Project Assignment 2

Second Delivery: From Design to Implementation

Process 8: Procurement

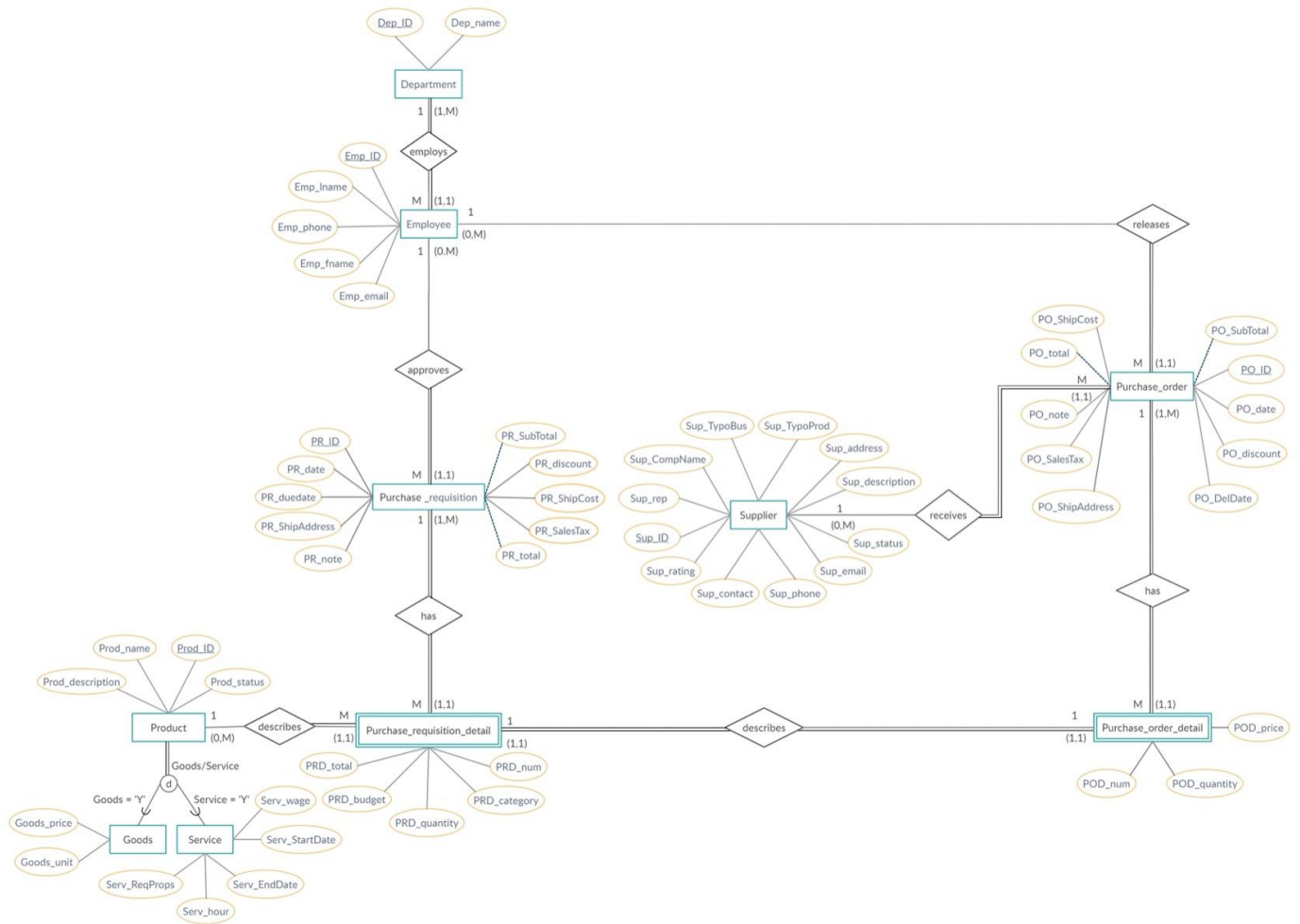ITCS241_Database Management Systems

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Group 15, Section 1

Revised ERD

8-Steps to Transforming ERD to Relational Schema

Step 1: Regular Entity Types

Department

Dep_ID	Dep_name

Employee

Emp_ID	Emp_fname	Emp_lname	Emp_phone	Emp_email

Purchase requisition

PR_ID	PR_date	PR_duedate	PR_ShipAddress	PR_note	PR_discount	PR_shipcost	PR_tax

Purchase order

PO_ID	PO_date	PO_ShipAddress	PO_note	PO_discount	PO_deldate	PO_tax	PO_shipcost

Product

Prod_ID	Prod_name	Prod_status	Prod_description

Supplier

Sup_ID	Sup_rep	Sup_comname	Sup_Contact	Sup_TypoBus	Sup_TypoProd	Sup_address	Sup_description	Sup_Status	Sup_email	Sup_phone	Sup_Rating

Step 2: Weak Entities

Purchase requisition detail

PR_ID	PRD_num	PRD_Total	PRD_Budget	PRD_Quantity	PRD_Category

Purchase order detail

