Bangalore University

UNIVERSITY VISVESVARAYA COLLEGE OF ENGINEERING

K R Circle Bengaluru – 560001

Department of Computer Science and Engineering

DBMS MINI PROJECT
On

PET STORE MANAGEMENT

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CERTIFICATE

This is to certify **Kavya Bhat(19GANSE021), 5th Sem B.Tech ISE** have successfully
completed the Mini Project work on **Pet Store Management** prescribed by
Bangalore University during the academic year 2021-22.

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Examiner 1 ………………….

Examiner 2……………….

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ABSTRACT

The purpose of Pet Store Management System is a DBMS project to automate the existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work with.

Pet Store Management System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help the store owner in better utilization of resources. They can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

The aim is to automate its existing manual system by the help of computerized equipments and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. Basically the project describes how to manage for good performance and better services for the clients.

CONTENTS

CHAPTER 1

INTRODUCTION

1.1. BACKGROUND OF THE PROJECT

Every store organises its data. It is difficult and unreliable to manually store and maintain details of the sales and the pets. It is the duty of the owner of the shop to maintain details of them. Thus it is necessary for the owner to have computerized method to manage event details. So they are provided with this project to store and maintain all the records efficiently.

1.2. NECESSITY OF THE PROJECT

The old manual system was suffering from a series of drawbacks. Since whole of the system was to be maintained with hands and retrieving the information was very difficult. The project helps collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. It will help the owner to know the management of passed year perfectly and vividly. It will reduce the cost of collecting the management and collection procedure will go on smoothly.

1.3. APPLICATION AND ADVANTAGES

This application is used to add, delete, update, view and print all the details of pets and sales in the shop. The main advantage of this application is to assist the owner in capturing the effort spent on their respective fields. It also helps him to view the details of the pets and sales in the shop. It is very easy to operate and satisfies the user requirements.

1.4. INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

DBMS Stands for "Database Management System." In short, a DBMS is a database program. Technically speaking, it is a software system that uses a standard method of cataloging, retrieving, and running queries on data. The DBMS manages incoming data, organizes it, and provides ways for the data to be modified or extracted by users or other programs. DBMS makes it possible for end users to create, read, update and delete data in a database. The DBMS essentially serves as an interface between the database and end users or

application programs, ensuring that data is consistently organized and remains easily accessible.

DBMS include change management, performance monitoring/tuning and backup and recovery. Many database management systems are also responsible for automated rollbacks, restarts and recovery as well as the logging and auditing of activity. The DBMS can offer both logical and physical data independence. That means it can protect users and applications from needing to know where data is stored or having to be concerned about changes to the physical structure of data (storage and hardware).

As long as programs use the application programming interface (API) for the database that is provided by the DBMS, developers won't have to modify programs just because changes have been made to the database. With relational DBMS (RDBMSs), this API is SQL, a standard programming.

CHAPTER 2
LITERATURE REVIEW

2.1. EXISTING SYSTEM

In the current scenario, the existing system has many flaws which make it inefficient to carry on with it. Keeping records of the customers and about the pets is done manually. It becomes difficult maintaining all details of pets, customers and the products. However this could be done by this method itself, but there are drawbacks to it. As far as quality is concerned it is ok and not satisficing but not as good when handled using a computerized system. Now the drawbacks of the existing system can be stated in terms as follows:

- It is time consuming as the system is handled manually.

- Assurance of data security is not given.

- In long run, it is difficult to maintain records.

- Manpower requirement is huge.

2.2. PROPOSED SYSTEM

The proposed system is computerized and has been developed using PHP, HTML, CSS, therefore it gives more facilities than the present system. It provides quick access to any data that is stored in the database. In this system, the user has to enter the data only once and then it will get stored in the database which gets linked with all files. This reduces the workload of the user and it is also a time saving process. The information about any event can be retrieved easily whenever required. The proposed system maintains all records easy.

2.3. DATABASE MANAGEMENT SYSTEM

- The database is a collection of inter-related data which is used to retrieve, insert and delete the data efficiently. It is also used to organize the data in the form of a table, schema, views, and reports, etc.

- DBMS is a collection of programs that enables users to create and maintain a database.

- The DBMS is a general-purpose software system that facilitates the processes of defining, constructing, manipulating and sharing databases among various users and applications.

