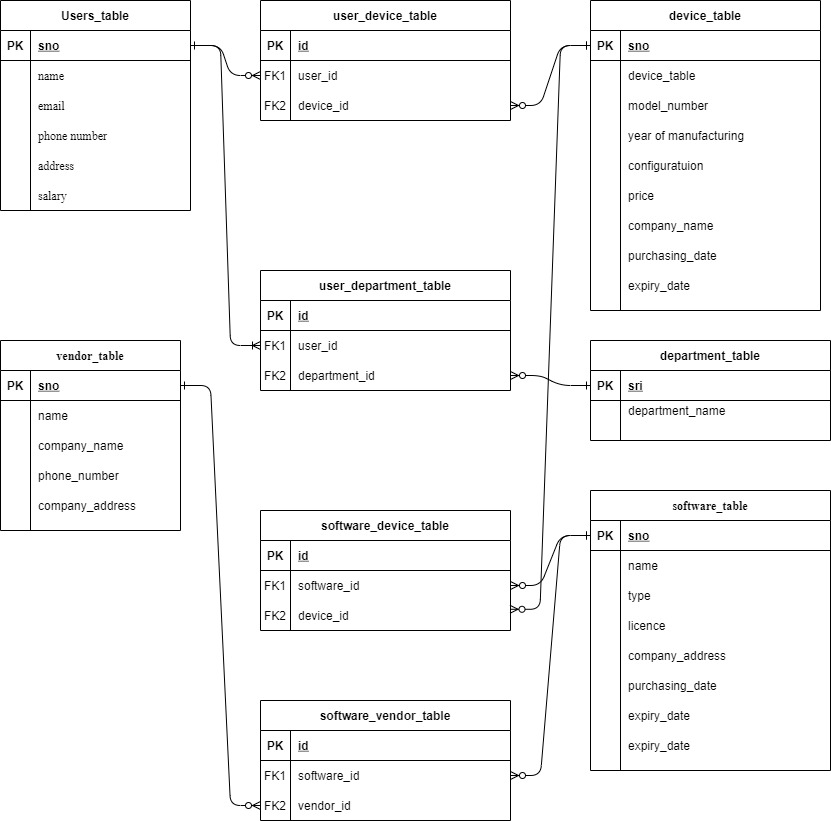
# **ER Diagram**



**Various Assumptions taken into account while create design of the database**

1. Device can be assigned to more than one user and the relation is created in user\_device\_table

2. Department can contain more than one user and the relation is created in user\_departmenttable

3. More than one software can be installed on one device and the relation is created in software\_device\_table

4. One vendor can distribute more than one software and relation is created in software\_vendor\_table

# **SQL Commands**

**Create Queries**

CREATE Database newhill\_mining\_company;

USE newhill\_mining\_company;

**Department table with create Query**

CREATE TABLE department (

sri int(11) NOT NULL AUTO\_INCREMENT PRIMARY KEY,

department\_name varchar(255) NOT NULL

);

**Device Table with Create Query**

CREATE TABLE device\_table (

sno int(11) NOT NULL AUTO\_INCREMENT PRIMARY KEY,

device\_type varchar(15) NOT NULL,

model\_number varchar(50) NOT NULL,

year\_of\_manufacture datetime NOT NULL,

configuration varchar(255) NOT NULL,

price float NOT NULL,

company\_name varchar(30) NOT NULL,

purchasing\_date datetime NOT NULL,

expiry\_date datetime NOT NULL

);

**Software Table with create Query**

CREATE TABLE software\_table (

sno int(11) NOT NULL AUTO\_INCREMENT PRIMARY KEY,

name varchar(50) NOT NULL,

type varchar(100) NOT NULL,

licence int(11) NOT NULL,

purchasing\_date datetime NOT NULL,

expiry\_date datetime NOT NULL,

no\_of\_copies int(11) NOT NULL

);

**User Table with create Query**

CREATE TABLE users\_table (

sno int(11) NOT NULL AUTO\_INCREMENT PRIMARY KEY,

name varchar(60) NOT NULL,

email\_id varchar(60) NOT NULL,

phone\_number varchar(15) NOT NULL,

address varchar(100) NOT NULL,

salary float DEFAULT NULL

) ;

**Vendor table with create Query**

CREATE TABLE vendor\_table (

sno int(11) NOT NULL AUTO\_INCREMENT PRIMARY Key,

name varchar(100) NOT NULL,

company\_name varchar(200) NOT NULL,

phone\_number varchar(15) NOT NULL,

company\_address varchar(255) NOT NULL

) ;

