4. SYSTEM ANALYSIS

4.1 Data Flow Diagram

4.1.1 Definition:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It can Be manual, automated, or a combination of both. It shows how data centers and leaves the system, what Changes the information, and where data is stored.

The objective of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communication tool between a system analyst and any person who plays a part in the order that acts as a starting point for redesigning a system. The DFD is also called as a data flow graph or bubble chart. The DFD belongs to structured-analysis modelling tools. Data Flow diagrams are very popular because they help us to visualize the major steps and data involved in software-system processes. The name of the entity should be easy and understandable without any extra assistance. The process should be numbered or put in ordered list to be referred easily. The DFD should maintain consistency across all the DFD levels. A single DFD can have maximum process up to nine and minimum three processes.

In Business Analysis: DFD is used for the assessment of existing and projected system and its elements. Diagramming provides a useful tool set for exposing possible weaknesses and structural flaws.

In Software Development: DFD is used to explain and visualize the requirements of the projects from the business perspective and a technical point of view. This feature allows hatching through and through step by-step plan for the development of each element.

4.1.2 Features of Data Flow Diagram

Data Flow Diagram offer a graphical technique for summarizing the movement of data between the processing steps that occur within a business process. Some key features of data flow diagrams are

Two-dimensional Summary: DFD offer a way to summarize the data flow characteristics of a process on a single page. As such they can provide a useful and concise summary of system-related process attributes.

Completeness: DFD offer a way to check the completeness of your process model, particularly as regards your understanding of the data that would be required by information. DFD can provide a fast way to generate further questions that need to be asked about the process.

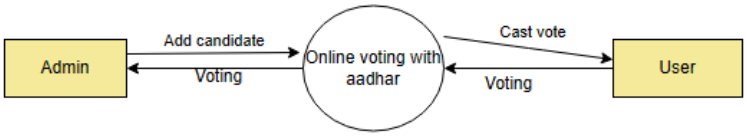
Processing Not Processes: DFDs refer to “process” steps. It might be more useful to think of DFD “processes” as processing steps rather than process activities. In essence, DFDs ask one to refer to the information systems implications of any processing work that occurs during the tasks that comprise a business process. DFD terminology tends to confuse the term “process” in its connotation with business process with the term “process” that refers to a computational process executing within software. Whether this represents the presumption among information engineers that everything is just a version of a computational process is a subject for further discussion at a later time the point here is that it is safer to think of DFD “processes” as processing steps.

4.1.3 Symbols Used

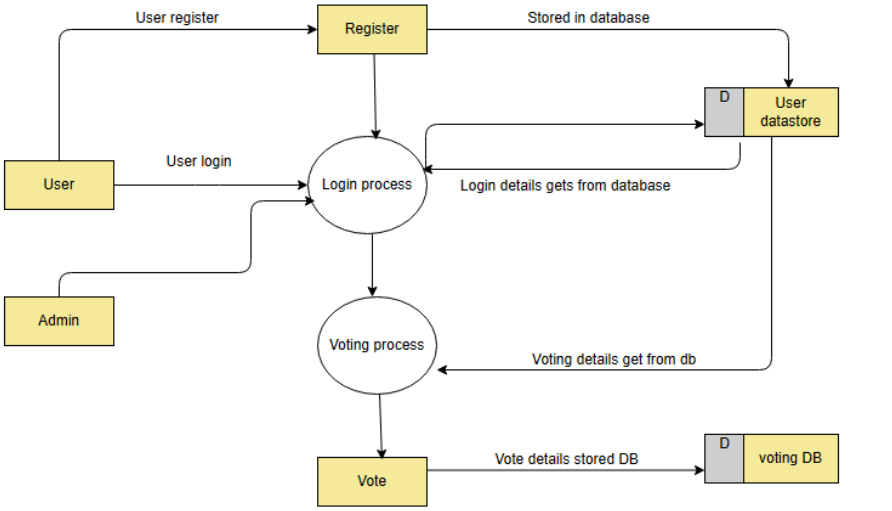
Symbols	Description
	Data Flow: Data flow are pipelines through the packets of the information flow.
	Process: A Processor task performed by the System.
	Entity: Entity is object to the system source destination of a system.
	Database: A place where data is to be stored.