- For example: MySQL, Oracle, etc.
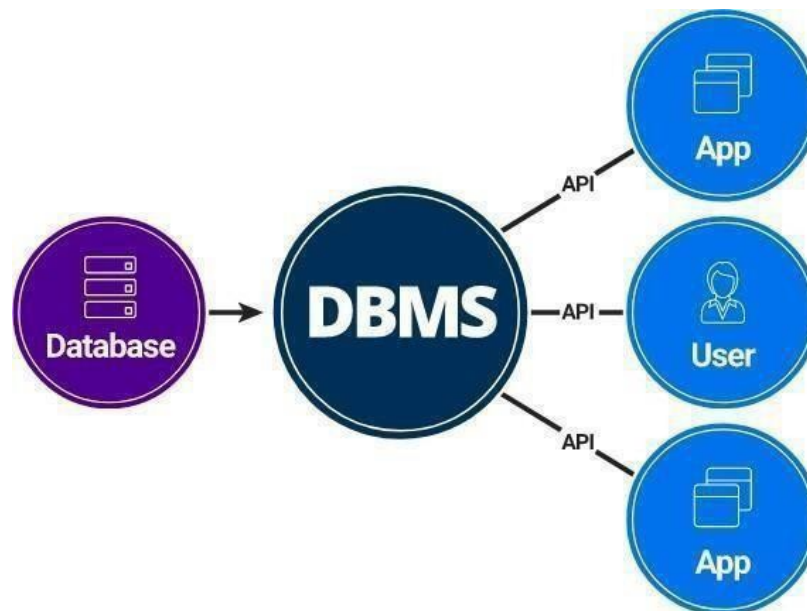
2.3.1. CHARACTERISTICS OF DATABASE MANAGEMENT SYSTEM

- Self-describing nature.

- Enforces user defined rules to ensure that integrity of table data.

- Provides insulation between Programs and data, data abstraction.

- Supports multiple views of the data.

- Helps sharing of data and Multi-user transaction processing.

2.3.2. E-R MODEL

An entity-relationship model describes interrelated things of interest in specific domain knowledge. An ER diagram shows the relationship among entity sets. An entity set is a group of similar entities and these entities can have attributes. In terms of DBMS, an entity is a table or attribute of a table in database, so by showing relationship among tables and their attributes, ER diagram shows the complete logical structure of a database.

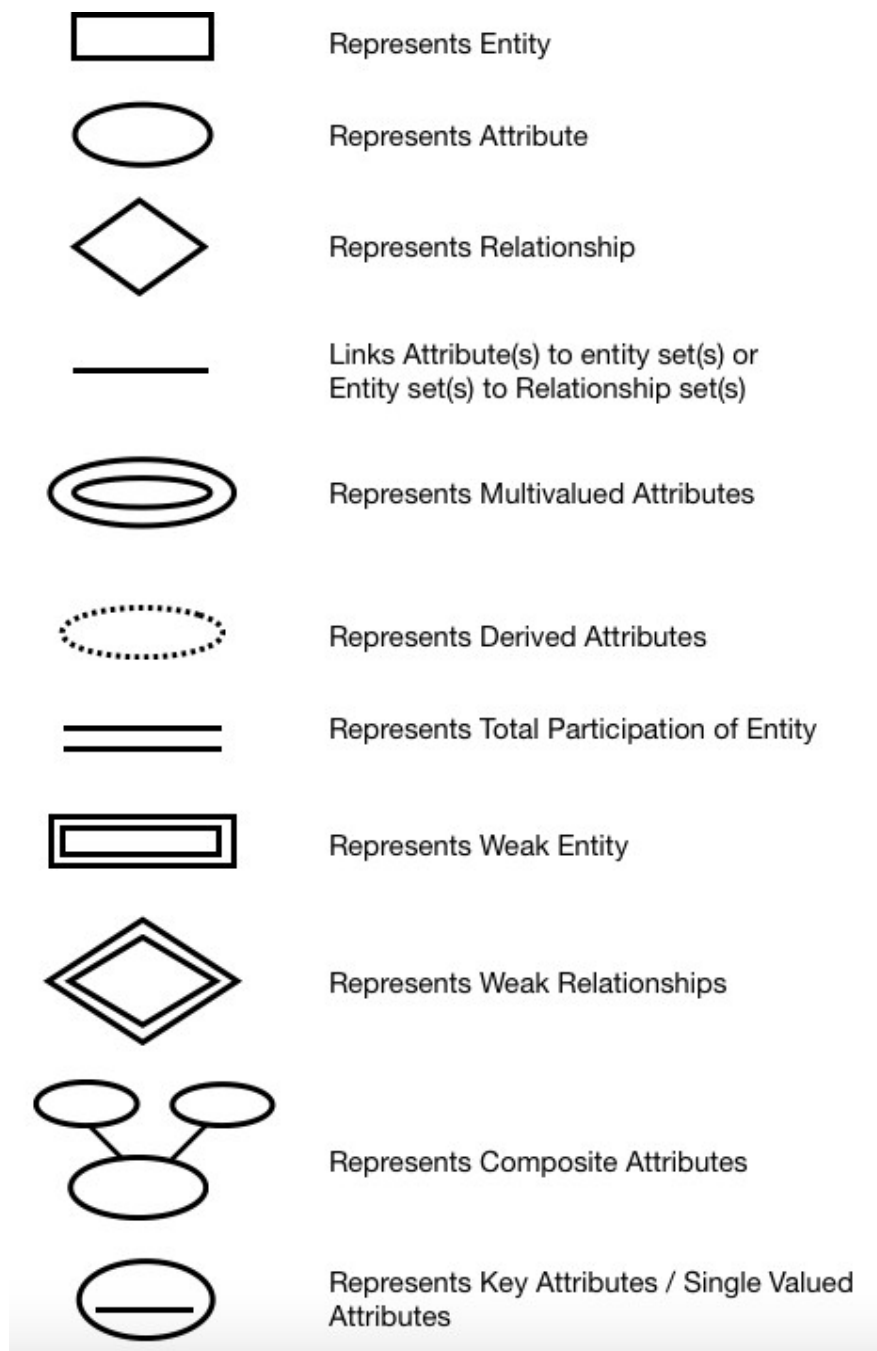Figure 2.3.2 shows different shapes used for creating ER diagram and their meaning.