**Software\_device\_table Table with create Query**

CREATE TABLE software\_device\_table (

id int(11) NOT NULL AUTO\_INCREMENT PRIMARY KEY,

software\_id int(11) NOT NULL,

device\_id int(11) NOT NULL,

CONSTRAINT fk\_software FOREIGN KEY (software\_id) REFERENCES software\_table (sno),

CONSTRAINT fk\_device FOREIGN KEY (device\_id) REFERENCES device\_table (sno)

) ;

**Table structure for table software\_vendor\_table**

CREATE TABLE software\_vendor\_table (

id int(11) NOT NULL AUTO\_INCREMENT PRIMARY KEY,

software\_id int(11) NOT NULL,

vendor\_id int(11) NOT NULL,

CONSTRAINT fk\_software\_id FOREIGN KEY (software\_id) REFERENCES software\_table (sno),

CONSTRAINT fk\_vendor\_id FOREIGN KEY (vendor\_id) REFERENCES vendor\_table(sno)

) ;

CREATE TABLE user\_department\_table (

id int(11) NOT NULL AUTO\_INCREMENT PRIMARY KEY,

user\_id int(11) NOT NULL,

department\_id int(11) NOT NULL,

CONSTRAINT fk\_user FOREIGN KEY (user\_id) REFERENCES users\_table (sno),

CONSTRAINT fk\_department FOREIGN KEY (department\_id) REFERENCES department (sri)

) ;

CREATE TABLE user\_device\_table (

id int(11) NOT NULL,

user\_id int(11) NOT NULL,

device\_id int(11) NOT NULL,

CONSTRAINT fk\_user\_id FOREIGN KEY (user\_id) REFERENCES users\_table (sno),

CONSTRAINT fk\_device\_id FOREIGN KEY (device\_id) REFERENCES device\_table (sno)

) ;

**Insert Queries**

**Insert query for Department Table**

INSERT INTO department (sri, department\_name) VALUES

(1, 'Sales'),

(2, 'I.T.'),

(3, 'Warehouse'),

(4, 'Sales'),

(5, 'Testing Unit');

**Insert into user table**

INSERT INTO users\_table (sno, name, email\_id, phone\_number, address, salary) VALUES

(1, 'Edison Woods', 'edison.woods@gmail.com', '(617)555-3452', '421 Golf Course Drive,USA', 2500),

(2, 'Alexander Hunold', 'alexander\_hunold@yahoo.com', '(617)555-4343', '4686 Sycamore Fork Road, Hopkins, Minnesota, USA', 56000),

(3, 'Steven King ', 'stevenking@gmail.com', '(617)555-2222', '442 Columbia Boulevard, Randallstown, Maryland, USA', 45777),

(4, 'Neena Kochhar ', 'Neena\_Kochhar@gmail.com', '(617)555-9876', '3464 Duke Lane, Newark, New Jersey,USA', 545454),

(5, 'Diana Lorentz', 'Diana\_Lorentz@gmail.com', '(617)555-1234', ' 2693 Passaic Street, Washington, Washington DC,USA', 875411),

(6, 'Nancy Greenberg', 'nancy.greenberg111@gmail.com', '(617)555-6543', '3236 Nutters Barn Lane, Des Moines, Iowa, USA', 12451),

(7, 'Daniel Faviet', 'daniel\_Faviet@yahoo.com', '(617)555-7638', '127 Sugar Camp Road, Owatonna, Minnesota, USA', 25000),

(8, 'Ismael Sciarra', 'ismaelSciarra1@gmail.com', '(617)555-9182', '3509 Poplar Lane, Miami, Florida, USA', 45000),

(9, 'Jose Manuel Urman', 'jose\_Manuel\_Urman@hotmail.com', '(617)555-6574', '1242 Jessie Street, Lancaster, Ohio, USA', 15426),

(10, 'Shelli Baida', 'shelli\_Baida123@gmail.com', '(617)555-0980', ' 4553 Parkway Drive, Tucson, Arizona, USA', 15428);

**Insert Into Device Table**

INSERT INTO device\_table (sno, device\_type, model\_number, year\_of\_manufacture, configuration, price, company\_name, purchasing\_date, expiry\_date) VALUES

(1, 'Desktop', 'ASUS Vivo AiO V222', '2011-01-01 00:00:00', '21.5" FHD, Dual Core Intel Celeron J4005, All-in-One Desktop (4GB/1TB HDD/Windows 10/Integrated Graphics/with Wired Keyboard & Mouse/White/4.8 Kg), V222GAK-WA174T', 357.54, 'ASUS', '2011-01-01 00:00:00', '2023-01-01 00:00:00'),