4.1.4 DATA FLOW DIAGRAM:

Level 0:



Level 1:



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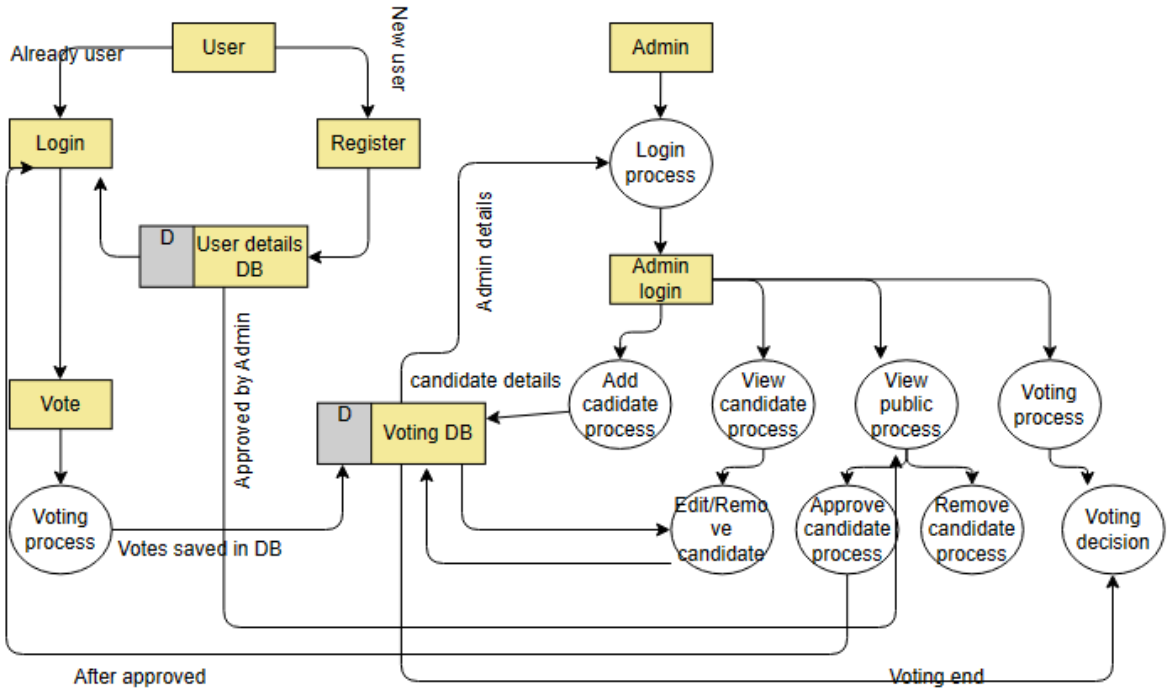


4.2 ENTITY RELATIONSHIP DIAGRAM

4.2.1 Definition

Entity Relationship Diagram, also known as ERD, ER Diagram or ER model, is a type of structural diagram for use in database design. An ERD contains different symbols and connectors that visualize two important information: The major entities within the system scope, and the interrelationships among these entities. And that's why it's called "Entity" "Relationship" diagram (ERD)When we talk about entities in ERD, very often we are referring to business objects such as people/roles (e.g., Student), tangible business objects (e.g., Product), intangible business objects (e.g., Log), etc. "Relationship" is about how these entities relate to each other within the system.

ER Model stands for Entity Relationship Model is a high-level conceptual data model diagram. ER model helps to systematically analyses data requirements to produce a well-designed database. The ER Model represents real-world entities and the relationships between them. Creating an ER Model in DBMS is considered as a best practice before implementing your database.ER Model helps you to analyze data requirements systematically to produce a well-designed database. So, it is considered a best practice to complete ER modelling before implementing your database. Why do we use ER diagram?

