

# Database Design

create a database on the oxygen management System. It will help to manage the below functionalities.

- Hospital ordrs
- Hospital reg
- Message
- Oxygen stock
- Supplier reg
- User Ordrs
- User reg

We will use MySQL as the DBMS to create the database and its related operations.

## 1. Introduction to MySQL

MySQL is an open-source relational database management system (RDBMS) that uses structured query language (SQL) to manage and manipulate data in a database. It is widely used for various applications, from small web applications to large enterprise systems.

MySQL's key features include:

- Scalability: Capable of handling large amounts of data and concurrent connections.
- Flexibility: Supports various data types and storage engines.
- Performance: Optimized for speed and efficiency.
- Reliability: Known for its stability and robustness.

## 2. Installation of MySQL

MySQL can be installed on various operating systems, including Windows, macOS, and Linux. Here are the general steps to install MySQL:

### Windows:

- Download the MySQL installer from the official website.  
<https://dev.mysql.com/downloads/installer/>
- Run the installer and follow the on-screen instructions.
- Choose the installation type (Typical, Complete, or Custom). Recommended Custom.
- Set a root password for the MySQL server.

## 3. E-R Diagram (ERD)

An Entity-Relationship Diagram (ERD) is a visual representation of the data model that shows the entities, attributes, relationships between entities, and cardinality. ERDs are commonly used in database design to help developers and stakeholders understand the structure and relationships within a database.

### Identify Entities

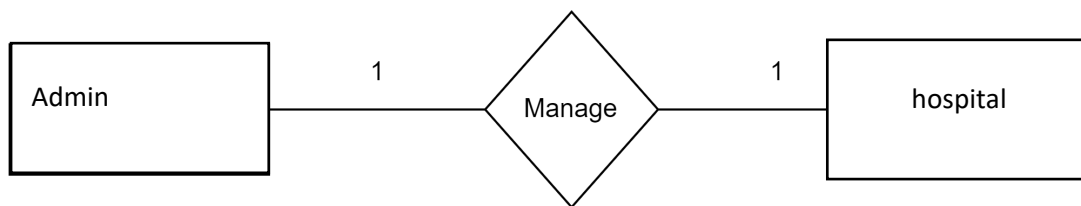
- Hospital ordrs
- Hospital reg
- Message
- Oxygen stock
- Supplier reg
- User Ordrs
- User reg

## Define Attributes

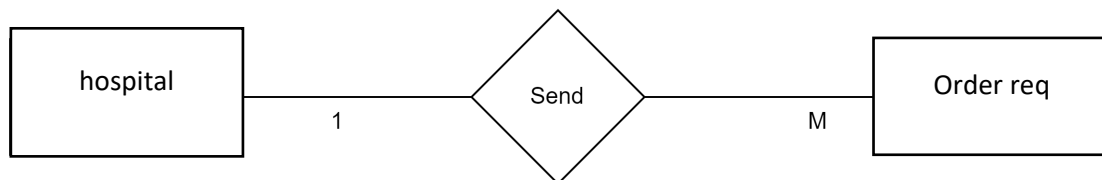
### Identify Relationships

- Determine how entities are related to each other. There are three types of relationships: one-to-one (1:1), one-to-many (1:N), and many-to-many (N:M).
- Represent these relationships using lines connecting the entities.

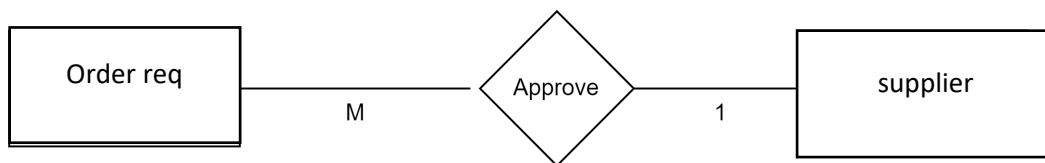
### one-to-one (1:1)



### One to Many



### many-to-many (N:M)



### Add Attributes and Constraints

- Include additional information in your ERD, such as primary keys, foreign keys, and constraints (e.g., unique constraints).

### Create the Diagram

- Use specialized diagramming software or tools (e.g., Lucid chart, draw.io, or even pen and paper) to create your ERD.