(2, 'Desktop', 'ASUS ExpertCenter D500SA', '2011-01-01 00:00:00', 'Intel Core i5-10400, 8GB DDR4 RAM, 256GB PCIe SSD, Wi-Fi 6, TPM, Windows 10 Professional, Black, D500SA-EB501', 572.99, 'ASUS', '2011-01-01 00:00:00', '2023-01-01 00:00:00'),

(3, 'Desktop', 'ASUS Desktop S300', '2017-01-01 00:00:00', 'Intel Core i5-10400 Processor, 16GB DDR4 RAM, 512GB PCIe SSD, DVD Drive, Windows 10 Home, Wired Keyboard & Mouse Included, Black, S300MA-DH501', 649.99, 'ASUS', '2017-01-01 00:00:00', '2030-01-01 00:00:00'),

(4, 'Laptop', 'Lenovo IdeaPad ', '2018-01-02 00:00:00', '3 14" Laptop, 14.0" FHD 1920 x 1080 Display, AMD Ryzen 5 3500U Processor, 8GB DDR4 RAM, 256GB SSD, AMD Radeon Vega 8 Graphics, Narrow Bezel, Windows 10, 81W0003QUS, Abyss Blue', 513.9, 'Lenovo', '2018-01-02 00:00:00', '2028-01-02 00:00:00'),

(5, 'Laptop', 'Lenovo IdeaPad 3', '2018-01-01 00:00:00', '14" FHD Laptop Computer\_ Intel Quad-Core i5 1035G1 (Beats i7-8665U)\_ 12GB DDR4 RAM\_ 1TB PCIe SSD\_ AC WiFi\_ BT 5.0\_ Webcam\_ Grey\_ Remote Work\_ Windows 10\_ iPuzzle 500GB External HD', 729, 'Lenovo', '2018-01-01 00:00:00', '2028-01-01 00:00:00');

**Insert into Software table**

INSERT INTO software\_table (sno, name, type, licence, purchasing\_date, expiry\_date, no\_of\_copies) VALUES

(1, 'Techsmith Snagit', 'Screenshot program', 1, '2020-07-25 00:00:00', '2021-07-25 00:00:00', 5),

(2, 'Adobe Photoshop', 'Graphics Editor', 1, '2018-02-22 00:00:00', '2021-01-22 00:00:00', 7),

(3, 'Autodesk Autocad', 'Computer-Aided Design and Rafting', 1, '2017-01-05 00:00:00', '2027-01-05 00:00:00', 10),

(4, 'Oracle Database 11g', 'Database Management System', 1, '2017-01-05 00:00:00', '2027-01-05 00:00:00', 10),

(5, 'Oracle Database 12c', 'Database Management System', 1, '2017-01-05 00:00:00', '2027-01-05 00:00:00', 10),

(6, 'Microsoft Windows 8', 'Operating System', 1, '2011-01-05 00:00:00', '2050-01-05 00:00:00', 20),

(7, 'Microsoft Windows 10', 'Computer-Aided Design and Rafting', 1, '2017-01-05 00:00:00', '2050-01-05 00:00:00', 30),

(8, 'Kaspersky Anti Virus', 'Anti Virus', 1, '2011-01-05 00:00:00', '2025-01-05 00:00:00', 50),

(9, 'SAP Financials', 'Enterprise resource planning software', 1, '2019-01-05 00:00:00', '2029-01-05 00:00:00', 50),

(10, 'Scooter Software Beyond Compare', 'data comparison utility', 1, '2017-01-05 00:00:00', '2027-01-05 00:00:00', 20);

**Insert into users table**

INSERT INTO users\_table (sno, name, email\_id, phone\_number, address, salary) VALUES

(1, 'Edison Woods', 'edison.woods@gmail.com', '(617)555-3452', '421 Golf Course Drive,USA', 2500),

(2, 'Alexander Hunold', 'alexander\_hunold@yahoo.com', '(617)555-4343', '4686 Sycamore Fork Road, Hopkins, Minnesota, USA', 56000),

(3, 'Steven King ', 'stevenking@gmail.com', '(617)555-2222', '442 Columbia Boulevard, Randallstown, Maryland, USA', 45777),

(4, 'Neena Kochhar ', 'Neena\_Kochhar@gmail.com', '(617)555-9876', '3464 Duke Lane, Newark, New Jersey,USA', 545454),

(5, 'Diana Lorentz', 'Diana\_Lorentz@gmail.com', '(617)555-1234', ' 2693 Passaic Street, Washington, Washington DC,USA', 875411),