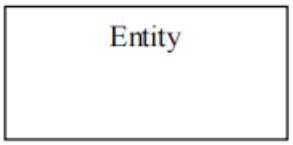
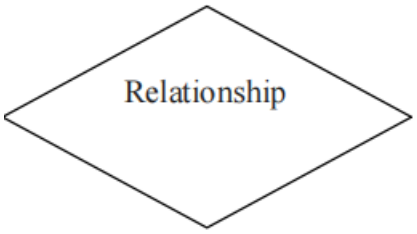
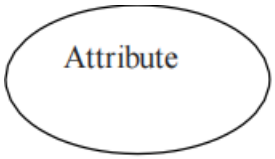
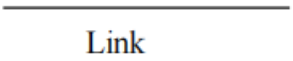
- Helps you to define terms related to entity relationship modelling.
- Provide a preview of how all your tables should connect, what fields are going to be on each table
- Helps to describe entities, attributes, relationships
- ER diagrams are translatable into relational tables which allows you to build databases quickly
- ER diagrams can be used by database designers as a blueprint for implementing data in specific software applications

4.2.2 Features of Entity Relationship Diagram Database Design:

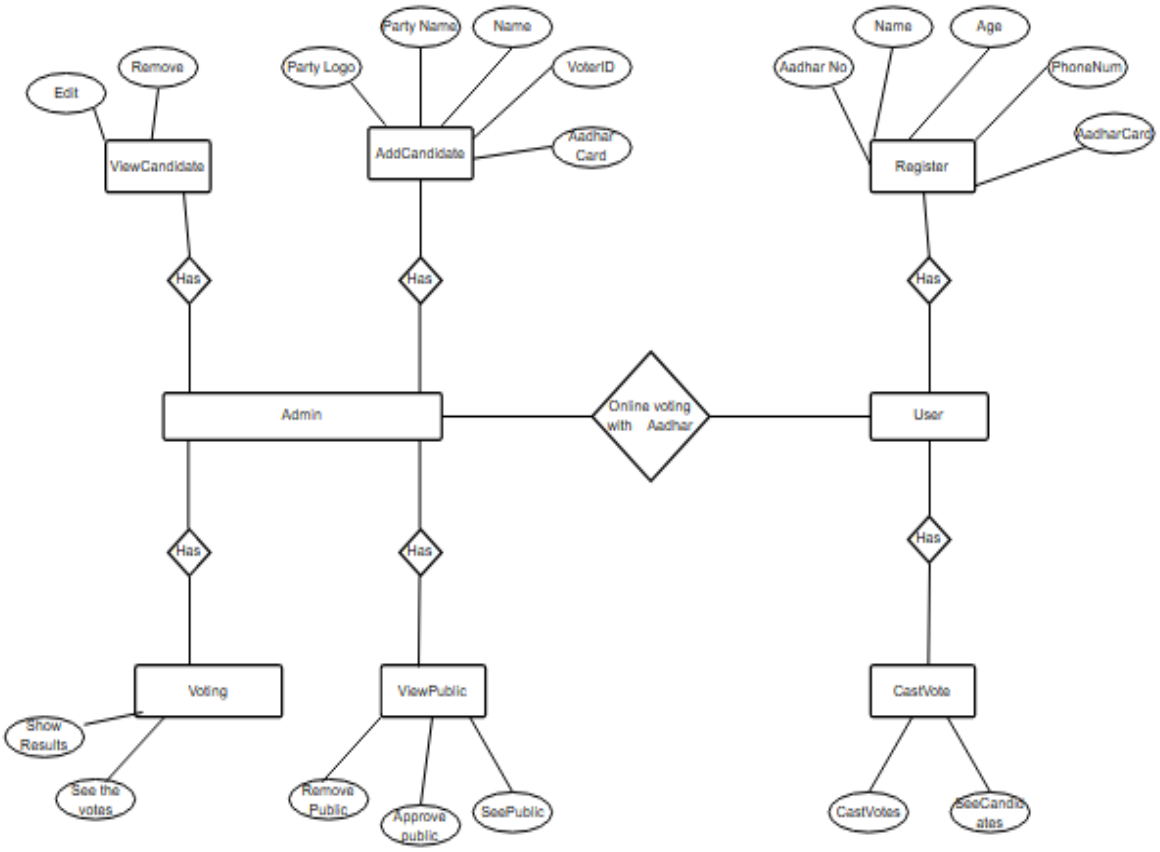
ER diagrams are used to model and design relational databases, in terms of logic and business rules and in terms of the specific technology to be implemented. In Software engineering, an ER diagram is always an initial step in determining the requirements for an information system project. It is also later used to model a particular database or databases. A Relational database has an equivalent relational tab lined potentially be expressed that way as needed.

