Chapter 1

INTRODUCTION

Main aim of this project is to provide a user friendly database system for managing the sales activity and transactions in a supermarket. The database helps in managing the details of the customers, stores present in the supermarket, admins , transport records as well as the sale activities. This helps the owner/admin of the market to manage the records easily. This allows the user to easily access the transaction details and sale activities, which would have become cumbersome with hand written records.

1.1 BACK END

A back end is nothing but a database which is used by users indirectly through an external application rather than by application programming stored within the database itself. A Back end database stores data but doesn't include end user applications.

Since this is a mini-project, it is limited to back end only. The end used here is MySQL. MySQL is the world's most widely used open source relational database management system (RDBMS) that runs a server providing a multi-user access to a number of databases. The SQL phrase stands for Structured Query Language.

1.2 DATABASE MANAGEMENT SYSTEM

A database management system (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.

The database is the process of storing the data on some storage medium that is controlled by the DBMS. Manipulating a database includes functions such as querying the database to retrieve specific data, updating the database to reflect changes in the mini world and generating reports from the data.

Some important functions provided by the DBMS include protecting the database and maintaining it over a long period of time. Protection includes system protection against hardware or software malfunction (or crashes) and security protection against unauthorized or malicious access. A typical large database may have a life cycle of many years, so the DBMS must be able to maintain the database system by allowing the system to evolve as requirements change over time. It is not absolutely necessary to use general purpose DBMS software to implement a computerized database. We could write our own set of programs to create and maintain the database, in effect creating our own special-purpose DBMS software.

Chapter 2

SYSTEM REQUIREMENTS AND ANALYSIS

2.1. SOFTWARE REQUIREMENTS

Operating system: Windows XP and above.

Programming language: MySQL.

Drivers: MySQL.

Tools: MySQL workbench, Google Chrome.

2.3. HARDWARE REQUIREMENTS

Processor: Intel core I3 and above.

Memory: 512mb RAM.

Chapter 3

SYSTEM DESIGN AND ANALYSIS

3.1. SYSTEM DESIGN AND ANALYSIS

System analysis is the study of sets of interacting entities, including computer system analysis. This field is closely related to requirement analysis or operation research.

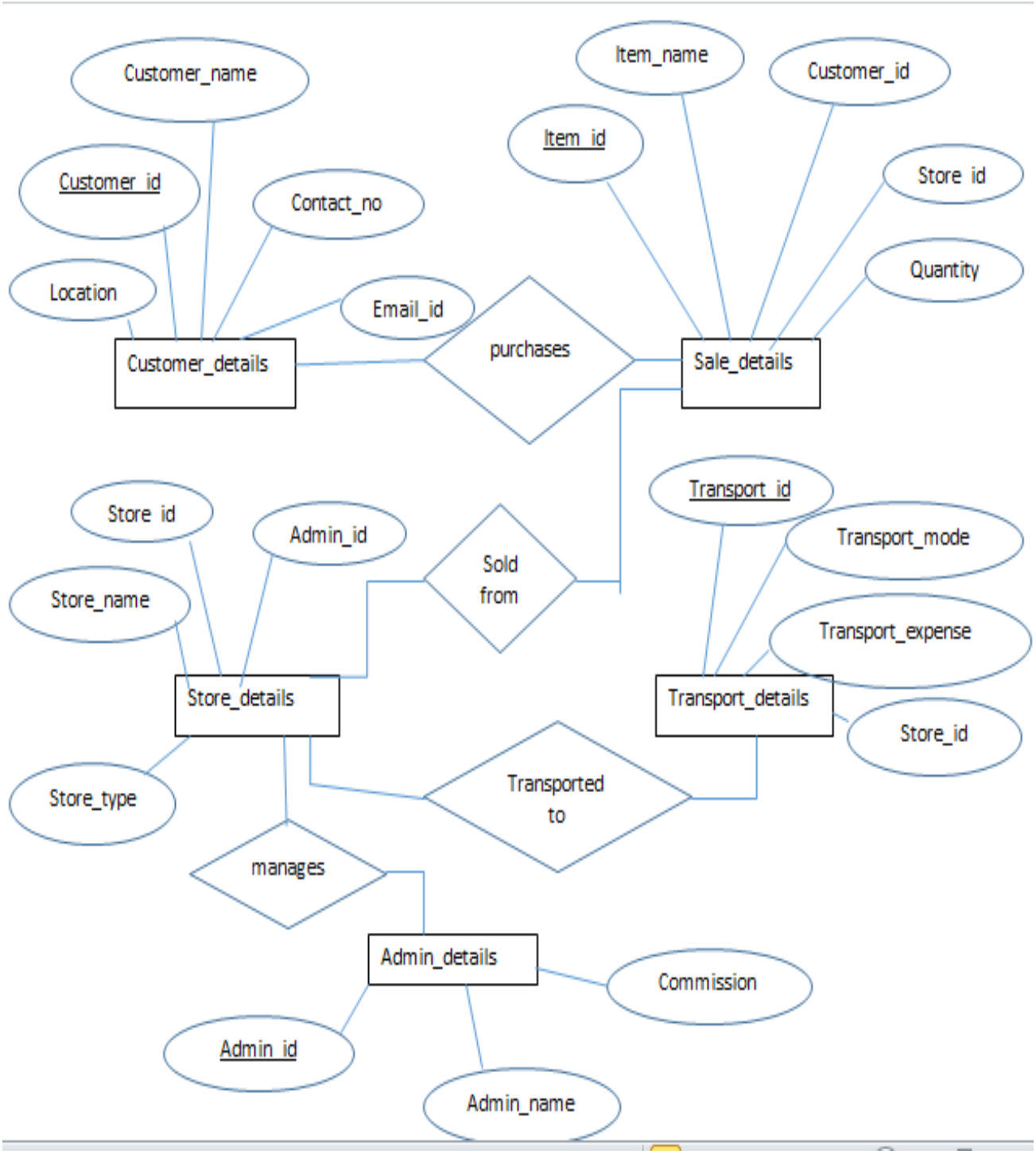
Analysis is defined as the procedure by which we break down an intellectual or substantial whole into parts. System analysis researchers apply methodology to the analysis of systems involved to form an overall picture. System analysis is used in every field where there is scope for developing something.