PO_ID	POD_num	POD_Quantity	POD_Price

Step 3: Binary 1:1 Relationship Types

Purchase requisition detail : Purchase order detail

Purchase order detail

PO_ID	POD_num	POD_Quantity	POD_Price	PR_ID	PRD_num

Step 4: Binary 1:N Relationship Types

Department : Employee

Employee

Emp_ID	Emp_fname	Emp_lname	Emp_phone	Emp_email	Dep_ID

Employee : Purchase requisition

Purchase requisition

PR_ID	PR_date	PR_duedate	PR_ShipAddress	PR_note	PR_discount	PR_shipcost	PR_tax	Emp_ID

Employee : Purchase order

Purchase order

PO_ID	PO_date	PO_ShipAddress	PO_note	PO_discount	PO_deldate	PO_tax	PO_shipcost	Emp_ID

Purchase requisition : Purchase requisition detail

Purchase requisition detail

PR_ID	PRD_num	PRD_Total	PRD_Budget	PRD_Quantity	PRD_Category

Purchase order : Purchase order detail

Purchase order detail

PO_ID	POD_num	POD_Quantity	POD_Price	PR_ID	PRD_num

Supplier : Purchase order

Purchase order

PO_ID	PO_date	PO_ShipAddress	PO_note	PO_discount	PO_deldate	PO_tax	PO_shipcost	Emp_ID	Sup_ID

