



CS370 – Introduction to database

Group work



Project Overview: The objective of this assignment is for each of you to work with other individuals to design and implement a database to address a business need. The goal is to gain hands-on experience in designing and developing a database system.

Each student will be placed in a group. Each group will design a database for a specific business scenario; you may choose your business scenario.

Project Selection: Each group should identify a business scenario in which a database management system is needed; it is recommended that you be familiar with the business process related to the scenario.

Assignments: There are four different assignments referred to as milestones related to the database design. Each milestone is described below, with submission requirements and due dates provided in the end of this document.

Milestone 1: To get started, begin thinking about a need for a good database design. Your first assignment is to write a brief, one-page paper describing the scenario for which you will be designing your database. Explain the need, justification for the new database system, and provide a list of 4–8 business rules for your application.



Have you settled in a non-Arab country for a specific purpose that was study, treatment or other? Have you faced some problems related to food?

First, read this manga that we made in order to clarify the idea of the project. (And because our country has become interested in making manga, we have made a simplified manga that illustrates the idea of the project). Click on the link. [LINK](#) OR click on the picture.



Most of people, when they travel or settle in another country completely different from their region, they fall into the problems of lack of food that suits their nature and environment.

Also, some people like to try products from different countries in order to pass the time or love getting to know people tastes through their products. From here came the idea of the project (food imported store). One of its positive effects is the expatriates from their countries will find basic products that suit them. Also, there will be a variety of foodstuffs that are not limited to certain things. It will have a positive impact on societies, regardless of the fact that it provides food for the expatriates from their countries. Where his idea will be to establish a store that will import products that are not available in this country and benefit the expatriate people from their countries, and the store will also have warehouses for storage and suppliers from different countries. Also allow employment in its stores. It will include 12 tables: (Store_Branches, Job, JobDetails, EmployeeDetails, Salary, Suppliers, Product, Repository, Purchases, PurchaseInvoices, Sales, SalesInvoices)

Some tables and ideas on which the tables are built will now be displayed:

Store_Branches

- Bnumber is included in this table, and it has a unique number for each branch (primary key), which is three branches (these branches were chosen in these states because they are the most collecting the number of expatriates in them from different countries)
- ENumber in which the number of employees is compared to each branch so that employees are known and counted for each branch in order to increase or decrease in employees.

Job

And because every store must have employees that work on it. This table is specified for Job Where Jname will be a name for each job such as (manager, accountant, ...) as well as a unique number for each job (primary key) where it will be linked to a number of tables in order to link the relationships between them, all the relationships in each table will be clarified.

Salary

Salary table Show the salaries of employees according to their job The most important operations that can be created from repository table Jtype determine the type of job part-time or full-time in order order to know the salary owed to the employee Salary will be based on his job and the type of part-time or full-time job, and the employee's salary will be determined. [It includes a condition not to accept the entry of a salary less than 3000 CHECK (Salary>=3000)].

Repository

Repository is used if there is a large amount of food to storage it. The most important operations that can be created from repository table is -Reponumber attributes: It must be (primary key) in order to be distinguished from the rest. We will have four warehouses, 3 warehouses that belong to the three branches and are divided. There is one primary warehouse «if large quantities are imported, they will be placed in it or import available quantities, but the product is available and will be placed in it. - Pavailability This attribute was set in order to know the status of the product from its availability or non-availability, and its type set as Boolean (bit). Available to 1 Not available to 0.

Purchases

The purchases table has all details of purchases to the suppliers. The most important operations that can be created from this is table Reponumber attributes: It is foreign key referring to the Repository table. If large quantities are imported and the product is not stored in a branch, it goes by default in a part specific from the primary repository ('11221AZ').

- (Job) The required number of employees for each - branch will be updated in case the branch wants to increase the number for a job.
- (EmployeeDetails) Each employee will be associated with a branch and a job
- (Salary) the salary of employee is displayed depending on his job and working hours
- (Product) Quantity of products is updated when importing or selling
- (Purchases) The products purchased vary depending on the supplier
- (PurchaseInvoices) The price of the purchase invoice is calculated based on the quantity and price of the supplier
- (Sales) Updating the sales data when the customer purchases from one branch to another
- (SalesInvoices) The sales invoice for a customer is calculated based on his purchases and their quantity

How can our database relate to life:

SalesInvoices

- Giving the customer a copy of the receipt that includes the purchases he made.
- While the customer wants to return a product, the receipt must be brought to confirm.

Purchases

- The store owner will import products from suppliers and they will be at lower prices than the prices displayed in the market (because the store owner must profit through these products)

Salary

- The salary will be given to the employee at the end of the month, and each employee will have a different salary than the others. His salary depends on his job and his type of part-time or full-time job.