When a computer based information system is developed, system analysis would constitute the following steps:

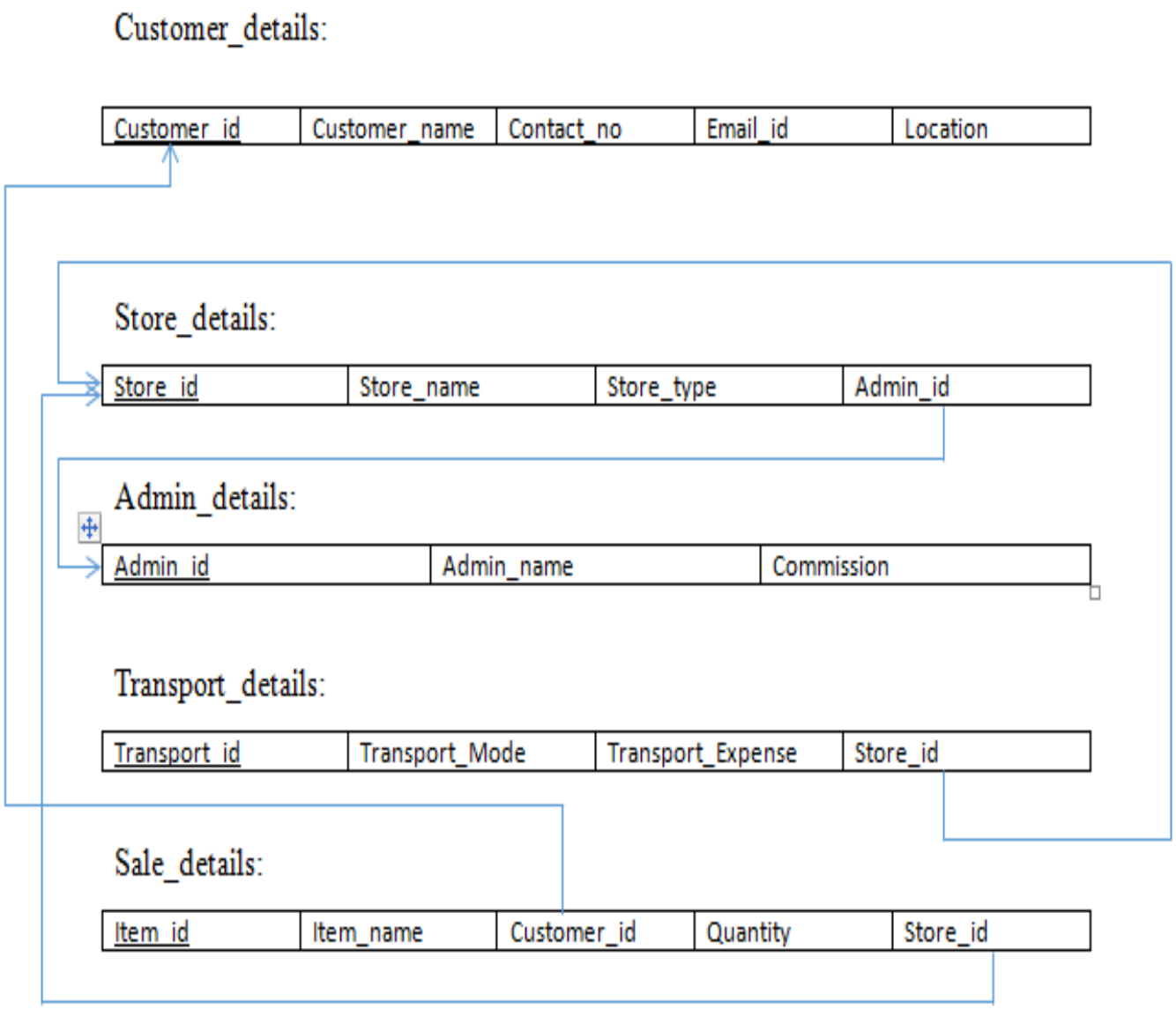
- The development of a feasibility study, involves determining if a project is economically, socially, technologically feasible.
- Conducting fact finding measures designed for the requirements of the system's users.
- Checking how the end users operate the system, and so on.

