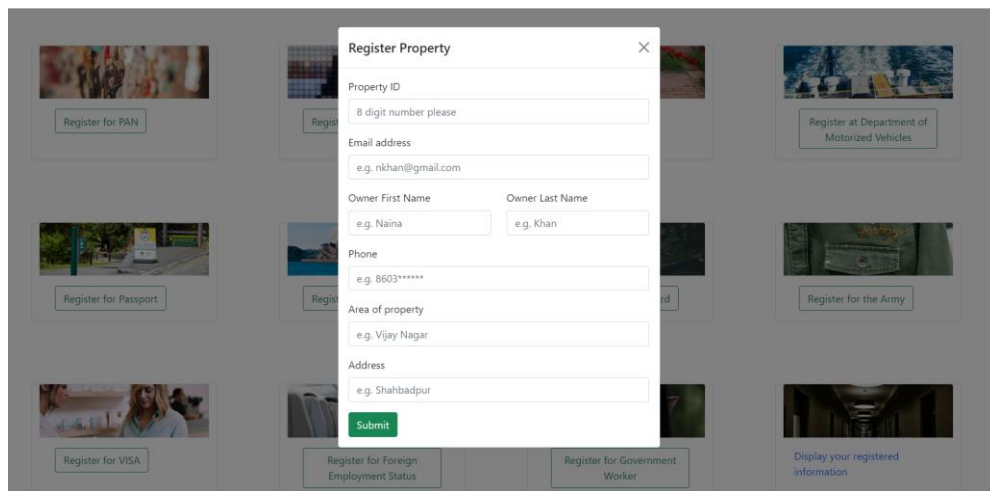
The screenshot shows the same web application dashboard as before. A modal form titled "Register Passport" is open in the center. The form contains the following fields and options:

- Passport Number**: A text input field with the placeholder "10 digit number please".
- Email address**: A text input field with the placeholder "e.g. nkhan@gmail.com".
- First Name**: A text input field with the placeholder "e.g. Naina".
- Last Name**: A text input field with the placeholder "e.g. Khan".
- Address**: A text input field with the placeholder "e.g. Rohini,Delhi".
- Submit**: A green button at the bottom of the form.

The background dashboard is identical to the previous screenshot, showing various service tiles.

## 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.



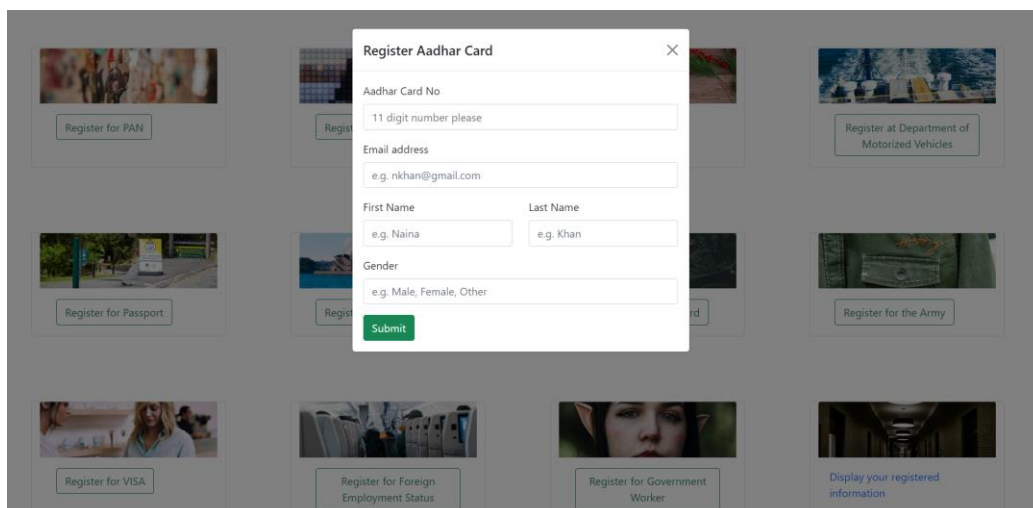
The screenshot shows a web interface with a grid of service tiles in the background. A modal form titled "Register Property" is centered on the screen. The form contains the following fields:

- Property ID: 8 digit number please
- Email address: e.g. nkhan@gmail.com
- Owner First Name: e.g. Naina
- Owner Last Name: e.g. Khan
- Phone: e.g. 8603\*\*\*\*\*
- Area of property: e.g. Vijay Nagar
- Address: e.g. Shahbadpur

A green "Submit" button is located at the bottom of the form.