▭	Represents Entity
⬭	Represents Attribute
◇	Represents Relationship
—	Links Attribute(s) to entity set(s) or Entity set(s) to Relationship set(s)
⬭	Represents Multivalued Attributes
⬭	Represents Derived Attributes
═	Represents Total Participation of Entity
▭	Represents Weak Entity
◇	Represents Weak Relationships
⬭	Represents Composite Attributes
⬭	Represents Key Attributes / Single Valued Attributes

Figure 2.3.2- ER Model

2.3.3. ADVANTAGES OF USING THE DBMS APPROACH

• Controlling the redundancy.

• Restricting unauthorized access.

• Providing persistent storage for program objects.

• Providing storage structures for efficient query processing.

• Providing backup and recovery.

• Providing multiple users interfaces.

• Representing complex relationships among data.

2.3.4. NORMALIZATION

The normalization process was proposed by Codd, it takes a relation schema through a series of tests to certify whether if satisfies a certain normal form. The process proceeds in a top down fashion by evaluating each relation against the criteria for normal forms and decomposing relations as necessary can thus be considered a relational design by analysis. Normalization of data can be looked upon as a process of analyzing the given relation schemas based on their Functional Dependencies and primary keys to achieve the desirable properties of:

- Minimizing redundancy.

- Minimizing the insertion, deletion, and update anomalies.

2.3.4.1. TYPES OF NORMAL FORM

FIRST NORMAL FORM (1NF)
- A relation will be 1NF if it contains an atomic value.

- It states that an attribute of a table cannot hold multiple values. It must hold only single-valued attribute.

- First normal form disallows the multi-valued attribute, composite attribute, and their combinations.

SECOND NORMAL FORM (2NF)
- In the 2NF, relational must be in 1NF.

- In the second normal form, all non-key attributes are fully functional dependent on the primary key.

THIRD NORMAL FORM (3NF)
- A relation will be in 3NF if it is in 2NF and not contain any transitive partial dependency.

- 3NF is used to reduce the data duplication. It is also used to achieve the data integrity.

- If there is no transitive dependency for non-prime attributes, then the relation must be in third normal form.

A relation is in third normal form if it holds atleast one of the following conditions for every non-trivial function dependency $X \rightarrow Y$.

X is a super key.

Y is a prime attribute, i.e., each element of Y is part of some candidate key.

BOYCE CODD NORMAL FORM
- BCNF is the advance version of 3NF. It is stricter than 3NF.

- A table is in BCNF if every functional dependency X → Y, X is the super key of the table.

- For BCNF, the table should be in 3NF, and for every FD, LHS is super key.

FOURTH NORMAL FORM (4NF)

- A relation will be in 4NF if it is in Boyce Codd normal form and has no multi-valued dependency.

- For a dependency A → B, if for a single value of A, multiple values of B exists, then the relation will be a multi-valued dependency.

FIFTH NORMAL FORM (5NF)

- A relation is in 5NF if it is in 4NF and not contains any join dependency and joining should be lossless.

- 5NF is satisfied when all the tables are broken into as many tables as possible in order to avoid redundancy.

- 5NF is also known as Project-join normal form (PJ/NF).

2.4. STRUCTURED QUERY LANGUAGE (SQL)

It is a standard language for Relational Database System. It is used for storing and managing data in relational database management system (RDMS).

2.4.1. CHARACTERISTICS OF SQL

- SQL is easy to learn.

- SQL is used to access data from relational database management systems.

- SQL can execute queries against the database.

- SQL is used to describe the data.

- SQL is used to define the data in the database and manipulate it when needed.

- SQL is used to create and drop the database and table.

- SQL is used to create a view, stored procedure, function in a database.

- SQL allows users to set permissions on tables, procedures, and views.

- SQL can perform various tasks like create a table, add data to tables, drop the table, modify the table, set permission for users.

2.4.2. SQL COMMANDS

- SQL commands are instructions. It is used to communicate with the database. It is also used to perform specific tasks, functions, and queries of data.

- SQL can perform various tasks like create a table, add data to tables, drop the table, modify the table, set permission for users.