- **Database Troubleshooting:** ER diagrams are used to analyze existing databases to find and resolve problems in logic or deployment. Drawing the diagram should reveal where it is going wrong.
- **Business Information Systems:** The diagrams are used to design or analyze databases used in business processes. Any Business process that uses fielded data involving entities, actions and interplay can potentially benefit from a relational database. It can streamline processes, uncover information more easily and improve results.
- **Business Process Re-Engineering:** ER diagrams help in analyzing databases used in business process re-engineering and in modelling a new database setup.
- **Education:** Databases are today's method of storing relational information for educational purposes and later retrieval, so ER Diagrams can be valuable in planning those data structures.
- **Research:** Since so much research focuses on structured data, ER diagrams can play a key role in setting up useful databases to analyze the data.

4.2.3 Symbols Used

Symbols	Description
	An entity can be place, person, object, event or a concept
	Relationship is nothing but an association among two or more entities
	It is a single-valued property of Either an entity type or a relationship-type.
	Links attribute(s) to entity set(s) or entity set(s)to

4.2.4 ER DIAGRAM:



5. SYSTEM REQUIREMENTS AND SPECIFICATIONS

5.1 HARDWARE REQUIREMENTS

- Processor : Intel (R) Core (TM) i3-6006U
- Speed : 2.0GHz and Above
- RAM Size : 4GB or above
- Hard disk capacity : 500 GB
- Monitor : 15'' LED SVGA
- Input Devices : Keyboard, Mouse

5.2 SOFTWARE REQUIREMENTS

- Operating System : Windows 7 / 8 / 8.1 / 10
- Coding Language : Python
- Python Version : Python 3.10
- IDE : Visual studio code
- Framework : Flask
- Database : MySQL

5.3 SOFTWARE SPECIFICATION:

Front End : HTML, CSS, Javascript

Middleware : Python

Back End : MYSQL

5.3 SOFTWARE SPECIFICATIONS

5.3.1 FRONT END SPECIFICATIONS

HTML:

HTML stands for Hypertext Markup Language. It is used to design the front-end portion of web pages using a markup language, HTML is the combination of Hypertext and Markup language. Hypertext defines the link between the web pages. The markup language is used to define the text documentation within the tag which defines the structure of web page.

FEATURES OF HTML:

- It is the language which can be easily understood and can be modified.
- Effective presentations can be made as the HTML with the help of its all-formatting tags.
- Provides the more flexible way to design well pages along with the test.
- Links can also be added to the web pages so it helps the readers to browse the information of their interest.
- You can display HTML documents on any platforms such as Macintosh, Windows and Linux etc.

CSS:

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML CSS is a cornerstone technology of the Worldwide Web, alongside HTML and JavaScript CSS is designed to enable the separation of presentation and comment, including layout, colors, and fonts. This separation can improve come accessibility, provide more flexibility and control in the specification of presentation characteristics, and enable multiple web pages to share formatting by specifying the relevant CSS in a separate.

FEATURES OF CSS:

- **Opportunity in Web designing:** If anyone wants to begin a career in web designing professionally, itis essential to have knowledge of CSS and HTML
- **Website Design:** With the use of CSS, we can control various styles, such as the text color the font style, the spacing among paragraphs, column size and layout.

JAVASCRIPT:

JavaScript often abbreviated as JS, is a programming language that conforms to the ECMA Script specification, Java script is high-level, often just-in-time compiled and Multi paradigm. It has dynamic typing. prototype-based object-orientation and first-class functions. Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web. Over 97% of websites use it client-side for web page behavior, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on the user's device.

FEATURES OF JAVASCRIPT:

- **Validating User's Input:** JavaScript is very useful while using forms. It has the capability to validate user input for errors and also saves time. If the user leaves a required field empty or the information is incorrect, It checks for them before sending the data over to the server.
- **Generating HTML Content:** JavaScript has very handy features to dynamically generate HTML content for the web. It allows us to add text, links, images, tables. etc. after an event occurrence (e.g. - mouse click).
- **Arrow Functions:** These functions are very useful in simplifying the syntax and tamp down the lines of codes web page or web application. Since these are light-weight in syntax, they can be very easily in anonymous functions in JavaScript.