## 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.



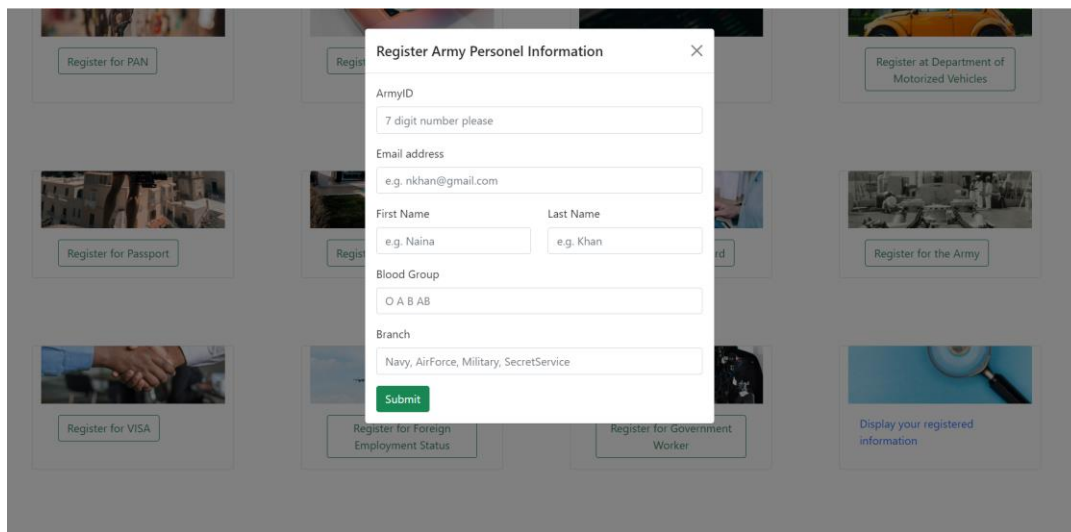
The screenshot shows the same web interface as before, but with a modal form titled "Register Aadhar Card" centered on the screen. The form contains the following fields:

- Aadhar Card No: 11 digit number please
- Email address: e.g. nkhan@gmail.com
- First Name: e.g. Naina
- Last Name: e.g. Khan
- Gender: e.g. Male, Female, Other

A green "Submit" button is located at the bottom of the form.