Types of SQL Commands
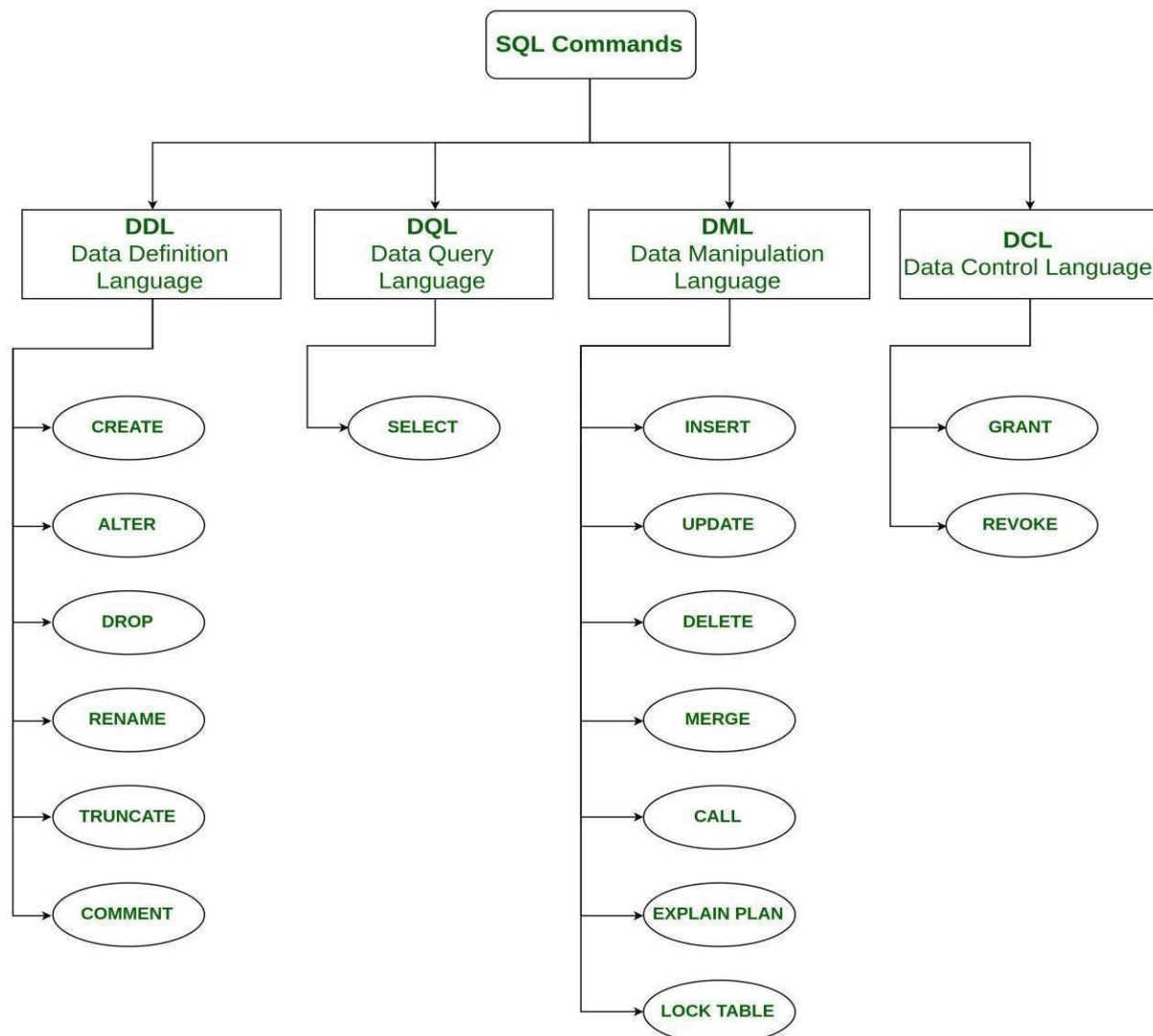
2.4.3. STATEMENTS IN SQL
Following are the important statements used in SQL.

✓ SELECT - Used to retrieve the information from the relation.

✓ INSERT - Used to insert the new values to the relation.

✓ DELETE - Used to delete one or more existing tuples from the relation.

✓ UPDATE - Used to update already existing values in the relation.

2.4.4. AGGREGATE FUNCTIONS IN SQL
Following aggregate functions are provided by the SQL.

✓ COUNT - Returns number of tuples.

✓ SUM - Returns sum of entries in a column.

✓ MAX - Returns Maximum value from an entire column.

✓ MIN - Returns Minimum value from an entire column.

✓ AVG - Returns Average of all the entries in a column.

2.4.5. CONSTRAINTS IN SQL

Following constraints are provided by the SQL.

✓ NOT NULL - Column should not contain NULL value.

✓ PRIMARY KEY - Should not contain duplicate or NULL values.

✓ UNIQUE - Each value of the column should be unique.

2.5. SOFTWARE REQUIREMENTS SPECIFICATION

Software requirements deal with defining software resource requirements and prerequisites that need to be installed on a computer to provide optimal functioning of an application. These requirements or pre-requisites are generally not included in the software installation package and need to be installed separately before the software is installed.

- **Front end :** HTML,CSS

- **Back end:** PHP,MySQL

- **Server:** Xampp Server

- **Operating system:** Windows.

2.6. OVERVIEW OF TOOLS/SOFTWARE

HTML

HTML stands for Hyper Text Mark-up Language, which is the most widely used language on Web to develop web pages. Hypertext refers to the way in which Web pages (HTML documents) are linked together. Thus, the link available on a webpage is called Hypertext. As its name suggests, HTML is a Mark-up Language which means you use HTML to simply "mark- up" a text document with tags that tell a Web browser how to structure it to display.