Product : Purchase requisition detail

Purchase requisition detail

PR_ID	PRD_num	PRD_Total	PRD_Budget	PRD_Quantity	PRD_Category	Prod_ID

Step 5: Binary M:N Relationship Types

- null –

Step 6: Multi-valued Attribute

- null –

Step 7: N-ary Relationship Types

- null –

Step 8: Specialization or Generalization

Product

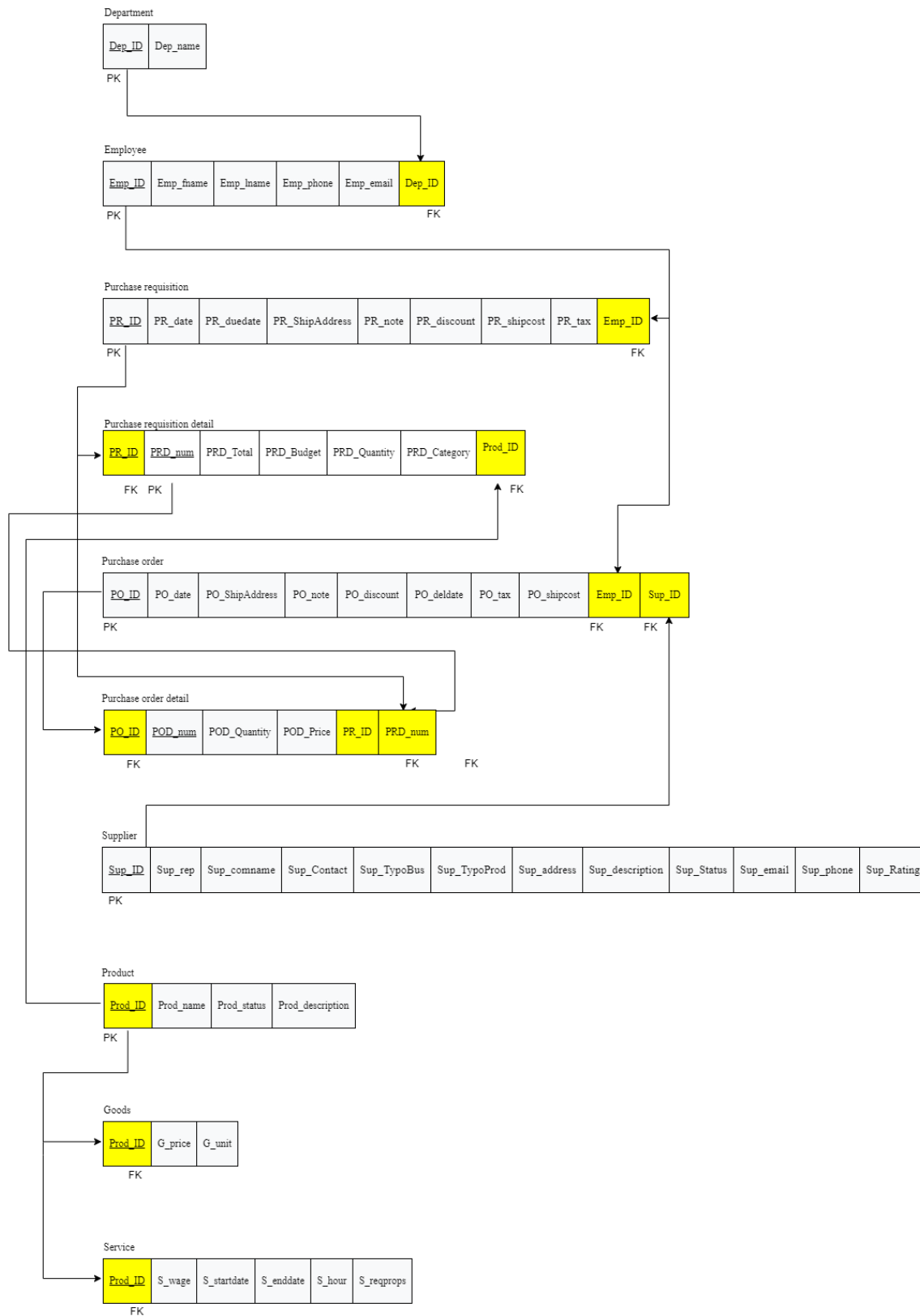| Prod_ID	Prod_name	Prod_status	Prod_description

Goods

Prod_ID	G_price	G_unit

Service

Prod_ID	S_wage	S_startdate	S_enddate	S_hour	S_reqprops

The Final Relational Schema

Department

Dep_ID	Dep_name
PK	

Employee

Emp_ID	Emp_fname	Emp_lname	Emp_phone	Emp_email	Dep_ID
PK					FK

Purchase requisition

PR_ID	PR_date	PR_duedate	PR_ShipAddress	PR_note	PR_discount	PR_shipcost	PR_tax	Emp_ID
PK								FK

Purchase requisition detail

PR_ID	PRD_num	PRD_Total	PRD_Budget	PRD_Quantity	PRD_Category	Prod_ID
FK	PK					FK

Purchase order

PO_ID	PO_date	PO_ShipAddress	PO_note	PO_discount	PO_deldate	PO_tax	PO_shipcost	Emp_ID	Sup_ID
PK								FK	FK

Purchase order detail

PO_ID	POD_num	POD_Quantity	POD_Price	PR_ID	PRD_num
FK				FK	FK

Supplier

Sup_ID	Sup_rep	Sup_comname	Sup_Contact	Sup_TypoBus	Sup_TypoProd	Sup_address	Sup_description	Sup_Status	Sup_email	Sup_phone	Sup_Rating
PK											