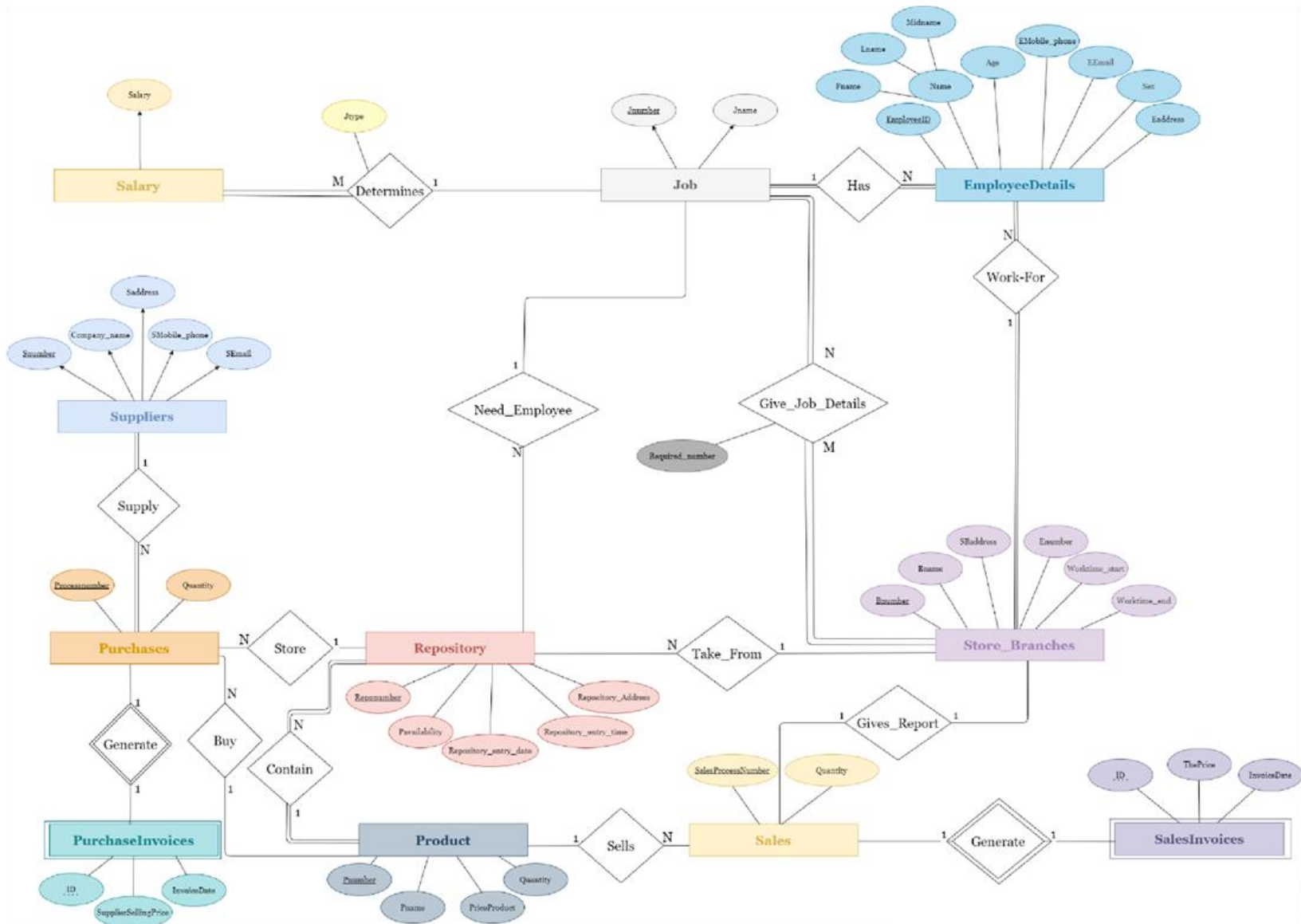
Suppliers

Because the store is located in the United States of America, no company will be selected from this country.

If you want to know all the details of the scenario accurately and all the tables it contains, click on the link. [LINK](#)



Milestone 2: The next activity is to analyze your business scenario and business rules to create an Entity relational diagram (ERD) for the project . Based on the narrative and business rules your provided for your project you will need to create ERD.



Milestone 3: Design a logical relational database schema that describe the databased in a brief diagram.

Store_Branches

<u>Bnumber</u>	Bname	SAddress	Enumber	Worktime_start	Worktime_end
----------------	-------	----------	---------	----------------	--------------

Job

<u>Jnumber</u>	Jname
----------------	-------

Give_Job_Details

<u>Jnumber</u>	<u>Bnumber</u>	Required_number
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EmployeeDetails

<u>EmployeeID</u>	Fname	Midname	Lname	Age	EMobile_phone	EEmail	Sex	Eaddress	Jnumber	Bnumber
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Salary

<u>Jnumber</u>	Jtype	Salary
----------------	-------	--------

Suppliers

Company_name	<u>Snumber</u>	Saddress	SMobile_phone	SEmail
--------------	----------------	----------	---------------	--------

Product

<u>Pnumber</u>	Pname	PriceProduct	Quantity
----------------	-------	--------------	----------

Repository

<u>Reponumber</u>	Pnumber	Pavailability	Bnumber	Repository_entry_date	Repository_entry_time	Repository_Address	Jnumber
-------------------	---------	---------------	---------	-----------------------	-----------------------	--------------------	---------

Purchases

<u>Processnumber</u>	Snumber	Pnumber	Quantity	Reponumber
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PurchaseInvoices

<u>InvoiceNumber</u>	<u>ID</u>	SupplierSellingPrice	InvoiceDate
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Sales

<u>SalesProcessNumber</u>	Bnumber	Pnumber	Quantity
---------------------------	---------	---------	----------

SalesInvoices

<u>InvoiceNumber</u>	<u>ID</u>	ThePrice	InvoiceDate
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Milestone 4 : Your biggest task is to write an SQL statements to create tables from your relational data schema The SQL could should do as follow