CSS

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.CSS handles the look and feel part of a web page. Using CSS, you can control the colour of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background

images or colours are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.

MySQL

MySQL is the most popular Open Source Relational SQL Database Management System. MySQL is one of the best RDBMS being used for developing various web-based software applications. The SQL phrase stands for Structure Query Language. MySQL is a fast, easy-to- use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company.

PHP

PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites. It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.

CHAPTER 3

PROPOSED WORK

3.1. E-R MODEL

An Entity–relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as Entity Relationship Diagram (ER Diagram). An ER model is a design or blueprint of a database that can later be implemented as a database. The main components of E-R model are: entity set and relationship set..

ER Diagram of Pet Store Management System
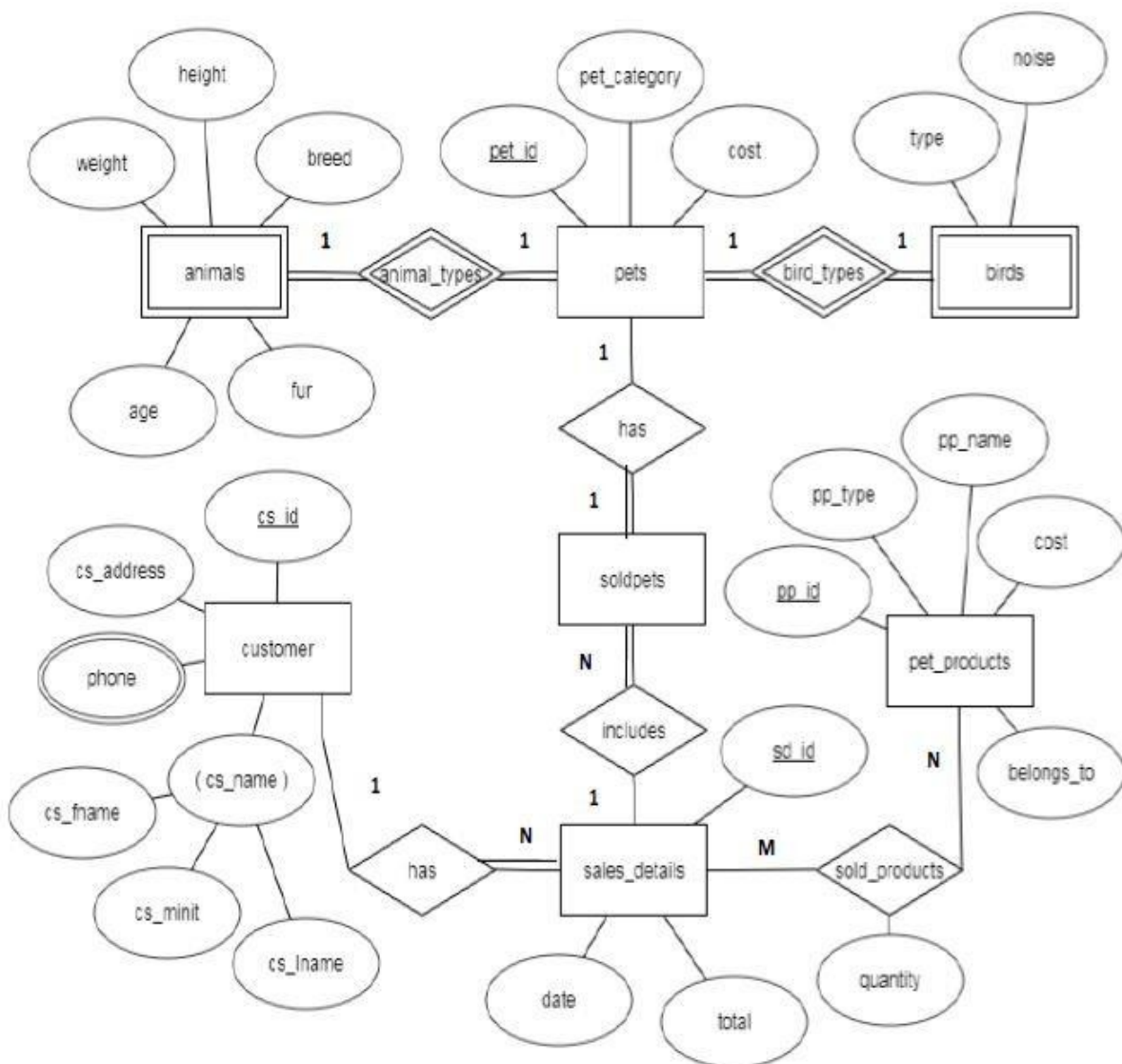

Figure: 3.1.1- ER diagram for Pet Shop Management System

3.2. RELATIONAL MODEL

Relational Model (RM) represents the database as a collection of relations. A relation is nothing but a table of values. Every row in the table represents a collection of related data values. These rows in the table denote a real-world entity or relationship.

The table name and column names are helpful to interpret the meaning of values in each row. The data are represented as a set of relations. In the relational model, data are stored as tables. However, the physical storage of the data is independent of the way the data are logically organized.