5.3.2 MIDDLEWARE SPECIFICATIONS

PYTHON:

Python is a dynamic, high level, free open source and interpreted programming language. It supports object-oriented programming as well as procedural oriented programming. In Python, we don’t need to declare the type of variable because it is a dynamically typed language. For example, x=10. Here, x can be anything such as String, int,

Python is an interpreted, object-oriented programming language similar to PERL, that has gained popularity because of its clear syntax and readability. Python is said to be relatively easy to learn and portable, meaning its statements can be interpreted in a number of operating systems, including UNIX based systems, Mac OS, MS-DOS, OS/2, and various versions of Microsoft Windows 98. Python was created by Guido van Rossum, a former resident of the

Netherlands, whose favorite comedy group at the time was Monty Python's Flying Circus. The source code is freely available and open for modification and reuse. Python has a significant number of users.

FEATURES OF PYTHON:

There are many features in Python, some of which are discussed below

- Easy to code
- Free and Open Source
- Object-Oriented Language
- GUI Programming Support
- High-Level Language
- Extensible feature
- Python is Portable language
- Python is Integrated language
- Interpreted Language

5.3.3 BACKEND SPECIFICATIONS

MYSQL:

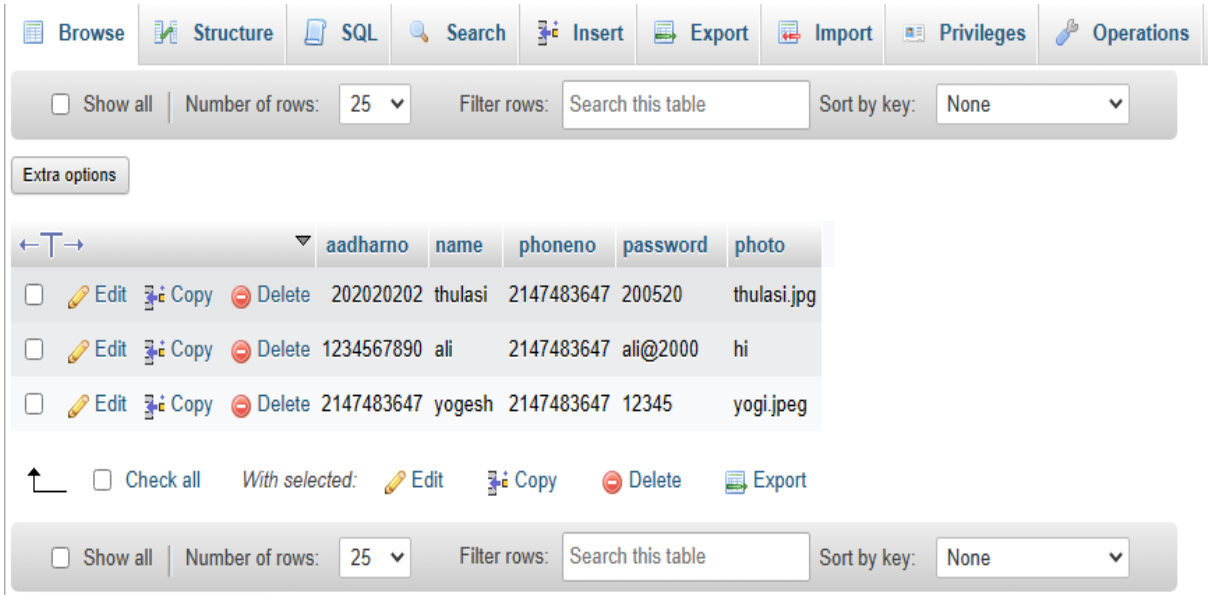
MySQL is a relational database management system (RDBMS) developed by Oracle that is based on structured query language (SQL). A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or a place to hold the vast amounts of information in a corporate network. In particular, a relational database is a digital store collecting data and organizing it according to the relational model. In this model, tables consist of rows and columns, and relationships between data elements all follow a strict logical structure. An RDBMS is simply set of software tools used to actually implement, manage, and query such a database. MySQL is integral to many of the most popular software stacks for building and maintaining everything from customer-facing web applications to powerful. Its open-source nature, stability, and rich feature set, paired with ongoing development and support from Oracle, have meant that internet-critical organizations such as Face book, Flickr, Twitter, Wikipedia, and YouTube all employ backend specification.