System design is the process of defining the architecture, components, modules, interfaces and data for a system to satisfy the specified requirements. System design could be seen as the application of system theory for product development.

3.2. PRELIMINARY DESIGN



3.3. SCHEMA DIAGRAM WITH REFERENTIAL INTEGRITY CONSTRAINTS



Primary keys: Customer_id, Store_id, Admin_id, Transport_id, Item_id.

Foreign keys: Admin_id, Store_id, Customer_name.

Chapter 4

DATA REQUIREMENT

4.1. ENTITY DESCRIPTION AND ATTRIBUTE DETAILS

Customer_details:

It includes the customer details like Customer_id which is a primary key, Customer_name, Contact_no, Email_id, Location.

- Customer_id
- Customer_name
- Contact_no
- Email_id
- Location

Store_details:

It includes Store_id which is a primary key, Store_name, Store_type, Admin_id which is a foreign key. Admin_id references Admin_id of the Admin_details relation.

- Store_id
- Store_name
- Store_type
- Admin_id

Admin_details:

This includes Admin_id which is a primary key, Admin_name, Commission.

- Admin_id
- Admin_name
- Commission

Transport_details:

This includes Transport_id which is a primary key, Transport_mode, Transport_expense, Store_id which is a foreign key. Store_id references Store_id of Store_details relation.

- Transport_id
- Transport_mode
- Transport_expense

- Store_id

Sale_details:

This includes Item_id which is a primary key, Item_name, Customer_name which is a foreign key which references Customer_name of Customer_details, Quantity, Store_id which is a foreign key which references Store_id of Store_details.

- Item_id
- Item_name
- Customer_name
- Quantity
- Store_id

4.2. SCREENSHOTS OF THE DESCRIPTION AND CONTENTS OF THE TABLES

Table Description:

Customer_details:

```
mysql> desc customer_details;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| customer_id   | int(5)      | NO   | PRI | NULL    |       |
| customer_name | varchar(20) | YES  |     | NULL    |       |
| contact_no    | int(10)     | YES  |     | NULL    |       |
| email_id      | varchar(40) | YES  |     | NULL    |       |
| location      | varchar(15) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
```

Admin_details:

```
mysql> desc admin_details;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| admin_id   | varchar(5)  | NO   | PRI | NULL    |       |
| admin_name | varchar(20) | YES  |     | NULL    |       |
| commission | int(10)     | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
```

Store_details:

```
mysql> desc store_details;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| store_id   | varchar(5)  | NO   | PRI | NULL    |       |
| store_name | varchar(20) | YES  |     | NULL    |       |
| store_type | varchar(20) | YES  |     | NULL    |       |
| admin_id   | varchar(5)  | YES  | MUL | NULL    |       |
+------------+-------------+------+-----+---------+-------+
```

Transport_details:

```
mysql> desc transport_details;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| transport_id     | int(5)      | NO   | PRI | NULL    |       |
| transport_mode   | varchar(20) | YES  |     | NULL    |       |
| transport_expense | int(10)    | YES  |     | NULL    |       |
| store_id         | varchar(5)  | YES  | MUL | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
```