## Refine and Review:

Identify the entities of the Patient Care system

- Hospital ordrs
- Hospital reg
- Message
- Oxygen stock
- Supplier reg
- User Ordrs
- User reg

### 1) Hospital ordrs :-

□ Attributes:-

1. id int(11) NOT NULL AUTO\_INCREMENT,
  2. uname varchar(45) not null ,
  3. uid varchar(45) not null,
  4. umail varchar(45) not null,
  5. company\_name varchar(45) not null,
  6. id varchar(45) not null,
  7. quantity varchar(45) not null,
  8. total\_price varchar(45) not null,
  9. time varchar(45) not null,
  10. status varchar(45) not null;
  11. PRIMARY KEY ('id')
- Relationship:- hospital can send the request for ordrs

### 2) hospital reg :-

#### • Attributes:-

1. id int(11) NOT NULL AUTO\_INCREMENT,
  2. uname varchar(45) not null ,
  3. umail varchar(45) not null,
  4. phone varchar(45) not null,
  5. Address varchar(400) not null,
  6. Password varchar(45) not null;
- . PRIMARY KEY ('id')

#### • Relationships:

Many **hospital** reg by one **supplier** (**Many-to-One**)

### **3) messenger**

- **Attributes:-**

- 1.id` int(11) NOT NULL AUTO\_INCREMENT,
  2. uname varchar(45) not null ,
  - 3.uid varchar(45) not null,
  - 4.umail varchar(45) not null,
  - 5.company\_name varchar(45) not null,
  - 6.ord varchar(45) not null,
  - 7.msg varchar(500) not null,
  - 8.time varchar(45) not null;
- PRIMARY KEY (`id`)

**Relationships:**

Many messenger can send the message to supplier (**Many to one** )

### **4) Oxygen stock**

- **Attributes:**

1. id int(11) NOT NULL AUTO\_INCREMENT,
  2. water\_cc varchar(45) not null ,
  - 3.working\_pressure varchar(45) not null,
  - 4.oxygen\_purity varchar(45) not null,
  - 5.gas\_name varchar(45) not null,
  - 6.material varchar(45) not null,
  - 7.country\_origin varchar(45) not null,
  - 8.cylinder\_height varchar(45) not null,
  - 9.gas\_type varchar(45) not null,
  10. cid varchar(45) not null,
  11. quantity varchar(45) not null,
  12. price varchar(45) not null,
  13. photo varchar(45) not null;
- . PRIMARY KEY (`id`)

- **Relationships:**  
One **supplier** to many **order** (**One-to-Many**)

#### **5) supplier reg :-**

- **Attributes:-**
  - 1.id int(11) NOT NULL AUTO\_INCREMENT,
  - 2.uname varchar(45) not null ,
  - 3.umail varchar(45) not null,
  - 4.phone varchar(45)not null,
  - 5.Address varchar(400)not null,
  - 6.Password varchar(45)not null;

PRIMARY KEY (`id`)

- **Relationships:**  
one **supplier** can **reg** for many **orders** (one – to- many )

#### **6) user ordrs**

- **Attributes:**
  - 1.id` int(11) NOT NULL AUTO\_INCREMENT,
  2. uname varchar(45) not null ,
  - 3.uid varchar(45) not null,
  - 4.umail varchar(45) not null,
  - 5.company\_name varchar(45) not null,
  - 6.cid varchar(45) not null,
  - 7.quantity varchar(45) not null,
  - 8.total\_price varchar(45) not null,
  - 9.time varchar(45) not null,
  - 10status varchar(45) not null;

. PRIMARY KEY (`id`)

- **Relationships:**  
Many **user** will make to many **ordrs** (**Many-to-many**)

7) User reg:-

- **Attributes:**

1. id int(11) NOT NULL AUTO\_INCREMENT,
2. uname varchar(45) not null ,
3. umail varchar(45) not null,
4. phone varchar(45)not null,
5. Address varchar(400)not null,
6. Password varchar(45)not null;

- . PRIMARY KEY (`id`)

- **Relationships:**

User **can** reg by one **supplier (Many-to-One)**
































## Table Structure:-

### 1. hospital ordrs:-

MySQL Table Editor

Table Name:  Database:  Comment:

Columns and Indices | Table Options | Advanced Options













Column Name	Datatype	NOT NULL	AUTO INCR	Flags	Default Value	Comment
 id	 INTEGER			<input checked="" type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
 uname	 VARCHAR(45)			<input type="checkbox"/> BINARY		
 uid	 VARCHAR(45)			<input type="checkbox"/> BINARY		
 umail	 VARCHAR(45)			<input type="checkbox"/> BINARY		
 company_name	 VARCHAR(245)			<input type="checkbox"/> BINARY		
 cid	 VARCHAR(45)			<input type="checkbox"/> BINARY		
 quantity	 VARCHAR(45)			<input type="checkbox"/> BINARY		
 total_price	 VARCHAR(45)			<input type="checkbox"/> BINARY		
 time	 VARCHAR(45)			<input type="checkbox"/> BINARY		
 status	 VARCHAR(45)			<input type="checkbox"/> BINARY	<input type="text" value="'waiting'"/>	

## 2. hospital reg :-

MySQL Table Editor

Table Name:  Database:  Comment:

Columns and Indices Table Options Advanced Options

















Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
 id	 INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
 name	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 email	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 phone	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 address	 VARCHAR(400)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 password	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		

## 3. message:-

MySQL Table Editor

Table Name:  Database:  Comment:

Columns and Indices Table Options Advanced Options

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
 id	 INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
 uname	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 uid	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 umail	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 company_name	 VARCHAR(245)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 cid	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 msg	 LONGTEXT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 time	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		

## 4. oxygen stock:-

MySQL Table Editor

Table Name:  Database:  Comment: InnoDB free: 4096 kB

Columns and Indices Table Options Advanced Options

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
id	INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
water_cc	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
working_pressure	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
oxygen_purity	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
gas_name	VARCHAR(145)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
material	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
country_origin	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
cylinder_height	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
gas_type	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
company_name	VARCHAR(445)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
cid	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
quantity	INTEGER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL		
price	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
photo	LONGBLOB	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

## 5. supplier reg :-

MySQL Table Editor

Table Name:  Database:  Comment: InnoDB free: 4096 kB

Columns and Indices Table Options Advanced Options

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
id	INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
name	VARCHAR(455)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
email	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
phone	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
address	VARCHAR(400)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
password	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		

## 6. user ordrs :-

MySQL Table Editor

Table Name:  Database:  Comment: InnoDB free: 4096 kB

Columns and Indices Table Options Advanced Options

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
id	INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
uname	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
uid	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
umail	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
company_name	VARCHAR(245)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
cid	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
quantity	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
total_price	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
time	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
status	VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	<input type="text" value="'waiting'"/>	













## 7 user reg :-



mySQL Table Editor

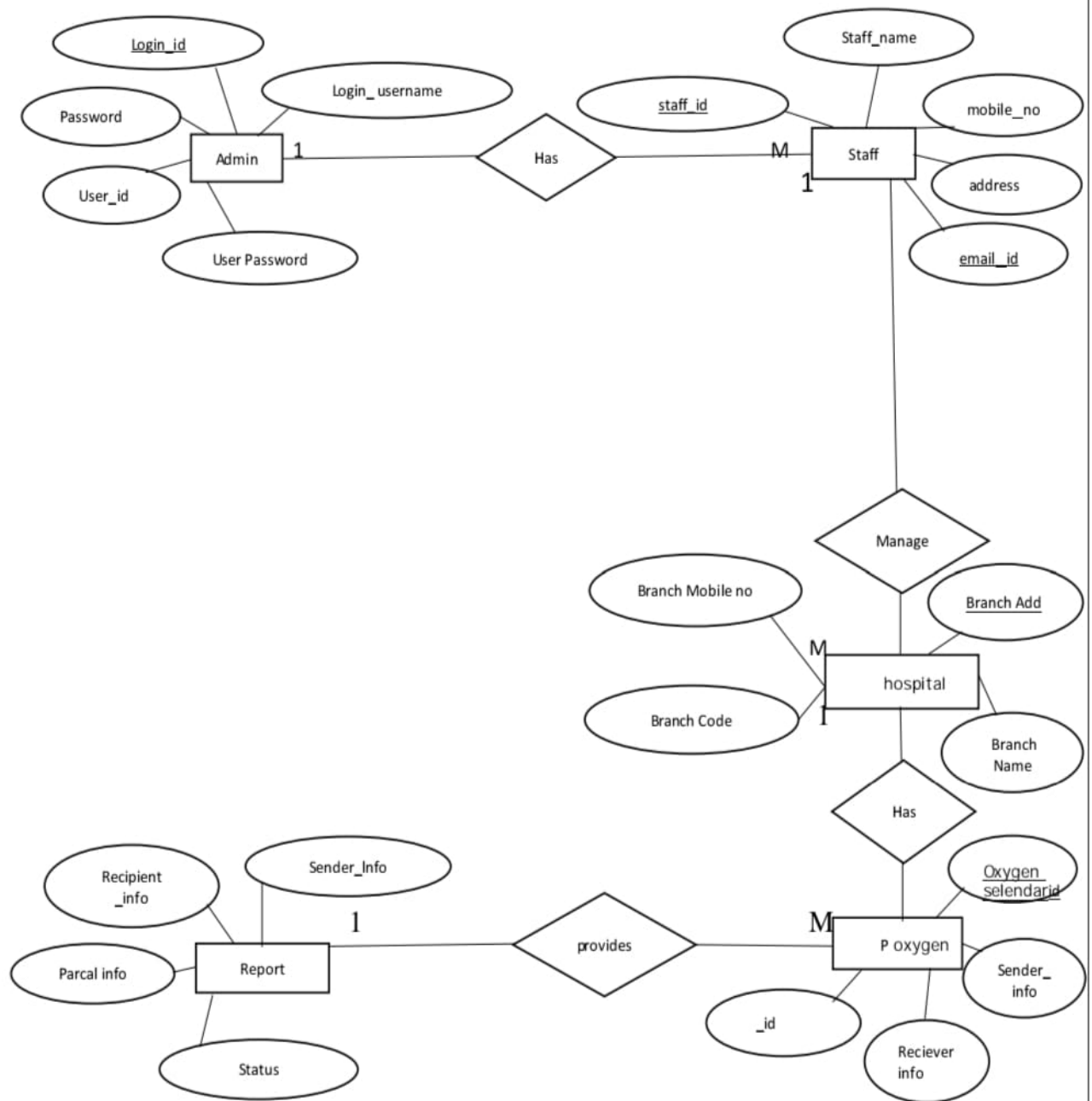
Table Name:  Database:  Comment: InnoDB free: 4096 kB