FEATURES OF MYSQL:

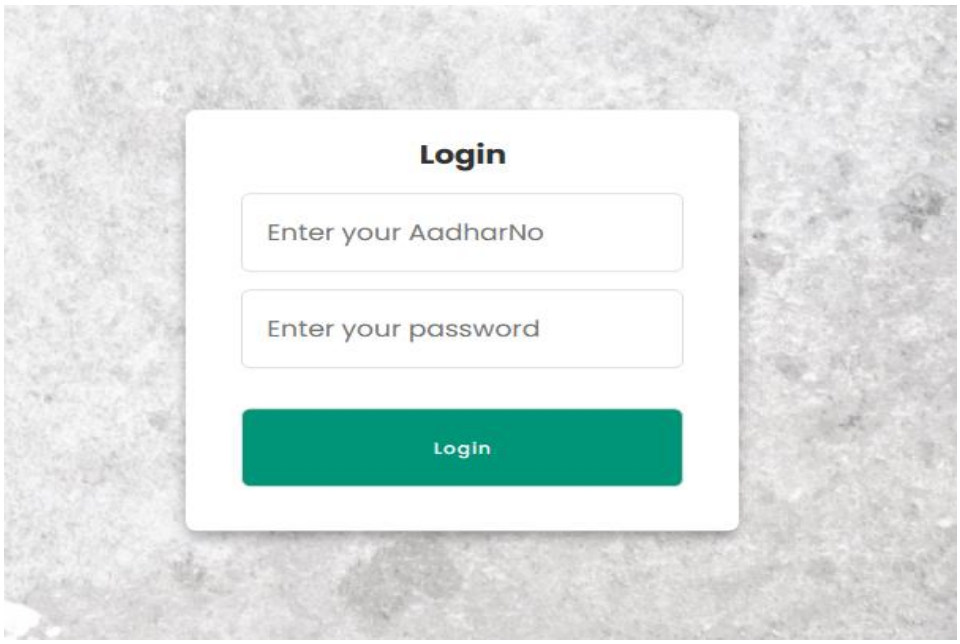
- **Easy to use:** My SQL is easy to use. We have to get only the basic knowledge of SQL. We can build and interact with MYSQL by using only a few simple SQL statements.
- **It is secure:** MYSQL consists of a solid data security layer that protects sensitive data from textbox are encrypted in MYSQL.
- **Client/ Server Architecture:** MYSQL follows the working of client/server architecture. There is a database server (MYSQL) and arbitrarily many clients (application programs), which communicate with the server: that is. they can query data. save changes. Etc.