## 7. Register for Army

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

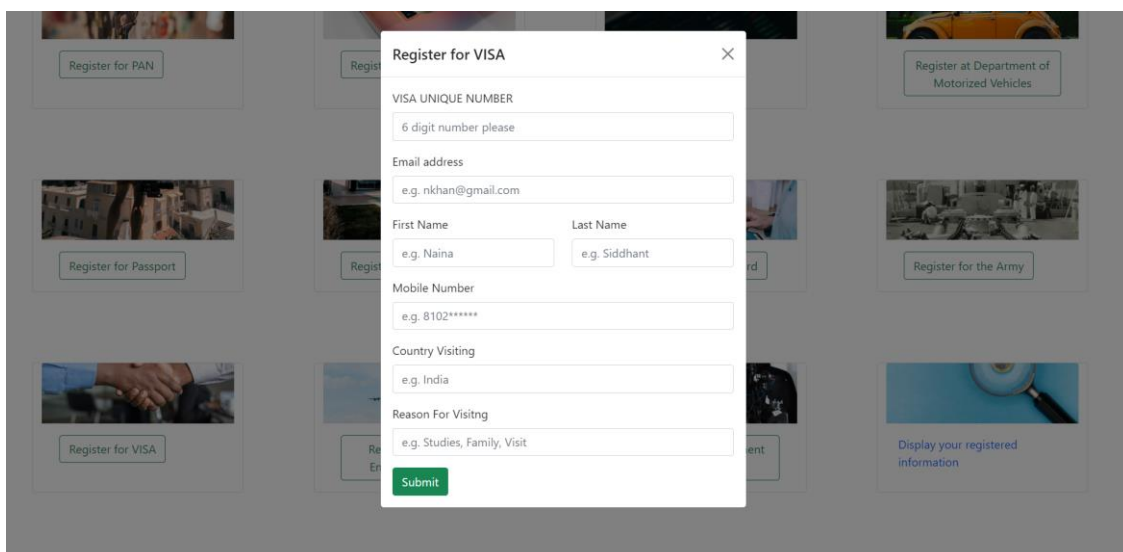


The screenshot shows a web application dashboard with several service registration buttons in the background, including 'Register for PAN', 'Register for Passport', 'Register for VISA', 'Register for Foreign Employment Status', 'Register for Government Worker', 'Register at Department of Motorized Vehicles', and 'Register for the Army'. A modal form titled 'Register Army Personnel Information' is open in the center. The form contains the following fields:

- ArmyID**: A text input field with the placeholder '7 digit number please'.
- Email address**: A text input field with the placeholder 'e.g. nkhan@gmail.com'.
- First Name**: A text input field with the placeholder 'e.g. Naina'.
- Last Name**: A text input field with the placeholder 'e.g. Khan'.
- Blood Group**: A text input field with the placeholder 'O A B AB'.
- Branch**: A text input field with the placeholder 'Navy, AirForce, Military, SecretService'.
- Submit**: A green button at the bottom of the form.

## 8. Register for VISA

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



The screenshot shows the same dashboard as above. A modal form titled 'Register for VISA' is open in the center. The form contains the following fields:

- VISA UNIQUE NUMBER**: A text input field with the placeholder '6 digit number please'.
- Email address**: A text input field with the placeholder 'e.g. nkhan@gmail.com'.
- First Name**: A text input field with the placeholder 'e.g. Naina'.
- Last Name**: A text input field with the placeholder 'e.g. Siddhant'.
- Mobile Number**: A text input field with the placeholder 'e.g. 8102\*\*\*\*\*'.
- Country Visiting**: A text input field with the placeholder 'e.g. India'.
- Reason For Visitng**: A text input field with the placeholder 'e.g. Studies, Family, Visit'.
- Submit**: A green button at the bottom of the form.

## 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.

The screenshot shows a modal form titled "Register As Government Worker" with a close button (X) in the top right corner. The form contains the following fields:

- Employee ID**: A text input field with a placeholder "11 digit number please".
- Email address**: A text input field with a placeholder "e.g. nkhan@gmail.com".
- First Name**: A text input field with a placeholder "e.g. Naina".
- Last Name**: A text input field with a placeholder "e.g. Khan".
- Job**: A text input field with a placeholder "e.g. Social service, Health Worker".
- Submit**: A green button at the bottom of the form.

The background shows a grid of other registration options, including "Register for PAN", "Register for Passport", "Register for VISA", "Register for Foreign Employment Status", "Register for Government Worker", "Register at Department of Motorized Vehicles", "Register for the Army", and "Display your registered information".

## 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.

The screenshot shows a web page with a search bar at the top. Below the search bar, there is a section titled "These are your details" followed by a list of user information:

- Name : m v
- Citizenship Number : 11220066580
- Address : Rohini, delhi
- Mobile Number : 7070707070
- VISA Number : 887755
- PAN Number : 11111112
- Passport Number : 2147483647
- Government Employee Number : 11809632745
- Army Number : 1199875
- Army Branch : Airforce
- Property No : 78965824
- Property Area : Sector-18
- Aadhar Card Number : 50002009444