3.2.1. SCHEMA DIAGRAM
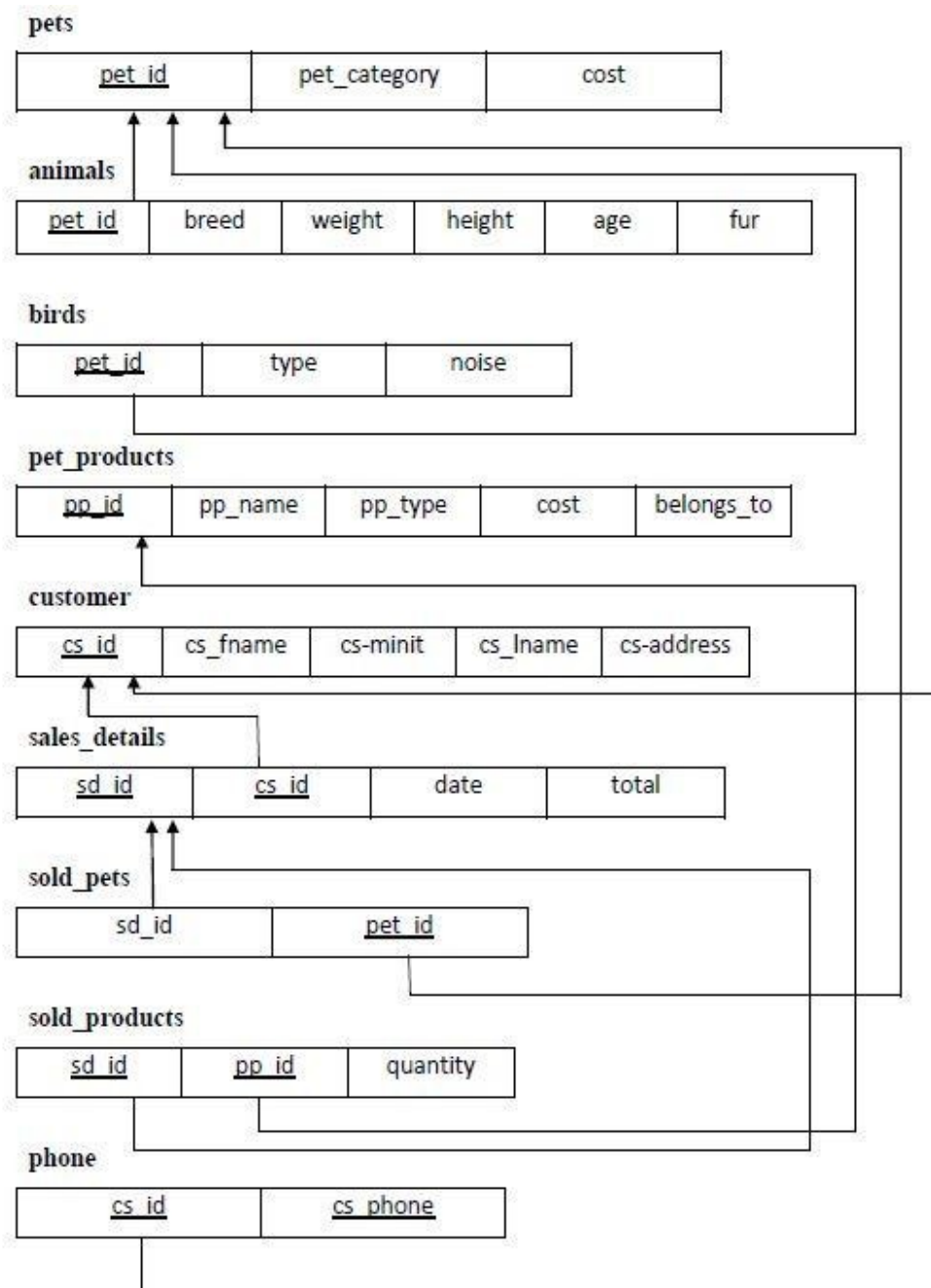
3.3. NORMALIZATION

The normalization process was proposed by Codd, it takes a relation schema through a series of tests to certify whether if satisfies a certain normal form. The process proceeds in a top down fashion by evaluating each relation against the criteria for normal forms and decomposing relations as necessary can thus be considered a relational design by analysis. Normalization of data can be looked upon as a process of analyzing the given relation schemas based on their Functional Dependencies and primary keys to achieve the desirable properties of:

o Minimizing redundancy.

o Minimizing the insertion, deletion, and update anomalies.