Sale_details:

```
mysql> desc sale_details;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| item_id     | varchar(5)  | NO   | PRI | NULL    |       |
| item_name   | varchar(20) | YES  |     | NULL    |       |
| customer_id | int(5)      | YES  | MUL | NULL    |       |
| quantity    | int(5)      | YES  |     | NULL    |       |
| store_id    | varchar(5)  | YES  | MUL | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
```

Table Contents:

Data contents in Customer_details:

customer_id	customer_name	contact_no	email_id	location
1	John	2516578	john12@gmail.com	Mysuru
2	Ram	2765834	ram52@gmail.com	Mysuru
3	Syed	2384536	syedr@gmail.com	Banglore
4	Stella	2146398	stellafg@gmail.com	Manglore
5	Vipul	2054398	vipul@yahoo.com	Banglore
6	Salman	2124598	salmangh@yahoo.com	Hassan
7	Miller	2444598	miller45h@gmail.com	Banglore
8	Rea	2554598	reahfh@gmail.com	Manglore

Data contents in Admin_details:

admin_id	admin_name	commission
A1	Aisha	50000
A2	Binny	63000
A3	Martin	42000
A4	Arnav	71000
A5	Shyam	36000

Data contents in Store_details:

store_id	store_name	store_type	admin_id
S1	Advaith	Stationary	A1
S10	Crasta	Footwear	A3
S11	Hungry_belly	Food_court	A4
S12	Vision_world	Opticals	A2
S13	Royal_furnishing	Furnitures	A3
S14	My_style	Clothing	A5
S2	Taaza	Food_court	A2
S3	Fashion_world	Clothing	A1
S4	Lapetite	Food_court	A3
S5	Soch	Clothing	A4
S6	Blue_stone	Jewellery	A2
S7	Ezone	Electronics_store	A1
S8	Ecorner	Electronics_store	A4
S9	Megamart	Household_utilities	A5

Data contents in Transport_details:

transport_id	transport_mode	transport_expense	store_id
101	Truck	10000	S1
102	Train	7000	S3
103	Jeep	8000	S14
104	Truck	10000	S6
105	Van	12000	S9
106	Train	7000	S13
107	Jeep	8000	S2
108	Van	12000	S5
109	Bus	16000	S4
110	Mini_bus	13000	S12
111	Jeep	8000	S11
112	Bus	16000	S7
113	Truck	10000	S8
114	Van	12000	S10

Data contents in Sale_details:

item_id	item_name	customer_id	quantity	store_id
I1	CAED_kit	1	1	S1
I10	Refrigerator	6	1	S7
I11	Pizza	7	10	S2
I12	Chair	4	15	S13
I13	Sandles	8	6	S10
I14	Airconditioner	5	4	S8
I15	Milkshake	3	15	S4
I16	Kidswear	2	8	S3
I17	Formals	6	7	S5
I18	Lens	8	2	S12
I19	Anklet	7	2	S6
I2	Bracelet	2	2	S6
I20	Jeans	2	3	S14
I3	Microwave_oven	3	2	S7
I4	Dishwasher	5	20	S9
I5	Shoes	4	5	S10
I6	Pasta	1	4	S11
I7	Sunglasses	6	3	S12
I8	Shoe_rack	7	1	S13
I9	Drawing_board	8	6	S1

Chapter 5

SYSTEM ANALYSIS AND IMPLEMENTATION

Since this is a mini-project we have limited the design up to the database. The database software used here is MySQL.

The system used before for the management of the supermarket was a handwritten/written record system which was cumbersome.

The written management system consumes lot of time and energy of the user and also it may be erroneous in calculations/keeping some records. Another drawback in the existing system is lack of security. Handwritten records can be easily stolen/lost/misplaced/spoilt.

Hence we introduce this new system of Supermarket management with the help of DBMS. This system ensures easy handling and is user friendly. This system has a better data security than the existing system and reduces the user's effort and saves time as well. Thus its better to adopt this system of Supermarket management.

CONCLUSION

"Supermarket Management System" software developed for a company has been designed to reduce the time taken to handle the sales activity. It is designed to replace an existing manual record system for reducing the time taken for calculations and for storing data. The system uses SQL server as a back end for the database. The system is strong to handle daily operations where the database is cleared over certain time. This system will reduce manual work, calculations and will also provide periodic reports any time.

This article improves the commercial Supermarket Management System according to original system , builds a operating system based on the commodity status and gives a concrete design of the system. It also provides detailed and convenient atomic management for the sales and operating department.

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