Columns and Indices | Table Options | Advanced Options

Column Name	Datatype	NOT NULL	AUTO INC.	Flags	Default Value	Comment
 id	 INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> UNSIGNED <input type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
 name	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 email	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 phone	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 address	 VARCHAR(400)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		
 password	 VARCHAR(45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY		

**ERD Diagram :-**

● ER dig:



**In this ERD:**

- patient can book appointment and each doctor has check multiple patients, creating a many-to-many relationship.

- The appointment entity serves as a bridge table between patient and doctor entities to represent this relationship.
- Multiple patients can be purchase by Many medicine (many-to-many relationship).
- Each patients can make multiple payments (one-to-many relationship).

#### 4. Creating a Database

Using MySQL server, create a new database for your Patient Care System. You can do this with SQL commands or through the graphical interface.

```
CREATE DATABASE anudip_patient_care_system;
```

#### 5. Using a Database

Before performing any operations on a database, you need to select it using the USE statement:

```
USE anudip_patient_care_system;
```

#### 6. Creating the tables for each entity

1)Hospital ordrs :-

```
CREATE TABLE `hospital ordrs` (
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `Uname` varchar(45) not null ,
  `Uid` varchar(45) not null,
  `Umail` varchar(45) not null,
  `company_name` varchar(45) not null,
  `Id` varchar(45) not null,
  `quantity` varchar(45) not null,
  `total_price` varchar(45) not null,
  `time` varchar(45) not null,
  `status` varchar(45) not null;
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1
```

2)Hospital reg :-

```
CREATE TABLE `hospital reg` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `Uname` varchar(45) not null ,
  `umail` varchar(45) not null,
  `phone` varchar(45)not null,
  `Address` varchar(400)not null,
  `Password` varchar(45)not null;    PRIMARY KEY (`id`)
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1
```

3) Message :-

```
CREATE TABLE `messenger` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `uname` varchar(45) not null ,  
  `uid` varchar(45) not null,  
  `umail` varchar(45) not null,  
  `company_name` varchar(45) not null,  
  `ord` varchar(45) not null,  
  `msg` varchar(500) not null,  
  `time` varchar(45) not null;  
PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1
```

4) Oxygen\_stock:-

```
CREATE TABLE `Oxygen stock` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `water_cc` varchar(45) not null ,  
  `working_pressure` varchar(45) not null,  
  `oxygen_purity` varchar(45) not null,  
  `gas_name` varchar(45) not null,  
  `material` varchar(45) not null,  
  `country_origin` varchar(45) not null,  
  `cylinder_height` varchar(45) not null,  
  `gas_type` varchar(45) not null,  
  `cid` varchar(45) not null,  
  `quantity` varchar(45) not null,  
  `price` varchar(45) not null,  
  `photo` varchar(45) not null;  
PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1
```

5) Supplier\_reg:-

```
CREATE TABLE `supplier reg` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `uname` varchar(45) not null ,  
  `umail` varchar(45) not null,  
  `phone` varchar(45) not null,  
  `Address` varchar(400) not null,
```

```
    `Password` varchar(45)not null;  
PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1
```

6)User\_order :-

```
CREATE TABLE `User_order` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `uname` varchar(45) not null ,  
  `uid` varchar(45) not null,  
  `umail` varchar(45) not null,  
  `company` _name varchar(45) not null,  
  `cid` varchar(45) not null,  
  `quantity` varchar(45) not null,  
  `total` _price varchar(45) not null,  
  `time` varchar(45) not null,  
  `status` varchar(45) not null;  
PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1
```

7)User\_reg :-

```
CREATE TABLE `user_reg` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `Uname` varchar(45) not null ,  
  `umail` varchar(45) not null,  
  `phone` varchar(45)not null,  
  `Address` varchar(400)not null,  
  `Password` varchar(45)not null;  
PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1
```