

A Database Mini Project Report

on

“CONSTRUCTION SITE MATERIAL MANAGEMENT SYSTEM”

Group id: 03

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CERTIFICATE

This is to certify that the mini project report entitled **“CONSTRUCTION SITE MATERIAL MANAGEMENT SYSTEM”** being submitted by , **Rushikesh Landge(33234), Parimal Mahindrakar(33235), Prajwal Patankar(33244), Tanishk Rane(33246)** is a record of bonafide work carried out by them under the supervision and guidance of **Prof. Dr. Emmanuel** in partial fulfillment of the requirement for **TE (Information Technology Engineering) - 2015 course** of Savitribai Phule Pune University, Pune in the academic year 2020-2021.

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Abstract:

Management of material should be considered at all phases of the construction process. Time, quality and budget is largely affected by proper management. Possibility of cost and time variance in the Project due to poor management. A Database management system will ease this out and automate the storing, retrieving and management process.

Acknowledgement:

Firstly, we would like to thank our teacher and guide **professor Dr. Emmanuel** who gave us his valuable suggestions and ideas when we were in need of them. He encouraged us to work on this project.

We are also grateful to our college for giving us the opportunity to work with them and providing us with the necessary resources for the project. We would also like to thank all of them who helped us to complete this project. We are immensely grateful to all involved in this project as without their inspiration and valuable suggestions it would not have been possible to develop the project within the prescribed time.

Introduction:

1.1 Purpose:

Due to improper management of available material on a construction site, the contractors face huge losses due to wastage (excess material) or poor scheduling of future orders of materials(shortage) leading to delay in completion.

1.2 Scope:

- Efficient Material Planning
- Procuring and Retrieving data easily
- Proper time and work management
- Calculating quantities for scheduling
- Estimating costs
- Getting an overview of current stock
- Material Classification
- Material handling
- Inventory control activity

1.3 Definition, Acronym, and Abbreviations:

DBMS: Database management system

RDBMS: Relational Database management system.

DB: Database

SQL: Structured Query Language

JS: JavaScript

1.4 References:

<http://constroreq.com/>

<http://www.understandconstruction.com/>

<https://www.materialtree.com/>

1.5 Developers' Responsibilities: An Overview:

- Organizing Data
- Processing Queries
- Concurrency control
- Security
- Generating a bill

General Description:

2.1 Product Function Perspective:

This construction site material management system is a self-contained system that manages the activities of clients for construction material. Various stakeholders are involved in the material management system.

2.2 User Characteristics:

There are 3 types of users of the system.

1. General public: General public can use the system to see the product, their prices and quantity available.
2. Customer: Customers can use the system for viewing and buying the product.
3. Administrator: Admin person can add, edit and delete the products/users/customers and provide service. He/she can also see the daily sale.

2.3 General Constraints:

If we see the performance constraints, as we are using the Node.js, and MySQL, the performance will be on top. Again, web interface is very user friendly and user can easily manipulate it.

2.4 Assumptions and Dependencies:

It is assumed that, this software will be available on every device and it will be platform independent.

Specific Requirements:

3.1 Inputs and Outputs:

The construction material management system site will be the user friendly. Admin can add, delete users/customers as per requirement, also he/she can update the data about the customer like addresses, mobile numbers, etc. If user/customer wants to purchase items, admin can update the available stock and will tell money which is done by aggregation functions from MySQL.

3.2 Functional Requirements:

In our construction management site system, the functional requirements are login system, bill payments, etc. If any new user comes then system will check whether that user already exists or not otherwise system will add it in the database. It

won't let user to access the site unless he/she logs in.

3.3 Functional Interface Requirements:

The website interface is very user friendly. Admin can easily add, delete the customer/user based on requirements. As soon as admin enters the data of user in site, first data will be validated and then it will be inserted to the database.