- 1– Create at least 5 tables. in your report you should include all the necessary information about each relation and what is the attribute related to this relation. Your report should include all this information.

```
CREATE TABLE Store_Branches(  
    Bnumber      INT                NOT NULL,  
    Bname        VARCHAR(30)        NOT NULL ,  
    SBaddress    VARCHAR(100),  
    Enumber      INT ,  
    Worktime_start TIME            NOT NULL,  
    Worktime_end  TIME            NOT NULL,  
    PRIMARY KEY(Bnumber)  
);
```

Store_Branches

- **Bnumber** is included in this table, and it has a unique number for each branch (primary key), which is three branches (these branches were chosen in these states because they are the most collecting the number of expatriates in them from different countries) and the name of the **Bname** was given to each branch, as well as Set **SBaddress** to find out the address of this branch. - **ENumber** in which the number of employees is compared to each branch so that employees are known and counted for each branch in order to increase or decrease in employees , for example , if there is an increase in the first branch, they will be reduced and transferred to the branches that need a number of employees
- **work time_start** is the start hours that the branches open. - **worktime_end** is the end of business hours for this branch of the store.

```
CREATE TABLE Jobs(  
    Jnumber      INT                NOT NULL,  
    Jname        VARCHAR(30)        NOT NULL ,  
    PRIMARY KEY (Jnumber)  
);
```

And because every store must have employees that work on it.

This table is specified for Job

Where Jname will be a name for each job such as (manager, accountant, . as a unique number for each job (primary key) where it will be linked to a tables in order to link the relationships between them, all the relationship table will be clarified.

```
CREATE TABLE JobDetails(  
    Jnumber      INT                NOT NULL,  
    Required_number INT ,  
    Bnumber      INT                NOT NULL,  
    FOREIGN KEY (Jnumber) REFERENCES Jobs (Jnumber),  
    FOREIGN KEY (Bnumber) REFERENCES Store_Branches (Bnumber)  
);
```

Because each branch has a different need number of employees for each job. this table is specified for **JobDetails** .-Jnumber will be (foreign key) associated with the job number in the Job table. It will have a corresponding number of employees required for each specific branch.

-Required number was included due to the different needs of each branch for the number of employees, for example, Branch 1 needs 2 accountants, while Branch 3 only needs one accountant. -Bnumber will be (foreign key) associated with the Store_Branches table in order to know the information of this branch, as well as the number of employees need for this branch to know when the start of this branch's working hours? or its address.

```

CREATE TABLE EmployeeDetails(
EmployeeID    CHAR(9)    NOT NULL,
Fname        VARCHAR(20)    NOT NULL,
Midname      CHAR,
Lname        VARCHAR(20)    NOT NULL,
Age          INT,
EMobile_phone CHAR(9)    ,
EEEmail      VARCHAR(50)    ,
Sex          CHAR,
Eadders      VARCHAR(50),
Jnumber      INT,
Bnumber      Int,

PRIMARY key (EmployeeID),
FOREIGN KEY (Jnumber) REFERENCES Jobs (Jnumber),
FOREIGN KEY (Bnumber) REFERENCES Store_Branches (Bnumber)
);

```

Having jobs means needing employees «for this purpose employee details table has been inserted.

EmployeeDetails

- EmployeeID Each employee will have a unique number (primary key) in order to distinguish between employees.
- The employee's details will also be included from his data that the store needs, such as name, age, address and methods of communication with the employee.
- Jnumber (foreign key) is associated with the Job table because there is one job for each employee.
- Bnumber is a (foreign key).Each employee will be in a specific branch.

```

CREATE TABLE Salary (
Jnumber      INT          NOT NULL,
Jtype        VARCHAR(20)    NOT NULL,
Salary       DECIMAL(10,2)    CHECK (Salary>=3000) ,

PRIMARY key (Jnumber),
FOREIGN KEY (Jnumber) REFERENCES Jobs (Jnumber)
);

```

The salaries of employees vary according to their job.
Salary

- (Jnumber)will be (foreign key) for the Job table because every job has a different salary than the other job, for example, the manager's salary is higher than the accountant.
- The types of shifts vary from part-time to full-time. For this, include the attribute (Jtype) which is the type of shift in order to know the salary owed to the person from his job and the type of shift.
- (Salary)will be based on his job and the type of part-time or full-time job, and the employee's salary will be determined.

```

CREATE TABLE Suppliers (
Company_name VARCHAR(50)    NOT NULL UNIQUE,
Snumber      INT          NOT NULL,
Saddres      VARCHAR(50)    ,
SMobile_phone CHAR(9)      UNIQUE,
SEmail       VARCHAR(50)    UNIQUE,

PRIMARY key (Snumber)
);

```

Because the imported store should suppliers food from other countries and other company We specify the Suppliers table that include 5 attribute :

- Company_name attribute : every supplier compaby that suplies food have a special name
- Snumber attribute: each resource must have a unique number (primary key) in order for each resource to be distinguished.
- Saddres: because every supplier company have address
- SMobile_phone and SEmail: it's important for the supplier tables have a mobile and email attribute, because it's a communication tools between the branches store and the suppliers.

```

CREATE TABLE Products (
Pnumber          INT      ,
Pname            VARCHAR(20)  NOT NULL,
PriceProduct    FLOAT      NOT NULL,
Quantity        INT      ,
PRIMARY key (Pnumber)
);