(6, 'Nancy Greenberg', 'nancy.greenberg111@gmail.com', '(617)555-6543', '3236 Nutters Barn Lane, Des Moines, Iowa, USA', 12451),

(7, 'Daniel Faviet', 'daniel\_Faviet@yahoo.com', '(617)555-7638', '127 Sugar Camp Road, Owatonna, Minnesota, USA', 25000),

(8, 'Ismael Sciarra', 'ismaelSciarra1@gmail.com', '(617)555-9182', '3509 Poplar Lane, Miami, Florida, USA', 45000),

(9, 'Jose Manuel Urman', 'jose\_Manuel\_Urman@hotmail.com', '(617)555-6574', '1242 Jessie Street, Lancaster, Ohio, USA', 15426),

(10, 'Shelli Baida', 'shelli\_Baida123@gmail.com', '(617)555-0980', ' 4553 Parkway Drive, Tucson, Arizona, USA', 15428);

**Insert into Vendor Table**

INSERT INTO vendor\_table (sno, name, company\_name, phone\_number, company\_address) VALUES

(1, 'Techsmith', 'Techsmith', '(617)555-3452', 'Okemos, Michigan, US'),

(2, 'Scooter Software', 'Scooter Software', '(617)555-9999', '625 N Segoe Rd, Suite 104 Madison, WI 53705,USA'),

(3, 'Adobe', 'Adobe', '(617)555-1111', 'San Jose, California, United States'),

(4, 'Autodesk', 'Autodesk', '(617)555-3333', 'Mill Valley, California, United States'),

(5, 'Microsoft', 'Microsoft', '(617)555-2222', 'Redmond, Washington, United States'),

(6, 'Kaspersky', 'Kaspersky', '(617)555-4444', 'Moscow, Russia'),

(7, 'SAP', 'SAP', '(617)555-8888', 'USA'),

(9, 'Oracle', 'Oracle Corporation', '(806)786 2950', 'Santa Clara, California, United States');

**Insert into User Device Table**

INSERT INTO user\_device\_table (id, user\_id, device\_id) VALUES

(1, 1, 1),

(2, 2, 2),

(3, 3, 3),

(4, 4, 4),

(5, 5, 5),

(6, 6, 5),

(7, 7, 4),

(8, 8, 1),

(9, 9, 3),

(10, 10, 2);

**Insert into Software device Table**

INSERT INTO software\_device\_table (id, software\_id, device\_id) VALUES

(1, 1, 1),

(2, 2, 2),

(3, 3, 3),

(4, 4, 4),

(5, 5, 5),

(6, 6, 1),

(7, 7, 2),

(8, 8, 3),

(9, 9, 4),

(10, 10, 5);

**Insert into Software Vendor Table**

INSERT INTO software\_vendor\_table (id, software\_id, vendor\_id) VALUES

(1, 1, 1),

(2, 2, 3),

(3, 3, 4),

(4, 4, 9),

(5, 5, 9),

(6, 6, 5),

(7, 7, 5),

(8, 8, 6),

(9, 9, 7),

(10, 10, 2);