Product

Prod_ID	Prod_name	Prod_status	Prod_description
PK			

Goods

Prod_ID	G_price	G_unit
FK		

Service

Prod_ID	S_wage	S_startdate	S_enddate	S_hour	S_reqprops
FK					

Data Dictionary

Table Name	Attribute Name	Contents	Type	Format	Nullable	Range	Key	FK Referenced table
Department	Dep_ID	Department's ID	nchar(9)	xxxxxxxx			PK	
	Dep_name	Department's name	nvarchar(20)	Xxxxxx				
Employee	Emp_ID	Employee's ID	nchar(9)	xxxxxxxx			PK	
	Emp_fname	Employee's first name	nvarchar(20)	Xxxxxx				
	Emp_lname	Employee's last name	nvarchar(20)	Xxxxxx				
	Emp_phone	Employee's phone	nvarchar(10)	Xxxxxx	Y			
	Emp_email	Employee's email	nvarchar(20)	Xxxxxx	Y			
	Dep_ID	Department's ID	nchar(9)	xxxxxxxx			FK	Dep_ID [Department]
Purchase requisition	PR_ID	Purchase requisition's ID	nchar(9)	xxxxxxxx			PK	
	PR_date	Purchase requisition's date	date	yyyy-mm-dd				
	PR_duedate	Purchase requisition's due date	date	yyyy-mm-dd				
	PR_ShipAddress	Purchase requisition's shipping address	nvarchar(100)	Xxxxxx				
	PR_note	Purchase requisition's note	nvarchar(100)	Xxxxxx	Y			
	PR_discount	Purchase requisition's discount	decimal(5,2)	123.45	Y			
	PR_shipcost	Purchase requisition's shipping cost	decimal(12,2)	1234567890.00	Y			
	PR_tax	Purchase requisition's tax	decimal(5,2)	123.45	Y,			
	Emp_ID	Employee's ID	nchar(9)	xxxxxxxx			FK	Emp_ID [Employee]
Purchase requisition detail	PR_ID	Purchase requisition's ID	nchar(9)	xxxxxxxx			FK	PR_ID [Purchase requisition]
	PRD_num	Purchase requisition detail's number	int	x			PK	
	PRD_Total	Purchase requisition detail's Total	int	x				

	PRD_Budget	Purchase requisition detail's budget	decimal(12, 2)	1234567890.00				
	PRD_Quantity	Purchase requisition detail's quantity	int	x		1 to 10		
	PRD_Category	Purchase requisition detail's category	nvarchar(20)	Xxxxxx				
	Prod_ID	Product's ID	nchar(9)	xxxxxxxxx			FK	Prod_ID [Product]
Purchase order	PO_ID	Purchase order's ID	nchar(9)	xxxxxxxxx			PK	
	PO_date	Purchase order's date	date	yyyy-mm-dd				
	PO_ShipAddress	Purchase order's shipping address	nvarchar(100)	Xxxxxx				
	PO_note	Purchase order's note	nvarchar(100)	Xxxxxx	Y			
	PO_discount	Purchase order's discount	decimal(5,2)	123.45	Y			
	PO_deldate	Purchase order's delivery date	date	yyyy-mm-dd				
	PO_tax	Purchase order's tax	decimal(5,2)	123.45	Y			
	PO_shipcost	Purchase order's shipping cost	decimal(12,2)	1234567890.00	Y			
	Emp_ID	Employee's ID	nchar(9)	xxxxxxxxx			FK	Emp_ID [Employee]
	Sup_ID	Supplier's ID	nchar(9)	xxxxxxxxx	Y		FK	Sup_ID [Supplier]
Purchase order detail	PO_ID	Purchase order's ID	nchar(9)	xxxxxxxxx			PK	
	POD_num	Purchase order detail's number	nvarchar(20)	Xxxxxx				
	POD_Quantity	Purchase order detail's quantity	int	x		1 to 10		
	POD_Price	Purchase order detail's price	decimal(12,2)	1234567890.00				
	PR_ID	Purchase requisition's ID	nchar(9)	xxxxxxxxx			FK	PR_ID [Purchase requisition]
	PRD_num	Purchase requisition detail's number	int	x			FK	PRD_num [Purchase requisition detail]