```

Every store should have a Products, so Products table is very important in our database. The Products tables include products details:
 Pnumber attribute: which mean Product number because every product have a specific number: Also it's a primary key.
 Pname attribute: it is contains the name of every Product, and the name should null. Product Price attribute: every product should include a price.
 Quantity attribute: it is include the quantity of products in every branches.

```

CREATE TABLE Repository(
Reponumber  CHAR(7)          NOT NULL,
Pnumber     INT      ,
Pavailability  BIT          DEFAULT 0,
Bnumber     INT      ,
Repository_entry_Date  DATE,
Repository_entry_time  TIME ,
Repository_Address  VARCHAR(100),
Jnumber     INT,
PRIMARY KEY(Reponumber),
FOREIGN KEY (Pnumber) REFERENCES Products (Pnumber),
FOREIGN KEY (Bnumber) REFERENCES Store_Branches (Bnumber),
FOREIGN KEY (Jnumber) REFERENCES Jobs (Jnumber)
);

```

Sometimes the supply companies face a loss in the company, so they start selling large quantities of products. If I buy these quantities, I must store them from here. We have included the repository table in order to solve this problem. -Reponumber attributes: It must be (primary key) in order to be distinguished from the rest. We will have four warehouses, 3 warehouses that belong to the three branches and are divided. There is one primary warehouse .if large quantities are imported, they will be placed in it or import available quantities, but The product is available and will be placed in it.-Sunmber has been set (foreign key) referring to the Suppliers table in order to know this quantity that entered the warehouse from any supplier. For example, if the quantity when it arrived was discovered to be damaged and not properly packaged, the supplier will be identified by number and returned to him. - Pavailability This attribute was set in order to know the status of the product from its availability or non-availability, and its type was set as Boolean (bit). Available 1 Not available 0. -Bnumber will be (foreign key) because as mentioned earlier each repository has its own branch but only the primary repository will be independent.This attribute is returned to the Store_Branches table in order to know the details of this branch and its data. -(Repository_entry_date and Repository_entry_time) They were placed in order to know the date and time of arrival of the quantity to the warehouse.-Repository_Address In this attribute, the address of each repository will be known. -Junmber : because for each warehouse there will be employees from a manager or others, this attribute has been linked to the Job table.

```

CREATE TABLE Purchases(
Processnumber    CHAR(9)  NOT NULL,
Snumber         INT      ,
Pnumber         INT      ,
Quantity        INT      NOT NULL,
Reponumber      CHAR(7)  DEFAULT '1221AZ' ,
PRIMARY KEY(Processnumber),
FOREIGN KEY (Snumber) REFERENCES Suppliers (Snumber),
FOREIGN KEY (Pnumber) REFERENCES Products (Pnumber),
FOREIGN KEY (Reponumber) REFERENCES Repository (Reponumber)
);

```

The purchases table has all details of purchases to the suppliers . It includes 5 attributes - Processnumber attribute which is a primary key , it contain the number of purchases processes. - Snumber attribute : suppliers number from which I buy, it will buy at lower prices than the prices in the market. it will be a foreign key associated with Snumber in a Suppliers table . - Pnumber attribute : it has the products number in buy process from the suppliers . It will be a foreign key associate with the Pnumber in Products table - Quantity attribute: It the amount of products in buy process from a supplier. -Reponumber attributes: It is foreign key referring to the Repository table. if large quantities are imported and the product is not stored in a branch, it goes by default in a part specific from the primary repository ('11221AZ').


```
CREATE TABLE PurchasesInvoices(
InvoiceNumber      CHAR(9)      NOT NULL,
SupplierSellingPrice  DOUBLE      NOT NULL,
InvoiceDate  TIMESTAMP      NOT NULL,
PRIMARY KEY(InvoiceNumber),
FOREIGN KEY (InvoiceNumber) REFERENCES Purchases (Processnumber)
);
```

This table show the invoice of purchases process in will buy from the supplier . It includes three attribute:
InvoiceNumber attribute: which is a primary key. Also it is foreign key associated with Proceenumber in Purchase table.
supplierSellingPrice : it clarify the price of products will buy from the supplier.
InvoiceDate : every invoice should contain a time and a date at the day that will buy from the supplier.

```
CREATE TABLE Sales(
SaleProceeNumber CHAR(9)      NOT NULL,
Bnumber      INT      ,
Pnumber      INT      ,
Quantity      INT      NOT NULL,
PRIMARY KEY(SaleProceeNumber),
FOREIGN KEY (Bnumber) REFERENCES Store_Branches (Bnumber),
FOREIGN KEY (Pnumber) REFERENCES Products (Pnumber)
);
```

The sales table is include all details of selling product to the customers. It has 4 attributes. - SaleProceeNumber attribute which is a primary key , it contain the number of sale processes.
- Bnumber attribute : Which branch number is selling the product? , it will be a foreign key associated with Bnumber in a Store_Branches table .
- Pnumber attribute : it contain the proudct number that the store is selling. It will be a foreign key associate with the Pnumber in proudcts table . - Quantity attribute: It main the amount of products purchased by the customer.

```
CREATE TABLE SalesInvoices(
InvoiceNumber  CHAR(9)      NOT NULL,
ThePrice      DOUBLE      NOT NULL,
InvoiceDate  TIMESTAMP      NOT NULL,
PRIMARY KEY(InvoicNumber),
FOREIGN KEY (InvoicNumber) REFERENCES Sales (SaleProceeNumber)
);
```

This tables show the invoice of sales process that the customers should take store when they buy a product . It contain three attribute:
InvoicNumber attribute: every Invoic has a special number and it is primary key in the table. it is foreign key associated with SaleProceeNumber in table. ThePrice : it clarify the price of product that the customer buy it .
InvoiceDate : every invoice should contain a date and time of the day that the customer buy a product . The InvoiceDate should not be null .