3.4 Performance Constraints:

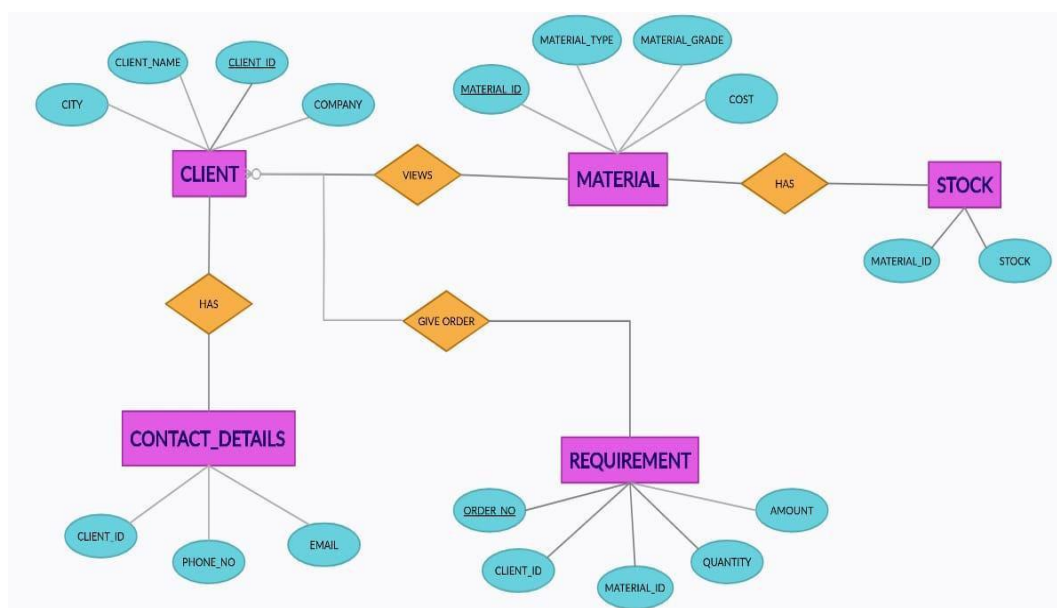
In this site, we have used Node.js and MySQL. MySQL has Data Security, On-Demand Scalability, High Performance, Round-the-clock Uptime, Complete Workflow Control, etc. Due to these immense advantages of MySQL, and Node.js (Node.js is an open-source, cross-platform, back-end, JavaScript runtime environment) the performance will be on top.

3.5 Acceptance criteria:

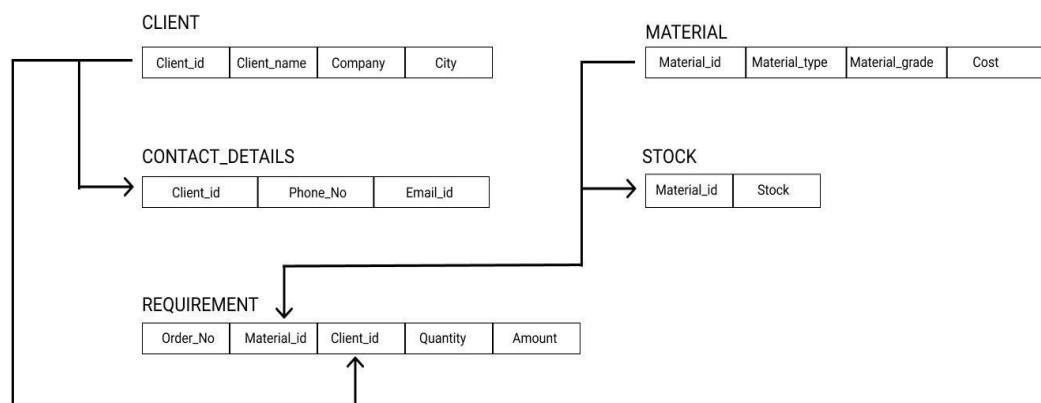
A user cannot order materials without signing in.
Also, he/she cannot confirm order without giving transaction details

System Design:

4.1 ER Model:



4.2 Schema Description:



4.3 Table Description:

```
MySQL Shell
login_details
material
requirement
stock
temp_req

2 rows in set (0.0018 sec)

mysql localhost:33060 ssl | construction_material_management | SQL> DESCRIBE CLIENT;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CLIENT_ID | int | NO | PRI | NULL | auto_increment |
| CLIENT_NAME | varchar(60) | YES | | NULL | |
| CITY | varchar(60) | YES | | NULL | |
| COMPANY | varchar(60) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+

4 rows in set (0.0016 sec)

mysql localhost:33060 ssl | construction_material_management | SQL> DESCRIBE CONTACT_DETAILS;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CLIENT_ID | int | YES | MUL | NULL | |
| PHONE_NO | varchar(11) | YES | | NULL | |
| EMAIL | varchar(60) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+

3 rows in set (0.0016 sec)

mysql localhost:33060 ssl | construction_material_management | SQL> DESCRIBE MATERIAL;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| MATERIAL_ID | int | NO | PRI | NULL | auto_increment |
| MATERIAL_NAME | varchar(60) | YES | | NULL | |
| MATERIAL_TYPE | varchar(60) | YES | | NULL | |
| MATERIAL_GRADE | varchar(60) | YES | | NULL | |
| COST | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+

5 rows in set (0.0013 sec)

mysql localhost:33060 ssl | construction_material_management | SQL> DESCRIBE STOCK;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| MATERIAL_ID | int | YES | MUL | NULL | |
| STOCK | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+

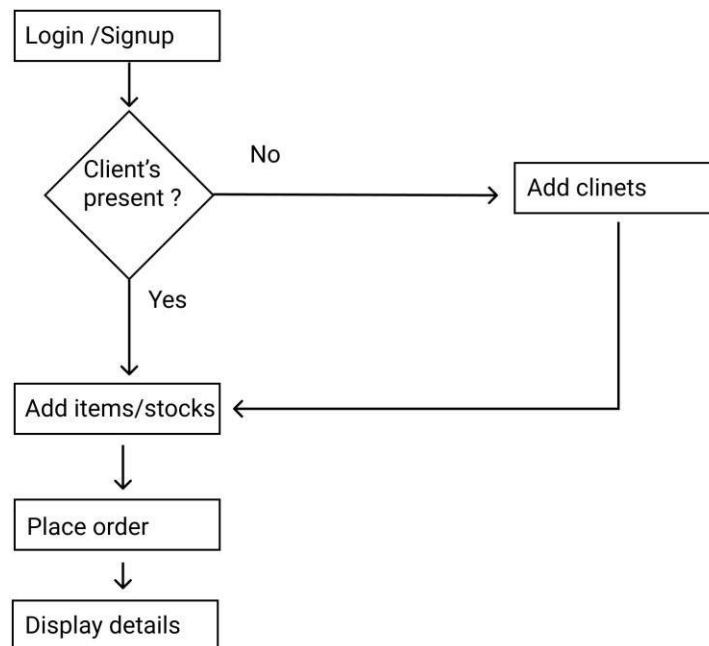
2 rows in set (0.0016 sec)

mysql localhost:33060 ssl | construction_material_management | SQL> DESCRIBE REQUIREMENT;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ORDER_NO | int | NO | PRI | NULL | auto_increment |
| CLIENT_ID | int | YES | MUL | NULL | |
| MATERIAL_ID | int | YES | MUL | NULL | |
| QUANTITY | int | YES | | NULL | |
| AMOUNT | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+

5 rows in set (0.0017 sec)

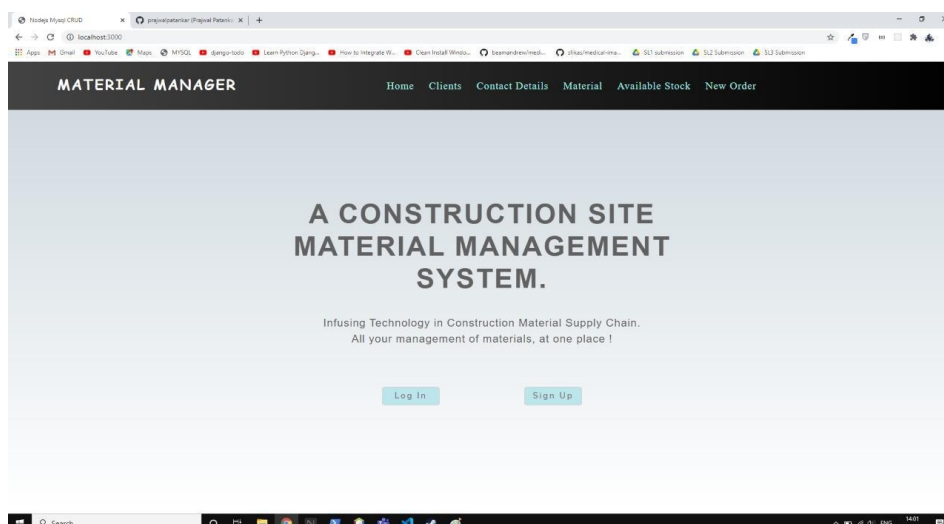
mysql localhost:33060 ssl | construction_material_management | SQL>
```

4.4 System Flowchart/Activity diagram:



4.5 User Interface Design:

Home page:



Login page:

The screenshot shows a web browser window with the URL `localhost:3000/login`. The page has a dark header with the text "MATERIAL MANAGER" and navigation links: Home, Clients, Contact Details, Material, Available Stock, and New Order. The main content area is light blue and features a "LOG IN" heading. Below the heading are two input fields: "Username:" with the value "Pragwal" and "Password:" with masked characters. A "LOGIN" button is positioned below the password field. At the bottom of the form, there is a link that says "DON'T HAVE AN ACCOUNT? SIGN UP!". The Windows taskbar at the bottom shows the date as 01-12-2020.