## 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.

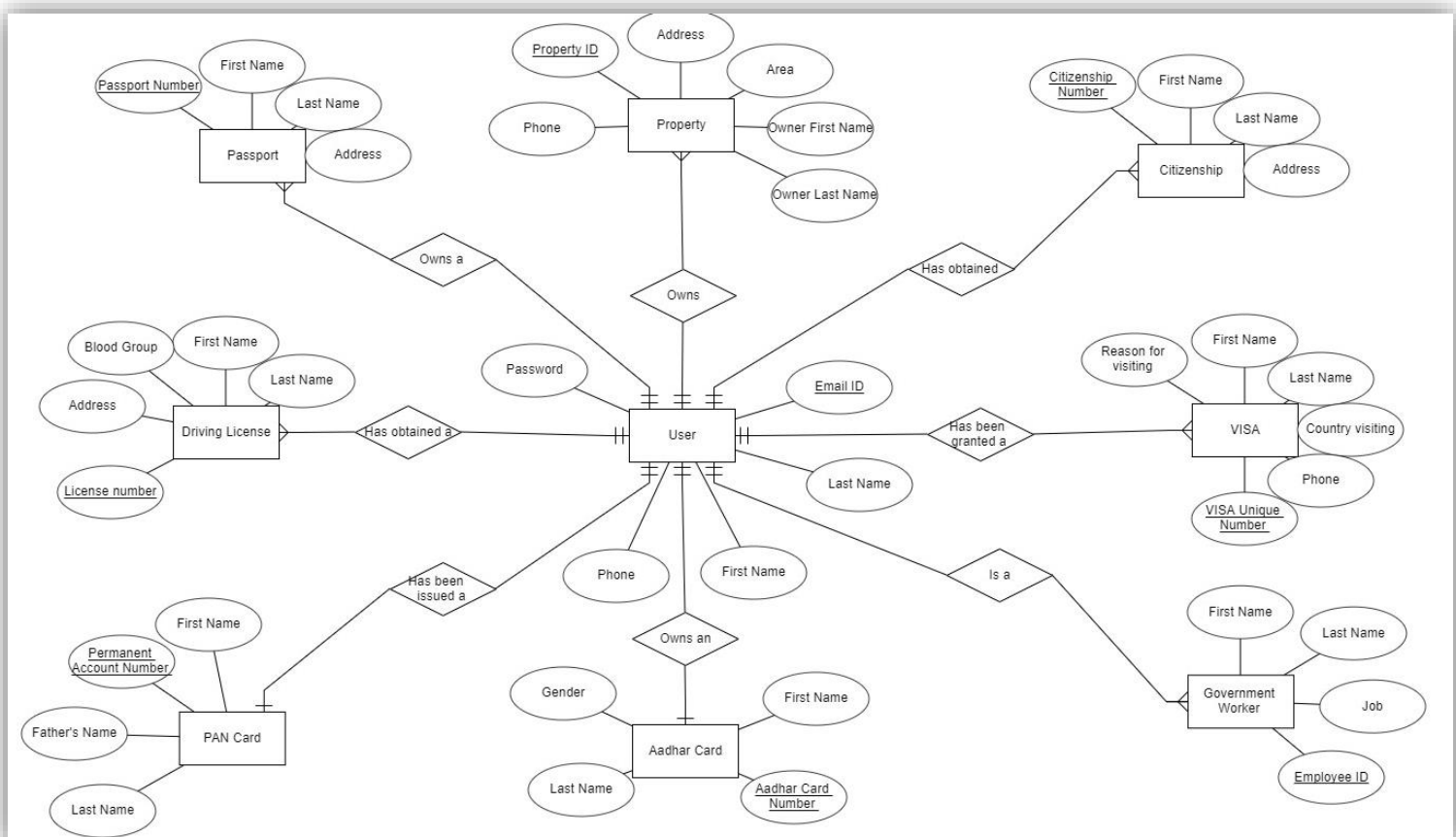
The Government database management system aims on to build an all-in-one government database system which administers various government functionalities such as citizenship, passports, VISA, etc.