There are three main types of normal forms:

a) First normal form (1NF)

b) Second normal form (2NF)

c) Third normal form (3NF)
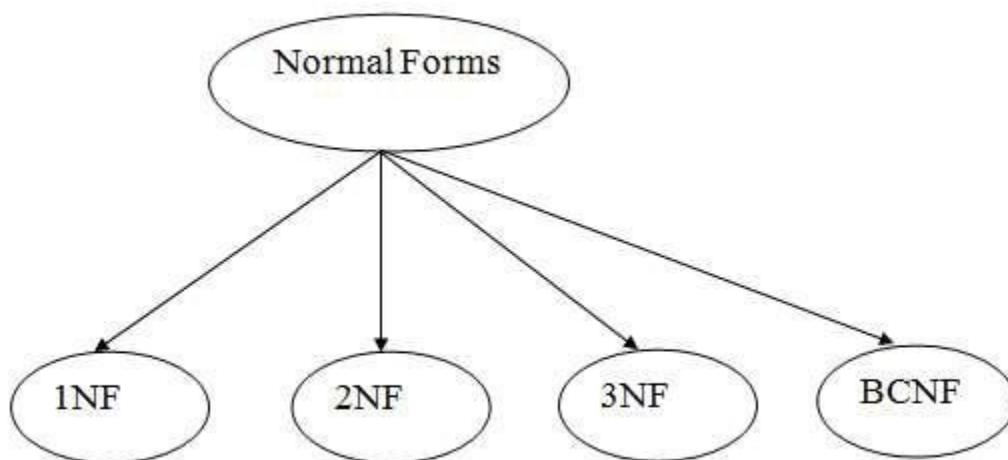
1. First normal form (1NF)

a)   As per the rule of first normal form, an attribute (column) of a table cannot hold multiple values.

b)   It should hold only atomic values.

This table holds only the atomic values company id and the company name and no multiple values are stored in this table so it can be considered as the 1NF.

2.Second normal form (2NF)

A table is said to be in 2NF if both the following conditions hold:

a)   Table is in 1NF (First normal form)

b)   No non-prime attribute is dependent on the proper subset of any candidate key of table.

c)   An attribute that is not part of any candidate key is known as non-prime attribute

3. Third Normal form (3NF)

A table design is said to be in 3NF if both the following conditions hold:

a)   Table must be in 2NF

b)   Transitive functional dependency of non-prime attribute on any super key should be removed.

c)   An attribute that is not part of any candidate key is known as non-prime attribute.

In other words 3NF can be explained like this: A table is in 3NF if it is in 2NF and for each functional dependency X-> Y at least one of the following conditions hold:

X is a super key of table

Y is a prime attribute of table

        An attribute that is a part of one of the candidate keys is known as prime attribute. The relations are already in the normalized form in the schema diagram without any redundancy.

CHAPTER 4

RESULT

The results of the project are shown in the form of snapshots below. Each snapshot describes a part of output of project when the application is run.