2– Student will also write the SQL statements to insert a minimum of 10 rows of data in each table

Store_Branches

Bnumber	Bname	Sbaddress	Enumber	Worktime_Start	Worktime_end
1	Imported Food1	100 Bleecker St, New York, NY 10013, USA	10	7:30:00.0	24:30:00.0
2	Imported Food2	5914 schaefer rd, Dearborn, mi 48126, usa	6	7:30:00.0	24:30:00.0
3	Imported Food3	(424) 206-1138509 Esplanade Redondo Beach, California(CA), 90277	5	10:30:00.0	21:30:00.0

Jobs

Jnumber	Jname
1111	Manger
2222	Accountant
3333	Shelves_dresser
4444	Security
5555	Delivery representative
6666	Customer_Service
7777	Warehouse_manager
8888	Chief_Execusive_Officer

JobDetails

Jnumber	Required_number	Bnumber
1111	1	1
1111	1	2
1111	1	3
2222	2	1
2222	2	2
2222	1	3
3333	2	1
3333	1	2
3333	1	3
4444	1	1
4444	1	2
4444	1	3
5555	1	1
5555	1	2
5555	1	3
6666	1	1
6666	1	2
7777	1	1
8888	1	1

EmployeeDetails

EmployeeID	Fname	Midname	Lname	Age	Emobile_phone	EEmail	Sex	Eadders	Jnumber	Bnumber
123843876	Sam	M	Zain	45	+123843876	Johan1@gmail.com	male	371 7th Ave, New York, NY10001	1111	1
163817306	Lyn	K	Lucas	35	+12421791	Lynnn@gmail.com	male	55 East 10th Street, New York, NY 10003, United States'	2222	1
712126944	Joyes	L	Daylen	30	+11217381	JoyesDylan@gmail.com'	male	345 E 24th St, New York, NY 10010, USA'	2222	1
812315439	Edward	S	Elion	25	+15834375	EdwardS55@gmail.com	male	110 W 3rd St, New York, NY 10012, USA	3333	1
213683224	Sara	W	Tem	22	+11236722	SaraW\$@gmail.com	female	120 E 12th St, New York, NY 10003, USA	3333	1
122333553	Rain	J	Joes	37	+11532643	Mias@gmail.com	male	80 Washing ton Square E, New York, NY 10003, USA'	4444	1
121835624	Jolate	X	White	38	+11638322	Jolate@gmail.com	female	60 East , michigan	1111	2

212621253	Jack	X	Sam	28	+13146411	Jack1s@gmail.com	Male	60 North , michigan	2222	2
336215399	Emma	R	Dylan	24	+13226427	DylanEmmas@gmail.com	female	90North ,michigan	2222	2
123732637	Mia	W	Henry	33	+11321453	Mias@gmail.com	female	60 East , michigan ,2224	3333	2
327150524	Kai	M	Zain	36	+12224423	KaiMzain@gmail.com	male	626 W. Clark Rd. Moreno Valley, CA 92553	1111	3
120442217	Naya	S	Henry	28	+12212663	Niahs@gmail.com	female	Chestnut Rd. Carson, CA 90745'	2222	3
130122323	Sam	Z	Hani	29	+13224643	SamHenry@gmail.com'	male	131 Griffin Ave. South San Francisco, CA 94080	3333	3
19944333	Lisa	J	Samual	39	+11592623	LisaLisa@gmail.com	female	78LakewoodStreet Hanford, CA 93230	4444	3
122111653	Eva	M	Aiden	21	+18832783	Evaas@gmail.com	female	240 Mercer St, New York, NY 10012, USA	6666	1
122618683	Lisa	S	Aiden	44	+18832783	LisaSAiden@gmail.com	female	21 East , michigan	6666	2
122608677	Alex	R	Sam	27	+18821116	TheAlex@gmail.com	male	'26 Washington Pl,	5555	1

								New York, NY 10003, USA'		
100433667	Aemilia	Z	White	34	+18999916	itsAemilia@gmail	female	90North , michigan 1116	5555	2
122660555	John	L	Daniel	40	+18824422	JohnLL@gmail.com	male	132 Griffin Ave. South San Francisc o, CA 94081	5555	3
122069339	Darwied	M	John	39	+19821642	'Darwied@gmail.com'	male	32 Washing ton Pl, New York, NY 10003, USA	7777	1
122660077	Alex	R	Sam	41	+18821116	TheAlex@gmail.com	male	7 Washing ton Pl, New York, NY 10003, USA	8888	1
10900333	John	J	Zain	42	+10590023	JohnJZain@gmail.com	male	'28 East , michigan	4444	2

Salary

Jnumber	Jtype	Salary
1111	Part_time_job	8333.20
2222	Full_time_job	4666.64
3333	Full_time_job	3333.20
4444	Full_time_job	3400.20
5555	Part_time_job	3599.84