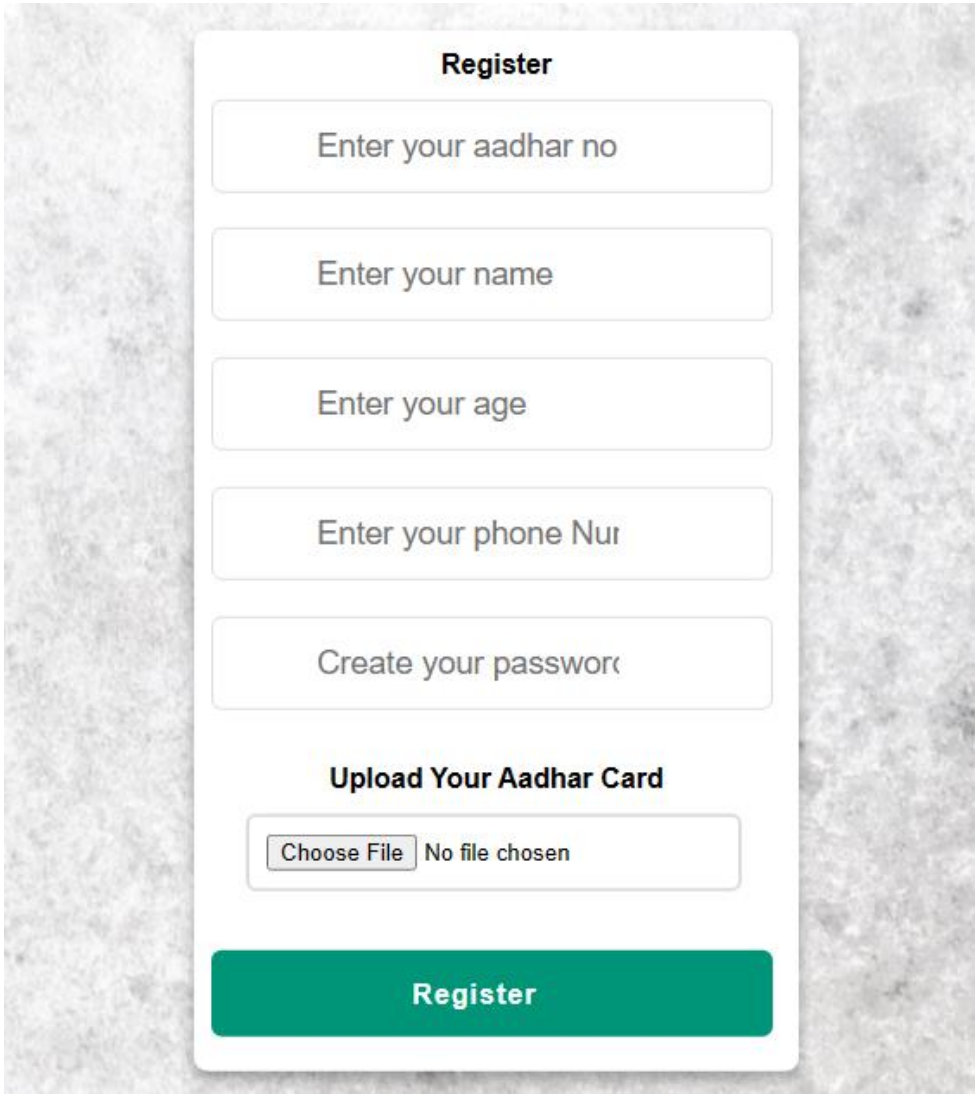
6.SYSTEM DESIGN

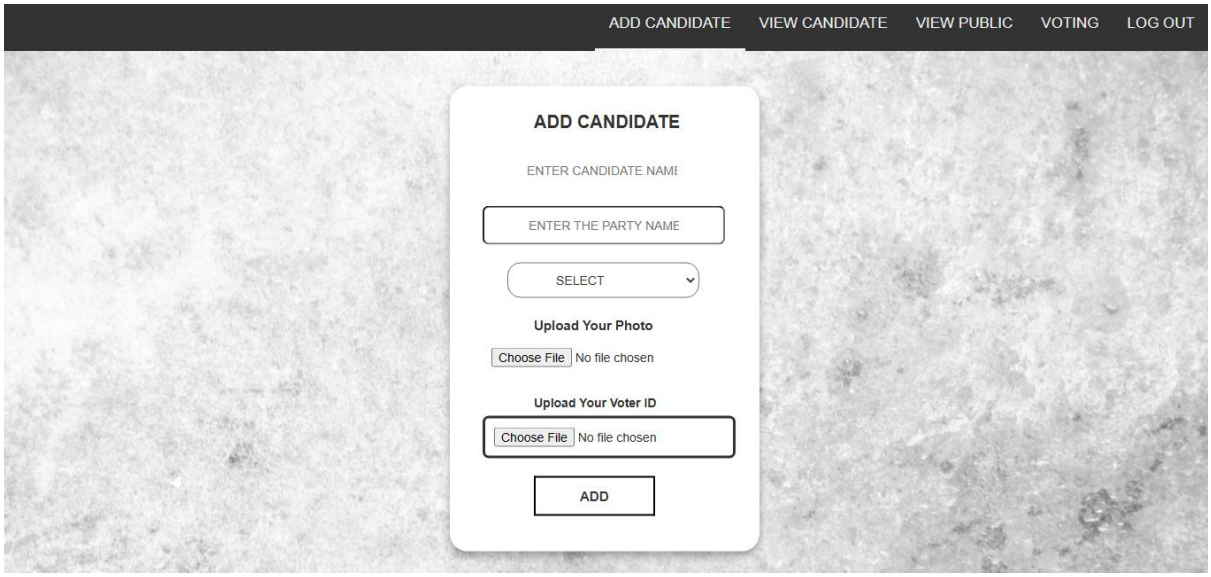
6.1 Table Design



6.2 Form Design






ADD CANDIDATE
VIEW CANDIDATE
VIEW PUBLIC
VOTING
LOG OUT
ADD CANDIDATE
ENTER CANDIDATE NAME
ENTER THE PARTY NAME
SELECT
Upload Your Photo
Choose File No file chosen
Upload Your Voter ID
Choose File No file chosen
ADD