# ER DIAGRAM

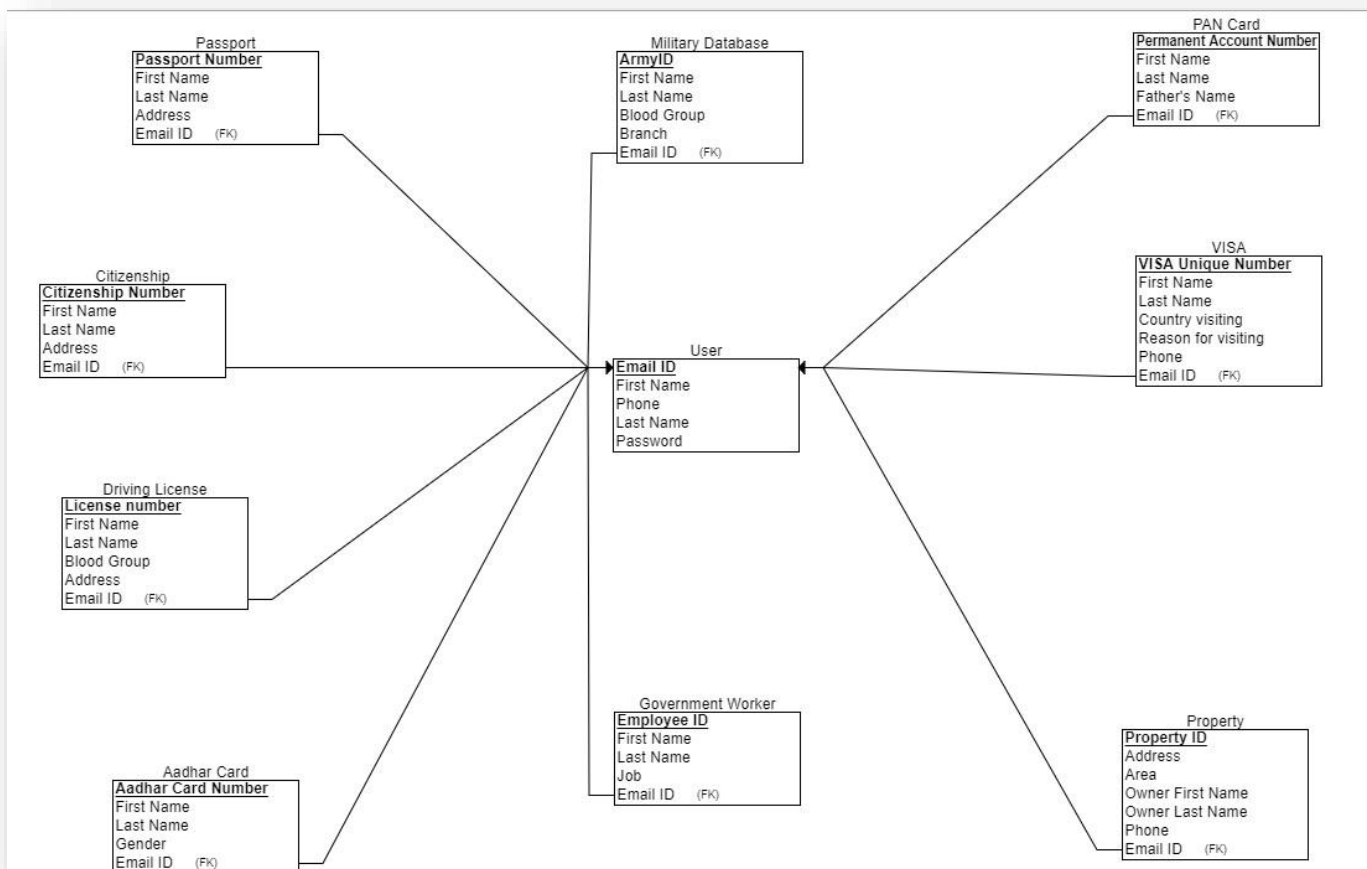
The entity-relationship (E-R) data model is based on a perception of a real world that consists of a collection of basic objects, called entities, and of relationships among these objects.