6666	Part_time_job	4443.60
7777	Part_time_job	6665.99
8888	Part_time_job	7133.12

Suppliers

Company_name	Snumber	Saddres	SMobile_phone	SEmail
SADAFCO	1230	23241, Jeddah	126293370	SADAFCO.SA@SADAFCO.com
Kingdom Dates	1231	MMMR+2F	985468900	sales@kdc.sa
FAZER FOOD SERVICES OY	1232	Kaarnatie 4, 00410 Helsinki	+35820555	forename@fazer.com
GEMAK FOOD INDUSTRY MACH INERY CO	1233	Manchester,M24 5UJ	+01616270	sales@gemak.co.uk
GOODY	1234	X4FC+6W	971488090	info@goody.com.sa
GULF CATERING FOOD FACTOR Y	1235	JR7C+6G Al-Riyad	920009096	contactus@gccgff.com
Access Skills Ltd	1236	Birmingham, B151T	121510216	info@accessskills.co.uk
apetito	1237	7CCV+GV	122753636	carehomes@apetito.co.uk
Boots	1238	8mn+SE	159494047	care@boots.co.uk
ABC Bakery Supply	1239	49 Gilbert St	715552222	carehomes@ABCbakery.co.uk
Leka Trading	12310	471 Serangoon Loop, Suite	555878787	contactus@LekaTrading.com
American Food Distributor	12311	Florida 34668	278481010	info@AmericanFood.co.uk

Products

Pnumber	Pname	PriceProduct	Quantity
1	Dark Chocolate & Red Berries	22.38	1002
2	Dark Chocolate & Peanut Butter	22.38	2468
3	Apple Chia Crumble	22.38	4699
4	Dark Chocolate Macaroon	22.38	200
5	Double Chocolate Chunk	22.38	15
6	Al walimah Indian sella basmati rice	67.95	579
7	Maggi chicken stock 20 g x 24 pieces	20	1580
8	Goody light meat tuna in sun flower oil	8.25	809
9	Goody Peanut Butter Creamy	16.5	6853
10	Deemah date maamoul	24.95	25
11	Goody black truffle mayonnaise	15.95	7
12	Loacker biscuit tortina dark chocolate	14.95	0
13	Almarai wild flowers natural honey	23.95	345

14	Nutella with Hazelnut	19.77	66
15	Cerelac with Wheat Nestlé Company	77.3	18
16	Forno lays cheese	63.01	1
17	Hershey's milk chocolate chips	22.2	6
18	Peanuts from Goody Company	17.5	9
19	DUBBI with ketchup from Al BATAL	13.44	67
20	Pringles Chips pepper flavor	44.5	44
21	Brownies cake from Deemah company	43.21	89
22	Cornflakes with oats from Nesquik company	67.41	65
23	Break with chocolate from tiffany	55.43	78
24	Cola candy with qummy candy from borgat	65.13	6
25	Gardena with chocolate from locker	55.43	8

Repository

Reponumber	Pnumber	Pavailability	Bnumber	Repository_entry_Date	Repository_entry_time	Repository_Address	Jnumber
11223AA	23	1	1	2020-10-1	1:22	7LCHaVyTgi9	2222
11223AB	5	1	3	2019-12-15	9:31	7LCHaVyTgi9	4444
11221AA	2	1	2	2021-1-5	4:12	7LCHaVyTgi9	2222
11222AC	22	1	1	2019-11-11	13:00	7LCHaVyTgi9	1111
11222AX	12	0	3	2020-10-7	9:30	41658469-76.119731	3333
11223AV	1	1	2	2021-1-20	1:23	36032091-117.16154 2	2222
11221AM	14	1	2	2020-10-10	5:55	FkJmqxy3U8	4444
11223AC	3	1	2	2020-1-5	22:38	7LCHaVyTgi9	8888
11221AS	20	1	3	2020-9-9	9:00	41658469-76.119731	7777
11221AD	25	1	3	2021-7-4	3:22	36032091-117.16154 2	7777
11223AG	21	1	2	2020-12-12	1:55	FkJmqxy3U8	7777
11223AH	4	1	4	2020-11-11	16:00	7LCHaVyTgi9	3333
11222AW	6	1	3	2021-10-7	8:30	41658469-76.119731	3333
11222AT	7	1	1	2021-1-20	11:23	36032091-117.16154 2	4444
11221AQ	10	1	1	2020-10-10	7:55	FkJmqxy3U8	4444
11223AF	15	1	2	2020-1-5	4:38	7LCHaVyTgi9	6666
11221AK	9	1		2020-9-9	12:00	41658469-76.119731	6666

11221AO	16	1	3	2021-8-8	20:22	36032091-117.16154 2	6666
11221AP	13	1	2	2020-12-12	16:55	FkJmqxy3U8	6666
11221AJ	18	1	2	2020-12-11	14:55	FkJmqxy3U8	6666
11223AU	19	1	3	2020-7-1	11:55	FkJmqxy3U8	1111
11222AQ	22	1	1	2020-5-18	10:30	7LCHaVyTgi9	2222
11222AL	12	1	2	2020-6-13	12:45	36032091-117.16154 2	8888
11223AL	11	1	3	2020-9-19	11:45	36032091-117.16154 2	4444
11222AZ	16	1	2	2020-4-19	11:33	36032091-117.16154 2	7777
11222AR	10	1	3	2020-4-11	12:33	41658469-76.119731	5555
11222AG	9	1	2	2020-1-11	9:33	FkJmqxy3U8	6666
11221AI	8	1	2	2020-2-11	11:00	FkJmqxy3U8	3333
11221AE	5	1	2	2020-8-11	11:20	36032091-117.16154 2	8888
11221AZ	Null	0	Null	Null	Null	Null	Null