Supplier	Sup_ID	Supplier's ID	nchar(9)	xxxxxxxxx			PK	
	Sup_rep	Supplier's representative name	nvarchar(50)	Xxxxxx				
	Sup_comname	Supplier's company name	nvarchar(50)	Xxxxxx				
	Sup_Contact	Supplier's contact	nvarchar(100)	Xxxxxx	Y			
	Sup_TypoBus	Supplier's type of business	nvarchar(100)	Xxxxxx				
	Sup_TypoProd	Supplier's type of product	char(1)	x		G(goods)/S(service)		
	Sup_address	Supplier's address	nvarchar(100)	Xxxxxx				
	Sup_description	Supplier's description	nvarchar(100)	Xxxxxx				
	Sup_Status	Supplier's status	char(1)	x		S(selected)/U(unselected)		
	Sup_email	Supplier's email	nvarchar(50)	Xxxxxx	Y			
	Sup_phone	Supplier's phone number	nvarchar(10)	Xxxxxx	Y			
	Sup_Rating	Supplier's rating	int	x		1 to 5		
Product	Prod_ID	Product's ID	nchar(9)	xxxxxxxxx			PK	
	Prod_name	Product's name	nvarchar(20)	Xxxxxx				
	Prod_status	Product's status	nvarchar(20)	Char(1)		S(selected)/U(unselected)		
	Prod_description	Product's description	nvarchar(100)	Xxxxxx	Y			
Goods	Prod_ID	Product's ID	nchar(9)	xxxxxxxxx			FK	Prod_ID [Product]
	G_price	Goods's price	decimal(12,2)	1234567890.00				
	G_unit	Good's unit	nvarchar(20)	Xxxxxx				
Services	Prod_ID	Product's ID	nchar(9)	xxxxxxxxx			FK	Prod_ID [Product]
	S_wage	Service's wage	decimal(12,2)	1234567890.00				
	S_startdate	Service's start date	date	yyyy-mm-dd				
	S_enddate	Service's end date	date	yyyy-mm-dd				
	S_hour	Service's hour	decimal(5,2)	123.45	Y			
	S_reqprops	Services required properties	nvarchar(100)	Xxxxxx				

List of all queries

DDL (Data definition language)

1. Description = Create **Department** table
   SQL Script:

```
CREATE TABLE department(
    dep_name nvarchar(20) not null
);
```

2. Description = Alter Department table to **add** column "dep_id".
   SQL Script:

```
ALTER TABLE department
    ADD dep_id nchar(9) PRIMARY KEY;
```

3. Description = Create **Employee** table
   SQL Script:

```
CREATE TABLE employee(
    emp_id     nchar(9)     not null unique primary key,
    emp_fname nvarchar(20) not null,
    emp_lname nvarchar(20) not null,
    emp_phone nvarchar(10) not null,
    emp_email nvarchar(20) not null,
    dep_id     nchar(9),
    CONSTRAINT FK_EmpDep  FOREIGN KEY (dep_id)    REFERENCES department(dep_id)
);
```

4. Description = Create **Product** table
   SQL Script:

```sql
CREATE TABLE goods(
    prod_id  nchar(9)         not null,
    g_price  decimal(12,2)    not null,
    g_unit   nvarchar(20)     not null,
    CONSTRAINT FK_ProdGoods  FOREIGN KEY (prod_id)   REFERENCES product(prod_id),
    PRIMARY KEY(prod_id)
);
```

5. Description = Create **Service** table
   SQL Script:

```sql
CREATE TABLE services(
    prod_id       nchar(9)         not null,
    s_wage        decimal(12,2)    not null,
    s_startdate   date             not null,
    s_enddate     date             not null,
    s_hour        datetime         ,
    s_reqprops    nvarchar(100)    not null,
    CONSTRAINT FK_ProdService FOREIGN KEY (prod_id)   REFERENCES product(prod_id),
    PRIMARY KEY(prod_id)
);
```