**Insert into User Department Table**

INSERT INTO user\_department\_table (id, user\_id, department\_id) VALUES

(1, 1, 5),

(2, 2, 4),

(3, 3, 3),

(4, 4, 1),

(5, 5, 2),

(6, 6, 1),

(7, 7, 2),

(8, 8, 3),

(9, 9, 4),

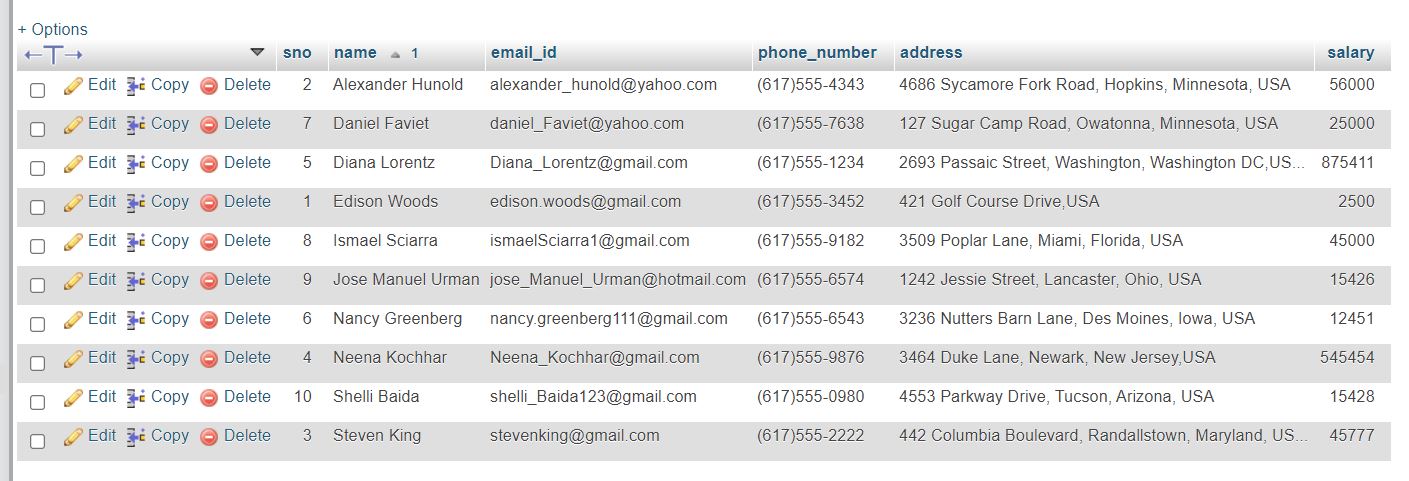
(10, 10, 5);

**Select Queries**

**1. Select Queries with Simple Conditions**

**a. Select all the users**

SELECT \* FROM users\_table ORDER BY name ASC (This query will show all information of users which are currently working in the company)



**b. for selecting users who's salary greater than 25000**

SELECT \* FROM users\_table WHERE salary>=25000 ORDER BY name ASC (This query show the information of all users which have salary greater than 25000)



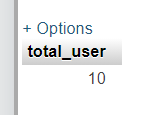
**c. Select the Average of all user salaries**

SELECT AVG(salary) as average FROM users\_table (this query will return the average salary of all the users which are currently working in company)



**d. Total Number of Users**

SELECT COUNT(sno) as total\_user FROM users\_table (This query return the total number of users which is currently working in the company)



**e. Select the Total of all user salary**

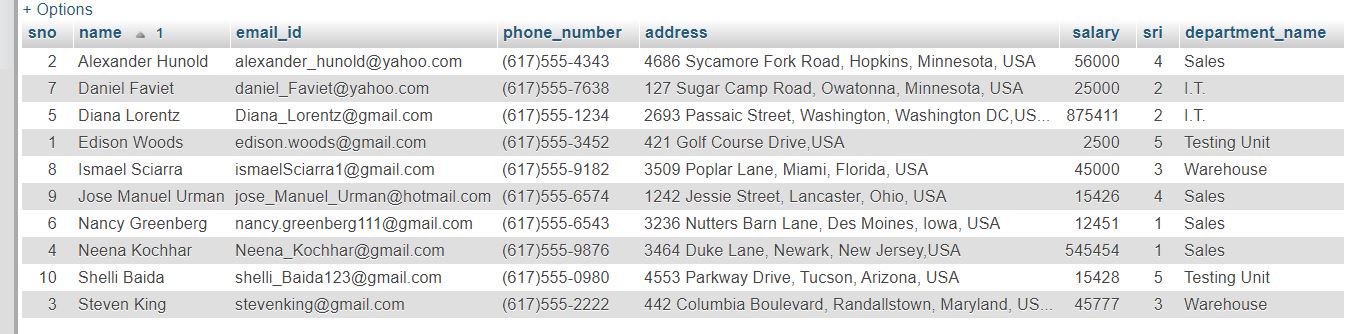
SELECT SUM(salary) as Total\_salary FROM users\_table (This query return the total amount which is giving to his currently working employees)



**2. Select query with joins**

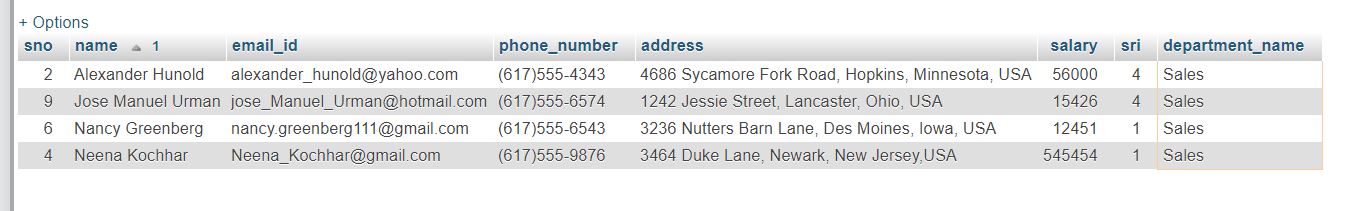
**a. Select users according to the departments (**This query return all the information about the user in which he/she is currently working in the department**)**