**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	<b>firstName</b>	varchar(255)	utf8mb4_general_ci		No	None
2	<b>lastName</b>	varchar(255)	utf8mb4_general_ci		No	None
3	<b>country</b>	varchar(255)	utf8mb4_general_ci		No	None
4	<b>reason</b>	varchar(255)	utf8mb4_general_ci		No	None
5	<b>Phone</b>	varchar(30)	utf8mb4_general_ci		No	None
6	<b>visaNo</b> 	int(11)			No	None
7	<b>emailID</b> 	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	<b>address</b>	varchar(255)	utf8mb4_general_ci		No	None
2	<b>area</b>	varchar(255)	utf8mb4_general_ci		No	None
3	<b>ownerfirstName</b>	text	utf8mb4_general_ci		No	None
4	<b>ownerlastName</b>	text	utf8mb4_general_ci		No	None
5	<b>mobNo</b>	varchar(30)	utf8mb4_general_ci		No	None
6	<b>propertyID</b> 	int(11)			No	None
7	<b>emailID</b> 	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	<b>firstName</b>	text	utf8mb4_general_ci		No	None
2	<b>lastName</b>	text	utf8mb4_general_ci		No	None
3	<b>address</b>	text	utf8mb4_general_ci		No	None
4	<b>passportNo</b> 	int(11)			No	None
5	<b>emailID</b> 	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	<b>firstName</b>	varchar(255)	utf8mb4_general_ci		No	None
2	<b>lastName</b>	varchar(255)	utf8mb4_general_ci		No	None
3	<b>fatherName</b>	varchar(255)	utf8mb4_general_ci		No	None
4	<b>panNo</b> 	int(11)			No	None
5	<b>emailID</b> 	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	<b>firstName</b>	text	utf8mb4_general_ci		No	None
2	<b>lastName</b>	text	utf8mb4_general_ci		No	None
3	<b>employeeID</b> 	varchar(30)	utf8mb4_general_ci		No	None
4	<b>job</b>	varchar(255)	utf8mb4_general_ci		No	None
5	<b>emailID</b> 	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	<b>firstName</b>	text	utf8mb4_general_ci		No	None
2	<b>lastName</b>	text	utf8mb4_general_ci		No	None
3	<b>licenseNo</b> 	int(11)			No	None
4	<b>bloodgrp</b>	varchar(4)	utf8mb4_general_ci		No	None
5	<b>address</b>	text	utf8mb4_general_ci		No	None
6	<b>emailID</b> 	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	<b>firstName</b>	text	utf8mb4_general_ci		No	None
2	<b>lastName</b>	text	utf8mb4_general_ci		No	None
3	<b>address</b>	text	utf8mb4_general_ci		No	None
4	<b>citizenshipNo</b> 	varchar(255)	utf8mb4_general_ci		No	None
5	<b>emailID</b> 	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	<b>armyID</b> 	int(11)			No	None
2	<b>firstName</b>	text	utf8mb4_general_ci		No	None
3	<b>lastName</b>	text	utf8mb4_general_ci		No	None
4	<b>bloodgrp</b>	varchar(4)	utf8mb4_general_ci		No	None
5	<b>branch</b>	varchar(255)	utf8mb4_general_ci		No	None
6	<b>emailID</b> 	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	<b>firstName</b>	text	utf8mb4_general_ci		No	<i>None</i>
2	<b>lastName</b>	text	utf8mb4_general_ci		No	<i>None</i>
3	<b>aadharNo</b> 	varchar(30)	utf8mb4_general_ci		No	<i>None</i>
4	<b>gender</b>	varchar(255)	utf8mb4_general_ci		No	<i>None</i>
5	<b>emailID</b> 	varchar(255)	utf8mb4_general_ci		No	<i>None</i>

## 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.

## REFERENCES

- <https://undsgn.com/xampp-tutorial/>
- <https://www.javatpoint.com/phpmyadmin>
- <https://www.siteground.com/tutorials/phpmyadmin/>
- <https://erdplus.com/>