Purchases

Processnumber	Snumber	Pnumber	Quantity	Reponumber
999005033	1230	1	1002	11223AA
999115033	1232	2	2468	11223AB
999225033	1235	7	1000	11223AV
999335033	1234	13	145	NULL
999445033	1233	10	25	11223AC
999555033	1237	17	3	11222AW
999665033	1234	13	200	11221AQ
999775033	12311	18	3	11221AP
999885033	12310	20	44	NULL
999995033	1238	21	89	NULL

999915033	1235	7	580	11222AL
999925033	12311	18	6	11221AE
999935033	1237	17	3	11222AG

PurchasesInvoices

InvoiceNumber	SupplierSellingPrice	InvoiceDate
999005033	16.15	2013-07-23 08:12:45.132748
999115033	16.15	2013-11-01 13:05:44.321654
999225033	4.30	2016-09-22 09:12:21.789456
999335033	17.33	2017-09-12 09:12:21.789456
999445033	20.03	2017-08-11 11:16:01.543567
999555033	19.02	2018-12-24 05:33:22.321456
999665033	17.33	2018-12-25 08:33:44.321987
999775033	13.3	2019-02-02 07:33:22.947386
999885033	35.55	2020-12-04 11:22:22.564789
999995033	39.09	2021-11-11 09:22:11.987345
999915033	4.30	2021-11-11 08:22:11.987345
999925033	13.3	2021-11-11 13:22:11.987345
999935033	19.02	2021-11-11 12:22:11.987345

Sales

SaleProceeNumber	Bnumber	Pnumber	Quantity
988000123	1	23	1
988000113	3	5	5
988000122	2	2	12
988000133	1	22	1
988000143	3	12	3
988000144	2	1	2
988000155	2	14	4
988000166	2	3	6
988000161	3	20	1
988000167	3	25	1

SalesInvoices

InvoiceNumber	ThePrice	InvoiceDate
988000123	55.43	2021-01-11 09:22:11.287345
988000113	111.9	2021-01-12 10:22:11.287344
988000122	268.56	2021-02-11 11:24:11.385545
988000133	67.41	2021-04-25 16:26:31.987345
988000143	44.85	2021-05-11 14:22:11.487345
988000144	44.76	2021-05-19 10:22:51.987345
988000155	59.08	2021-06-11 09:22:11.557345
988000166	134.28	2021-08-11 12:44:11.787945
988000161	44.5	2021-09-11 09:22:17.788845
988000167	55.43	2021-10-21 14:32:15.187345

Note: Since some tables do not allow 10 rows to be added, the number in the rest of the tables has been increased instead.

Click the file according to the formula that you want see



3– In the report they should include the specification table of each table.

Store_Branches

Attribute name	Attribute type	Constraint
Bnumber	INT	PRIMARY KEY Not NULL
Bname	VARCHAR(30)	NOT NULL
Sbaddress	VARCHAR(100)	
Enumber	INT	
Worktime_start	TIME	Not NULL
Worktime_end	TIME	Not NULL

Jobs

Attribute name	Attribute type	Constraint
Jname	VARCHAR(30)	NOT NULL
Jnumber	INT	PRIMARY KEY Not NULL

JobDetails

Attribute name	Attribute type	Constraint
Jnumber	INT	FOREIGN KEY Not NULL
Required_number	INT	
Bnumber	INT	FOREIGN KEY Not NULL



EmployeeDetails

Attribute name	Attribute type	Constraint
EmployeeID	CHAR(9)	PRIMARY KEY Not NULL
Fname	VARCHAR(20)	Not NULL
Midname	CHAR	
Lname	VARCHAR(20)	Not NULL
Age	INT	
EMobile_phone	CHAR(9)	
EEmail	VARCHAR(50)	
Sex	CHAR	
Eadders	VARCHAR(50)	
Jnumber	INT	FOREIGN KEY
Bnumber	INT	FOREIGN KEY

Salary

Attribute name	Attribute type	Constraint
Jnumber	INT	FOREIGN KEY NOT NULL
Jtype	VARCHAR(20)	NOT NULL
Salary	DECIMAL(10,2)	CHECK (Salary>=3000)

Suppliers

Attribute name	Attribute type	Constraint
Company_name	VARCHAR(50)	NOT NULL UNIQUE
Snumber	INT	PRIMARY KEY NOT NULL
Saddres	VARCHAR(50)	
SMobile_phone	CHAR(9)	UNIQUE
SEmail	VARCHAR(50)	UNIQUE

Products

<i>Attribute name</i>	<i>Attribute type</i>	<i>Constraint</i>
Pnumber	INT	PRIMARY KEY
Pname	VARCHAR(20)	NOT NULL
PriceProduct	FLOAT	NOT NULL
Quantity	INT	

Repository

Attribute name	Attribute type	Constrain
Reponumber	CHAR(7)	PRIMARY KEY NOT NULL
Pnumber	INT	FOREIGN KEY
Pavailability	BIT	DEFAULT 0
Bnumber	INT	FOREIGN KEY
Repository_entry_Date	DATE	
Repository_entry_time	TIME	
Repository_Address	VARCHAR(100)	
Jnumber	INT	FOREIGN KEY

Purchases

Attribute name	Attribute type	Constraint
Processnumber	CHAR(9)	PRIMARY KEY NOT NULL
Snumber	INT	FOREIGN KEY
Pnumber	INT	FOREIGN KEY
Quantity	INT	NOT NULL
Reponumber	CHAR(7)	FOREIGN KEY DEFAULT '1221AZ'