SNAPSHOTS OF THE PROJECT
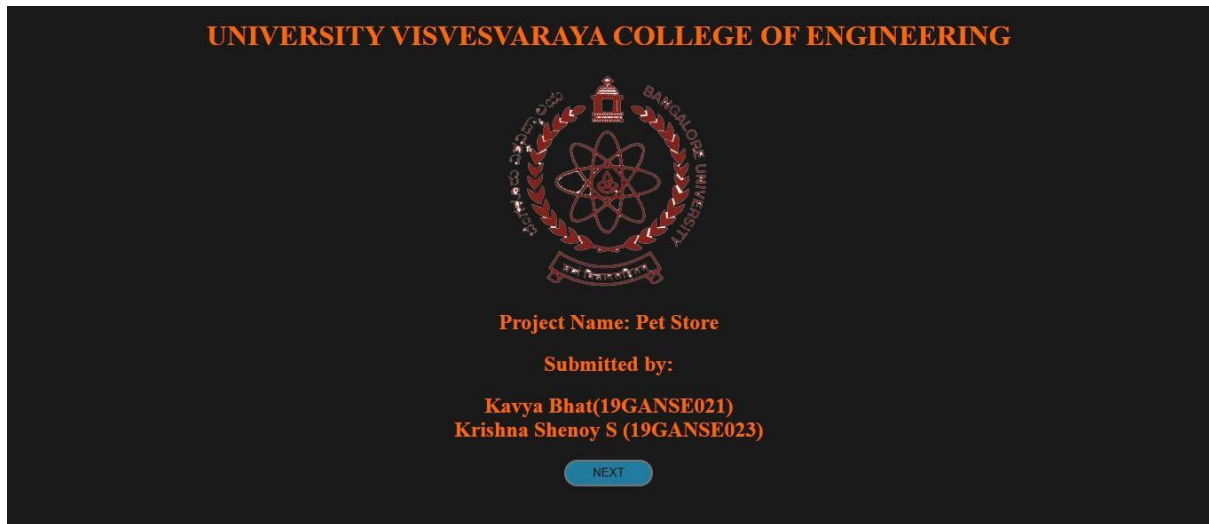
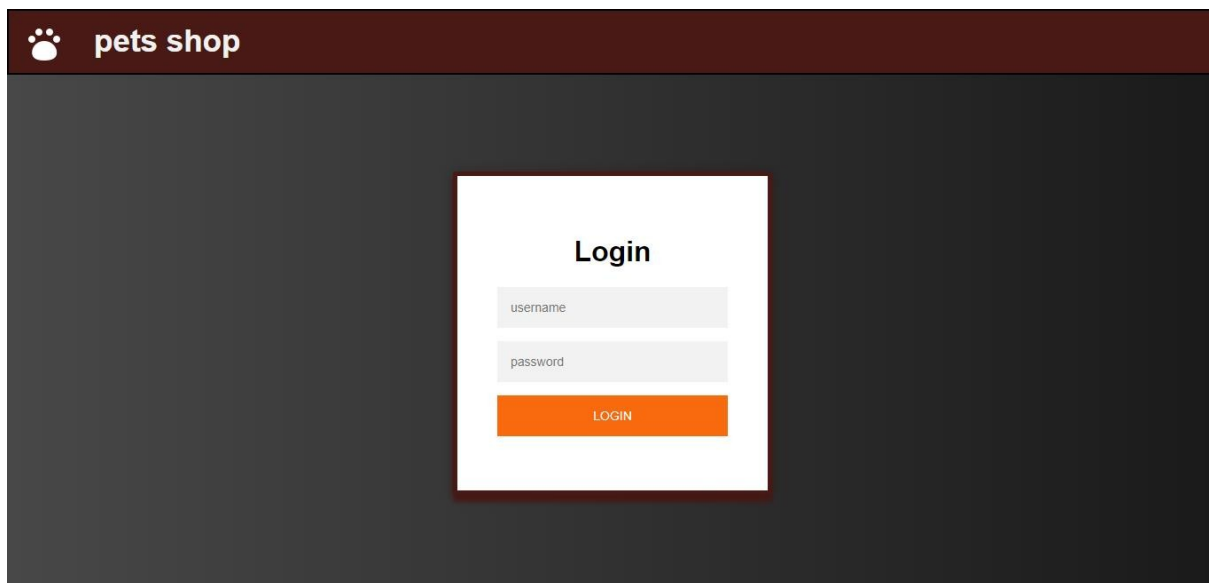**Fig 4.1 The first page that appears when the project is started**
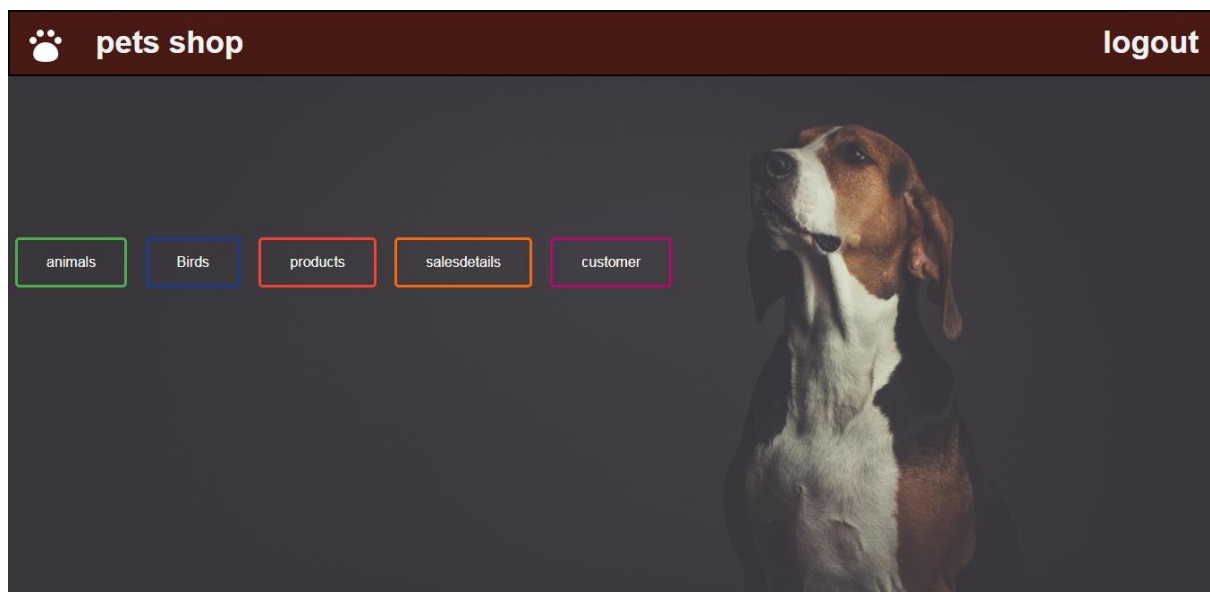

Fig 4.2 Logic

Fig 4.3 Home page

Fig 4.4 Animals Database

Fig 4.5 Customer details

Fig 4.6 Sales details

CHAPTER 5
CONCLUSION

It has been a matter of immense pleasure, honour, and a challenge to have this opportunity to take up this project and complete it successfully. Our project is only a humble venture to satisfy the needs of pet shop owners and to manage their work. Several user friendly coding have also adopted. This package shall prove to be a powerful package in satisfying all the requirements of the shop. During the development process we studied more about developing software, how to implement the backend stored database in the real time system. We have tried to implement the project making it as user friendly and error free as possible.

FUTURE ENHANCEMENT

Management of details are very easy with this application. We understand this a major requirement for the owners of the shop. This application helps the owner to continuously manage all his activities without any manual collection of details of the sales and pets.

On the other hand a feature that can be included is the communication with the shop owners and enabling a sales features within this portal itself making it even more user friendly.

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