6. Description = Create **Supplier** table
   SQL Script:

```sql
CREATE TABLE supplier(
    sup_id              nchar(9)           not null unique primary key,
    sup_rep             varchar(50)        not null,
    sup_comname         nvarchar(50)       not null,
    sup_contact         nvarchar(100),
    sup_typobus         nvarchar(100)      not null,
    sup_typoprod        char(1)            not null,
    sup_address         nvarchar(100)      not null,
    sup_description     nvarchar(100)      not null,
    sup_status          char(1)            not null,
    sup_email           nvarchar(50),
    sup_phone           nvarchar(10),
    sup_rating          int                not null,
    CONSTRAINT CHK_type      CHECK (sup_typoprod IN ('G','S')),
    CONSTRAINT CHK_status    CHECK (sup_status IN ('S','U')),
    CONSTRAINT CHK_rating    CHECK (sup_rating >= 1 AND sup_rating <= 5)
);
```

7. Description = Create **Purchase requisition** table
   SQL Script:

```sql
CREATE TABLE purchase_requisition(
    pr_id             nchar(9)          not null unique primary key,
    pr_date           date              not null,
    pr_duedate        date              not null,
    pr_shipaddress    nvarchar(100)     not null,
    pr_note           nvarchar(100),
    pr_discount       decimal(5,2),
    pr_shipcost       decimal(12,2),
    pr_tax            decimal(5,2),
    emp_id            nchar(9),
    CONSTRAINT FK_PrEmp FOREIGN KEY (emp_id) REFERENCES employee(emp_id),
    CONSTRAINT chk_pr_tax CHECK (pr_tax >= 0.00 AND pr_tax <= 100.00)
);
```

8. Description = **Create Purchase requisition detail** table
   SQL Script:

```sql
CREATE TABLE purchase_requisition_detail(
    pr_id         nchar(9),
    prd_num       int               not null,
    prd_total     int               ,
    prd_budget    decimal(12, 2) not null,
    prd_quantity int               not null,
    prd_category nvarchar(20)    not null,
    prod_id       nchar(9),
    CONSTRAINT PK_Prd PRIMARY KEY(pr_id, prd_num),
    CONSTRAINT FK_PrdPr FOREIGN KEY (pr_id) REFERENCES purchase_requisition (pr_id),
    CONSTRAINT FK_PrdProd FOREIGN KEY (prod_id) REFERENCES product (prod_id),
    CONSTRAINT  CHK_quantity  CHECK (prd_quantity >= 1 AND prd_quantity <= 50)
);
```

9. Description = Create **Purchase order** table
   SQL Script:

```sql
CREATE TABLE purchase_order(
  po_id             nchar(9)         not null unique primary key,
  po_date           date             not null,
  po_shipaddress    nvarchar(100)    not null,
  po_note           nvarchar(100),
  po_discount       decimal(5,2),
  po_deldate        date             not null,
  po_shipcost       decimal(12,2),
  po_tax            decimal(5,2),
  emp_id            nchar(9),
  sup_id            nchar(9),
  CONSTRAINT FK_PoEmp FOREIGN KEY (emp_id) REFERENCES employee(emp_id),
  CONSTRAINT FK_PoSup FOREIGN KEY (sup_id) REFERENCES supplier(sup_id),
  CONSTRAINT chk_po_tax CHECK (po_tax >= 0.00 AND po_tax <= 100.00),
  CONSTRAINT chk_po_discount CHECK (po_discount >= 0.00 AND po_discount <= 100.00)
);
```