SELECT u.\*,d.\* FROM user\_department\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN department as d ON d.sri =ud.department\_id ORDER BY u.name ASC



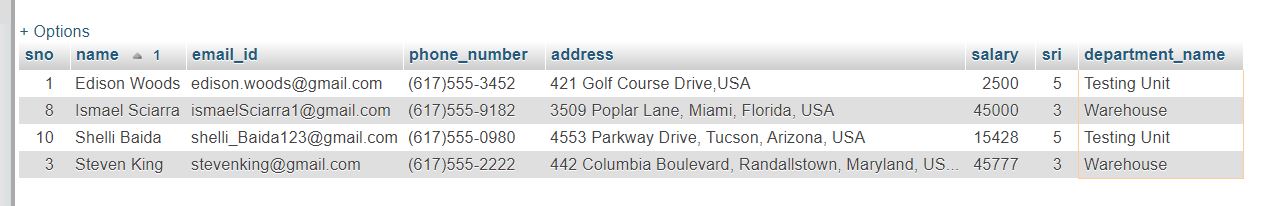
**b. Select users which belongs to sales department (**This query return all the information about the user in which he/she is currently working only in ‘Sales’ department**)**

SELECT u.\*,d.\* FROM user\_department\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN department as d ON d.sri =ud.department\_id WHERE d.department\_name='Sales' ORDER BY u.name ASC



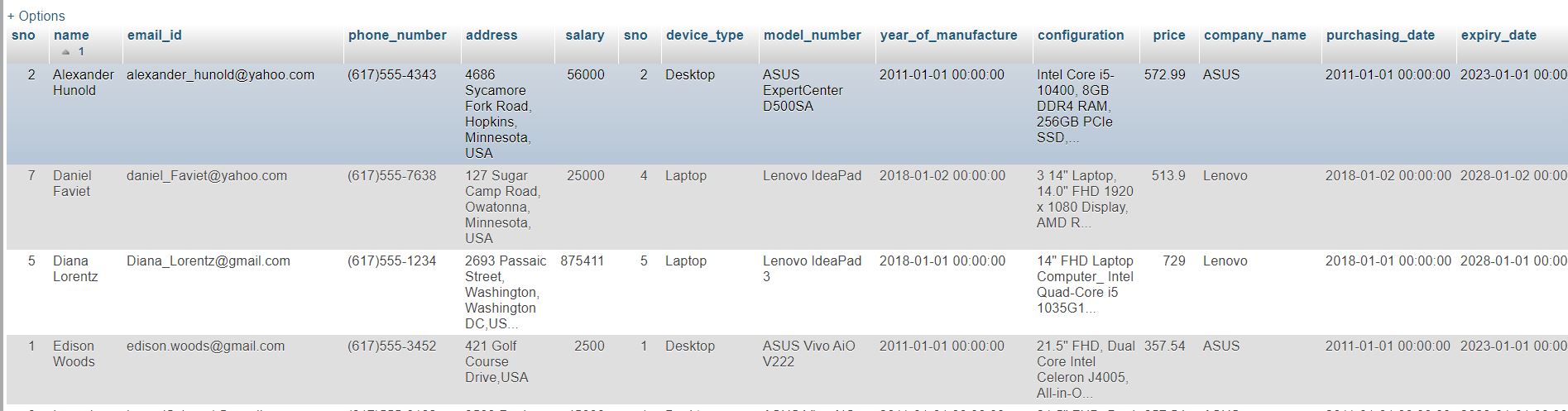
**c. SELECT users which belongs to Testing unit or Warehouse(**This query return all the information about the user in which he/she is currently working only in ‘Testing’ and ‘Warehouse’ department**)**

SELECT u.\*,d.\* FROM user\_department\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN department as d ON d.sri =ud.department\_id WHERE d.department\_name IN('Testing Unit','Warehouse') ORDER BY u.name ASC