MATERIAL MANAGER

Home Clients Contact Details Material Available Stock New Order

LOG IN

Username:
Pragwal

Password:

LOGIN

DON'T HAVE AN ACCOUNT? SIGN UP!

Signup page:

The screenshot shows a web browser window with the URL `localhost:3000/signup`. The page has a dark header with the text "MATERIAL MANAGER" and navigation links: Home, Clients, Contact Details, Material, Available Stock, and New Order. The main content area is light blue and features a "SIGN UP" heading with the subtext "CREATE YOUR NEW ACCOUNT !". Below the heading are three input fields: "Username:", "Email:", and "Password:". A "SIGNUP" button is positioned below the password field. At the bottom of the form, there is a link that says "ALREADY HAVE AN ACCOUNT?". The Windows taskbar at the bottom shows the date as 01-12-2020.

MATERIAL MANAGER

Home Clients Contact Details Material Available Stock New Order

SIGN UP
CREATE YOUR NEW ACCOUNT !

Username:
Email:
Password:

SIGNUP

ALREADY HAVE AN ACCOUNT?

Client details page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

CLIENT DETAILS

Name:

City:

Company:

SAVE

Sr. No.	CLIENT ID	NAME	CITY	COMPANY	ACTIONS
1	8	Prajwal Patankar	Pune	Creative Projects Pvt. Ltd.	✕
2	9	Parimal	Mumbai	Birla Institute of Technology and Science	✕

Edit Client details page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

EDIT DETAILS OF CLIENT "PRAJWAL PATANKAR"

Name:

City:

Company:

SAVE

Client contact page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

CLIENT CONTACT DETAILS

Client Name:

Phone:

Email:

SAVE

Sr. No.	CLIENT ID	PHONE NO.	EMAIL	ACTIONS
1	8	8888726344	putankarprajwal@gmail.com	✕ +
2	11	7767036711	rv.landge77@gmail.com	✕ +

Client contact edit page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

EDIT CONTACT DETAILS FOR CLIENT

Phone No.:

Email:

UPDATE

Material available page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

MATERIAL AVAILABLE IN GODOWN

Material Manufacturer :

Material Type :

Material Grade/Sub-type :

Material Cost :

SAVE

Sr. No.	ORDER NO.	CLIENT ID	MATERIAL ID	QUANTITY	AMOUNT	ACTION	BILL
1	29	8	5	25	8250	8	BILL

Transaction Page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

TRANSACTION OF MATERIAL

Client Name: **Pragati Patankar**

Material Name: **UltraTech Cement - Cement - 33**

Enter Quantity:

SAVE

Sr. No.	ORDER NO.	CLIENT ID	MATERIAL ID	QUANTITY	AMOUNT	ACTION	BILL
1	29	8	5	25	8250	8	BILL

Material stock page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

MATERIAL STOCK DETAILS

Add Material Stock Sumit Bricks - Blocks - AAC - 250

Enter Stock

SAVE

Sr. No.	MATERIAL ID	MATERIAL	STOCK	ACTIONS
1	5	UltraTech Cement --- Cement -- 33	322	U D

Edit stock page:

MATERIAL MANAGER Home Clients Contact Details Material Available Stock New Order

EDIT STOCK FOR ULTRATECH CEMENT -- CEMENT -- 33

Stock: 322

UPDATE

Bill amount page:

The screenshot shows a web browser window with the address bar displaying 'localhost:3000/requirements/bill/208885'. The browser has multiple tabs open, including 'WhatsApp' and several educational links. The website, 'MATERIAL MANAGER', has a dark navigation bar with links to Home, Clients, Contact Details, Material, Available Stock, and New Order.