PurchasesInvoices

Attribute name	Attribute type	Constraint
InvoiceNumber	CHAR(9)	PRIMARY KEY FOREIGN KEY NOT NULL
SupplierSellingPrice	DOUBLE	NOT NULL
InvoiceDate	TIMESTAMP	NOT NULL

Sales

Attribute name	Attribute type	Constraint
SaleProceeNumber	CHAR(9)	PRIMARY KEY NOT NULL
Bnumber	INT	FOREIGN KEY
Pnumber	INT	FOREIGN KEY
Quantity	INT	NOT NULL

SalesInvoices

Attribute name	Attribute type	Constraint
InvoiceNumber	CHAR(9)	PRIMARY KEY FOREIGN KEY NOT NULL
ThePrice	DOUBLE	NOT NULL
InvoiceDate	TIMESTAMP	NOT NULL



- 4- Include your experiment by using all the SQL statements given in the lectures this should all the data for each table. (15 Minimum SQL statements) students should give a brief explanation of each SQL statements .

CLICK



```
SELECT p.Pnumber ,  
(SELECT COUNT(s.SaleProceeNumber)  
FROM Sales as s  
WHERE p.Pnumber=s.Pnumber) AS 'number of sale'  
FROM Products as p;
```

See Photo Code

Displays the number of sales of the product based on the sub-query.

```
SELECT priceproduct, quantity,  
(CASE  
WHEN priceproduct > 20 THEN 'Price of product is greater than 20'  
WHEN Quantity < 100 THEN 'The remaining amount of the product is little'  
ELSE 'The product is available and the price is reasonable'  
END )as 'Product status'  
FROM Products;
```

See Photo Code

show details of products means if priceproduct > 20 so print Price of product is greater than 20. if Quantity < 100 so print The remaining amount of the product is little. or print The product is available and the price is reasonable

```
SELECT InvoiceNumber,SupplierSellingPrice  
FROM PurchasesInvoices  
GROUP BY SupplierSellingPrice  
HAVING SupplierSellingPrice > 10;
```

See Photo Code

The invoice number and the supplier's selling price that is greater than ten appears in the ascending order by the supplier's selling price

```
SELECT  
Processnumber, Quantity, IFNULL(Reponumber, '11221AZ') AS 'Repository'  
FROM  
Purchases;
```

See Photo Code

This query will switch every null value to 11221AZ



```
SELECT * FROM EmployeeDetails  
LIMIT 3;
```

[See Photo Code](#)

Displays the first three rows of the EmployeeDetails table

```
SELECT Reponumber ,Pnumber  
FROM Repository
```

[See Photo Code](#)

```
WHERE Repository_entry_Date LIKE '2021-7-4'AND Repository_entry_time LIKE '3%';
```

In the event that a notification is issued that the goods entered on the date of 21-7-4 At the start of three o'clock if damage goods

```
SELECT AVG(salary) AS 'Average Salary'  
FROM Salary ;
```

[See Photo Code](#)

You display the average salary and change the name of the column that will be displayed to Average Salary

```
Select * from EmployeeDetails  
Where Sex in ('female') ;
```

[See Photo Code](#)

The IN operator allows you to specify multiple values in a WHERE clause

```
SELECT Jobs.Jnumber , Jobs.jname , JobDetails.Bnumber  
FROM Jobs  
INNER JOIN JobDetails ON JobDetails.Jnumber=Jobs.Jnumber;
```

[See Photo Code](#)

Inner Joined two relations , Jobs table and Job Details table to show job and branch for every employee

```
SELECT MAX(salary), MIN(salary),AVG(salary) FROM Salary;
```


[See Photo Code](#)

Salary summary. Know the salary, the lowest salary, and the average salary

```
SELECT COUNT(snumber) AS 'Number_Supplier'  
FROM Suppliers;
```

[See Photo Code](#)

Calculate the number of suppliers

 SELECT DISTINCT jname,bname,Jobs.jnumber
FROM JobDetails,Jobs,Store_Branches
WHERE Jobs.jnumber=8888 or jname='Manger';

[See Photo Code](#)

A table showing the managers of the branches or the CEO

 Select * from products
Where PriceProduct BETWEEN 15.957 And 43.2189


[See Photo Code](#)

Show Products table of PriceProduct greater than 15.957 less than 43.2189

 Select *
from EmployeeDetails
Where Fname not like '%a%';


[See Photo Code](#)

Displays all employees whose names do not start with a

 SELECT j.jname, COUNT(d.employeeid)
FROM Jobs as j, EmployeeDetails as d
WHERE j.jnumber=d.jnumber
GROUP BY j.jname;

[See Photo Code](#)

If you want to know the number of employees for each job, the count() function will be used and group by

 ALTER TABLE Salary ADD COLUMN Scategory CHAR;
SELECT Jnumber,Jtype, salary ,
(CASE
WHEN salary < 4500 THEN 'C'
WHEN Salary < 6500 THEN 'B'
ELSE 'A'
END)as 'Salary category'
FROM Salary;

[See Photo Code](#)

We added the column it name Category, categorized the salary into A,B and C

■ UPDATE Products

```
SET priceproduct = priceproduct*1.15;  
SELECT pname,priceproduct FROM Products;
```

See Photo Code

We Updated 15% taxes for price product

■ DELETE FROM Purchases WHERE Reponumber IS NULL;
SELECT Reponumber FROM Purchases;

See Photo Code

We deleted row, when repository number is null from table purchases

DONE