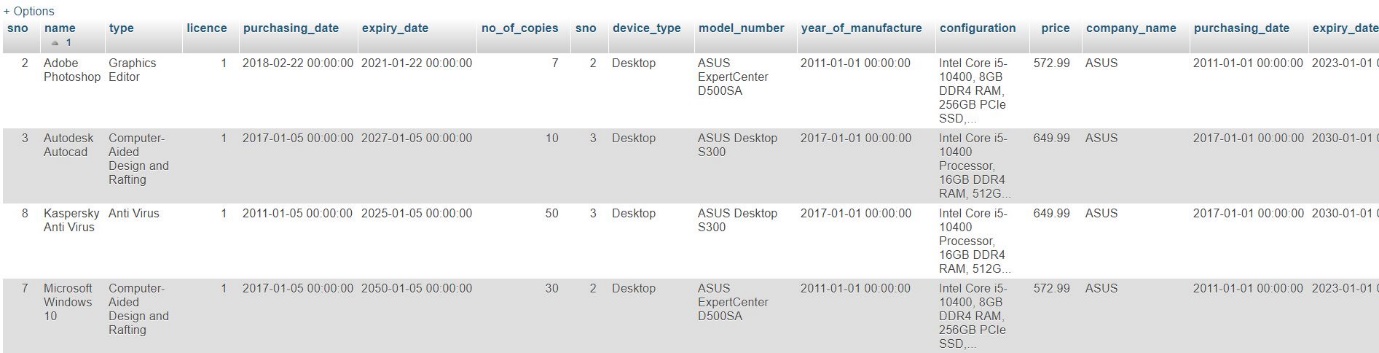
**d. Select devices which belongs to users (**This query return all Device information in the company and also giving the information that which device is assigned to the users)

SELECT u.\*,d.\* FROM user\_device\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN device\_table as d ON d.sno=ud.device\_id ORDER BY u.name ASC



**e. Select software which is installed on Devices (**This query return all Device information in the company and also giving the information that what kind of software is installed on the device)

SELECT s.\*,d.\* FROM software\_device\_table as sd INNER JOIN software\_table as s ON s.sno=sd.id INNER JOIN device\_table as d ON d.sno=sd.device\_id ORDER BY s.name ASC



**f. Select Software which provided by vendors (**This query returns all vendor information from where the company has purchased the software and complete information of the software)

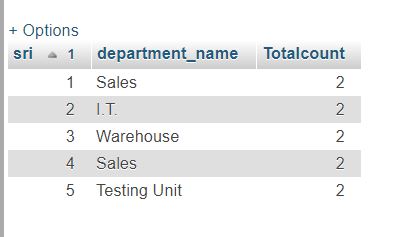
SELECT s.\*,v.\* FROM software\_vendor\_table as sv INNER JOIN software\_table as s ON s.sno=sv.software\_id INNER JOIN vendor\_table as v ON v.sno=sv.vendor\_id ORDER BY s.name ASC;



**3. Select Query with groups**

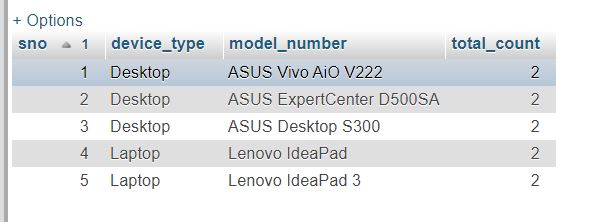
**a. No of users in each Department (**This query returns number of users which is working in particular department**)**

SELECT d.sri,d.department\_name,count(ud.user\_id) as Totalcount FROM user\_department\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN department as d ON d.sri =ud.department\_id GROUP BY ud.department\_id ORDER BY d.sri ASC



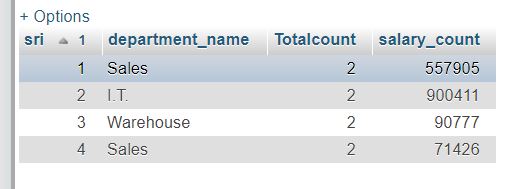
**b. No of user assign on each system (**This query returns number of users which are assigned on the particular Device**)**

SELECT d.sno,d.device\_type,d.model\_number,Count(u.sno) as total\_count FROM user\_device\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN device\_table as d ON d.sno=ud.device\_id GROUP BY d.sno ORDER BY d.sno ASC



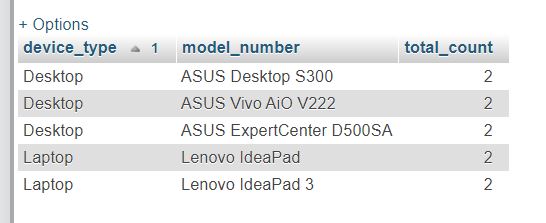
**c. No of user group of each department have sum of salary greater than 60000 (**This query returns Sum of users group salary according to the department and return only those groups which have the sum more than 60000 amount **)**