Client Information:

CLIENT NAME : PRAJWAL PATANKAR
PHONE NUMBER : 8888726344
EMAIL ID : PATANKARPRAJWAL@GMAIL.COM

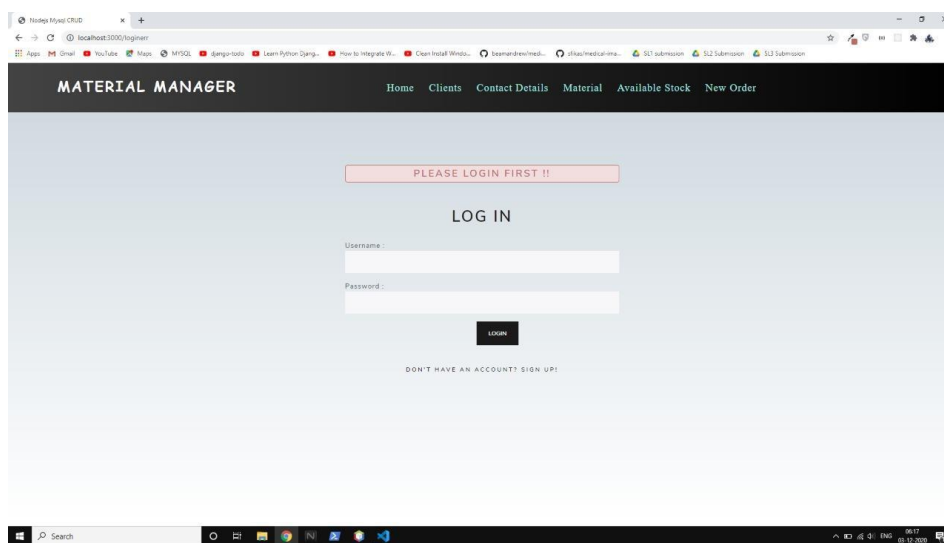
ORDER NO.	SUPPLIER	MATERIAL	QUANTITY	RATE
29	UltraTech Cement	Cement	25	330

TOTAL BILL AMOUNT : 8250

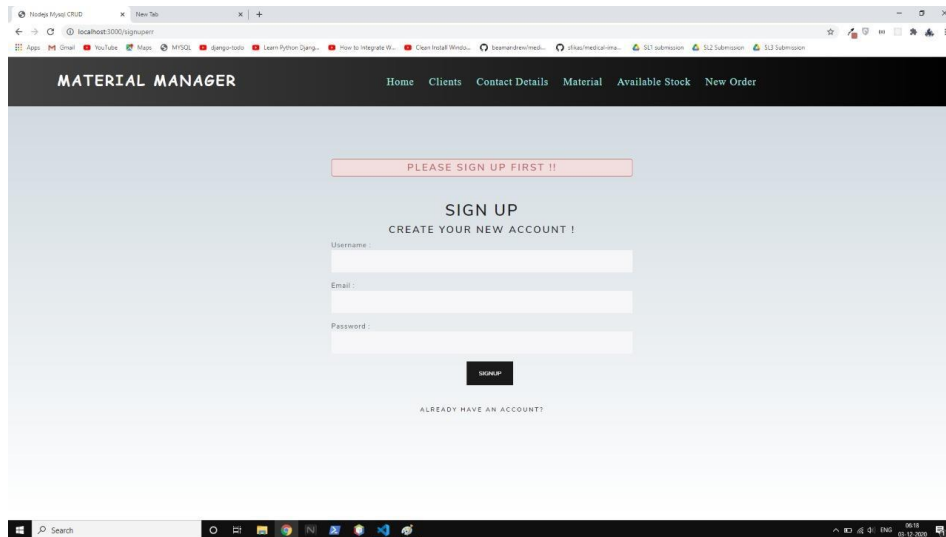
The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system clock indicates the time is 14:09 on 01-12-2020.

4.6 Validations:

1. In the construction site management site, when new user arrives then might navigate to any window. So, to avoid that, he/she must login and he/she navigate through tabs.
2. On the same, it will also deliver some alert message that user must login and if not he/ she must sign up.



Another page:



System Implementation:

5.1 Hardware and Software Platform description:

- Hardware: PC
- Software: MySQL, NodeJS, HTML, CSS

5.2 Tools Used:

1. Vs Code.
2. MySQL Workbench

5.3 Future Work/ Extension:

The project made here is just to ensure that this product could be valid in today's real challenging world. Here all the facilities are made and tested.

Currently the system works for limited number of administrators to work. In near future it can be extended to newer versions after performance improvement.

5.5 Conclusion:

In this mini project we have successfully designed and implemented the construction site material management system using Node.js as a front-end and MySQL as a backend.