SELECT d.sri,d.department\_name,count(ud.user\_id) as Totalcount,SUM(u.salary) as salary\_count FROM user\_department\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN department as d ON d.sri =ud.department\_id GROUP BY ud.department\_id HAVING 60000<SUM(u.salary) ORDER BY d.sri ASC



**d. System which has installed more than 2 software (**This query returns number of software which are installed more than 1 device**)**

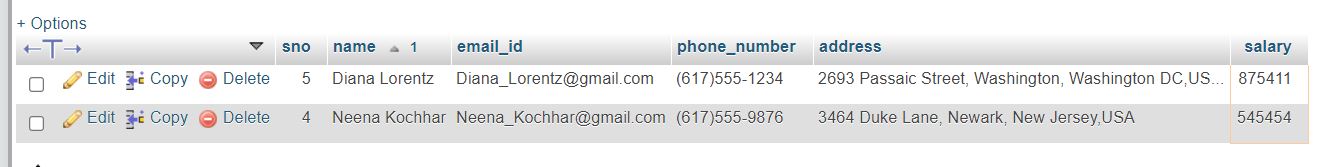
SELECT d.device\_type,d.model\_number ,COUNT(sd.software\_id) as total\_count FROM software\_device\_table as sd INNER JOIN software\_table as s ON s.sno=sd.id INNER JOIN device\_table as d ON d.sno=sd.device\_id GROUP BY sd.device\_id HAVING COUNT(sd.software\_id)>1 ORDER by d.device\_type ASC;



**4. Select Query with nested**

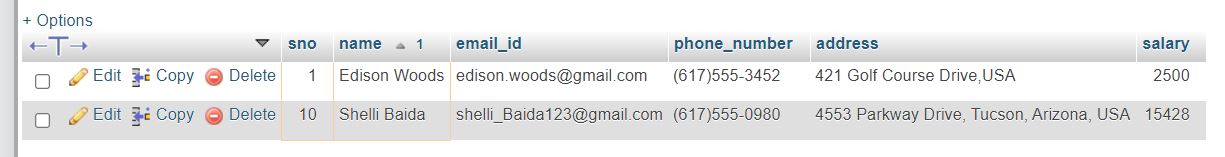
**a. Select users which salary has greater than average salary (**This query return those users which have salary greater than average salary in the company**)**

SELECT \* FROM users\_table WHERE salary > (SELECT AVG(salary) as average FROM users\_table ) ORDER BY name ASC



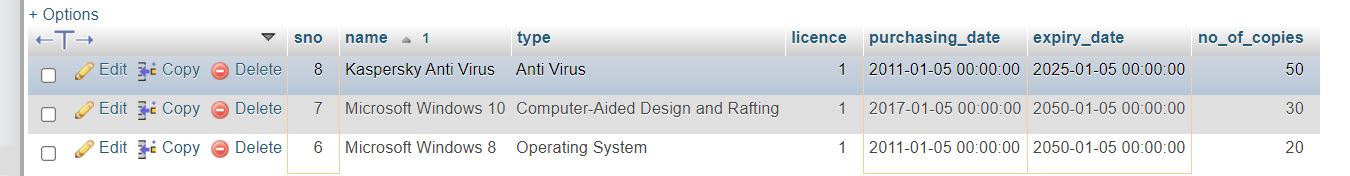
**b. Selecting Users which belongs to 'Testing unit' and ‘Warehouse’ (**This query returns all the information about the user in which he/she is currently working only in ‘Testing’ and ‘Warehouse’ department**)**

SELECT \* FROM users\_table WHERE sno IN(SELECT sno FROM user\_department\_table as ud INNER JOIN users\_table as u ON u.sno=ud.user\_id INNER JOIN department as d ON d.sri =ud.department\_id WHERE d.department\_name IN('Testing Unit', 'Warehouse') ORDER BY u.name ASC) ORDER BY name ASC



**c. Select software which have more than 10 years of validity (**This query returns all the software and software information which have more than 10 year validity or more than 10**)**

SELECT \* FROM software\_table WHERE sno in (SELECT sno DateDiff FROM software\_table WHERE ROUND((DATEDIFF(expiry\_date,purchasing\_date)/365))>10) ORDER by name



**d. Selecting those vendors whom does not include 'Oracle','SAP','Kaspersky' (**This query returns all software and the software information which don’t belongs to Oracle, SAP and Kaspersky **)**

SELECT \* FROM vendor\_table WHERE sno NOT IN (SELECT sno FROM vendor\_table WHERE name IN ('Oracle','SAP','Kaspersky')) ORDER by name ASC