10. Description = Create **Purchase order detail** table
    SQL Script:

```sql
CREATE TABLE purchase_order_detail(
  po_id           nchar(9),
  pod_num         nvarchar(20)    not null,
  pod_quantity    int             not null,
  pod_price       decimal(12,2)   not null,
  pr_id           nchar(9),
  prd_num         int,
  PRIMARY KEY(po_id, pod_num),
  CONSTRAINT  FK_PodPo FOREIGN KEY (po_id) REFERENCES purchase_order (po_id),
  CONSTRAINT  FK_PodPr FOREIGN KEY (pr_id) REFERENCES purchase_requisition (pr_id),
  CONSTRAINT  FK_PodPrd FOREIGN KEY (pr_id, prd_num) REFERENCES purchase_requisition_detail (pr_id, prd_num),
  CONSTRAINT  CHK_Pod_quantity  CHECK (pod_quantity >= 1 AND pod_quantity <= 50)
);
```

11. Description = Alter Department table to **drop** column "sup_contact".
    SQL Script:

```
ALTER TABLE supplier
    DROP COLUMN sup_contact;
```

12. Description = Alter Department table to **drop** column "prd_total".
    SQL Script:

```
ALTER TABLE purchase_requisition_detail
    DROP COLUMN prd_total;
```

DDL (Data definition language)

1. Description = Insert a new status to the Department table the following attributes.
   SQL Script:

```sql
INSERT INTO department(dep_id, dep_name) VALUES
('111222161', 'Account'),
('111222162', 'Finance'),
('111222163', 'Sales'),
('111222164', 'Marketing'),
('111222165', 'Procurement'),
('111222166', 'Production'),
('111222167', 'Human Resources'),
('111222168', 'Quality Control'),
('111222169', 'Research and Development'),
('111222170', 'Information Technology');
```

2. Description = Insert a new status to the Employee table the following attributes.
   SQL Script:

```sql
INSERT INTO employee(emp_id, emp_fname, emp_lname, emp_phone, emp_email, dep_id) VALUES
('333444598', 'Ariana', 'Grande', '0912345678', 'Ariana.gra@gmail.com', '111222161'),
('333444599', 'Justin', 'Bieber', '0923456789', 'Justin.bie@gmail.com', '111222163'),
('333444601', 'Harry', 'Styles', '0945678912', 'Harry.sty@gmail.com', '111222166'),
('333444602', 'Jeremy', 'Zucker', '0956789123', 'Jeremy.zuc@gmail.com', '111222170'),
('333444603', 'Travis', 'Scott', '0967891234', 'Travis.sco@gmail.com', '111222164'),
('333444604', 'Andy', 'Williams', '0978912345', 'Andy.wil@gmail.com', '111222162'),
('333444605', 'Taylor', 'Swift', '0989123456', 'Taylor.swi@gmail.com', '111222166'),
('333444606', 'Billie', 'Eilish', '0991234567', 'Billie.eil@gmail.com', '111222169'),
('333444607', 'Selena', 'Gomez', '0902345678', 'Selena.gom@gmail.com', '111222166'),
('333444608', 'Sam', 'Smith', '0939876543', 'Sam.smi@gmail.com', '111222165'),
('333444609', 'Samina', 'Smith', '0845138264', 'Samina.smi@gmail.com', '111222163'),
('333444618', 'Somjai', 'Rakdee', '0816584588', 'Somjai.rak@gmail.com', '111222165');
```

3. Description = Insert a new status to the Product table the following attributes.
SQL Script:

```sql
INSERT INTO product(prod_id, prod_name, prod_status, prod_description) VALUES
('600000600', 'Spatular', 'S', null),
('600000601', 'Japan rice', 'U', 'Import from Japan'),
('600000603', 'Striky Thai rice', 'S', null),
('600000605', 'Mango', 'U', 'Raw'),
('600000606', 'Jack fruit', 'S', null),
('600000711', 'Beef Meat', 'S', 'AS'),
('600000722', 'Flour', 'S', 'Low glutin for cake baking'),
('600000733', 'Apple', 'U', null),
('600000755', 'Syrup', 'S', null),
('600000800', 'Cocoa', 'S', null),
('600000810', 'Chicken', 'U', 'For meat'),
('600000811', 'Prawns', 'S', NULL),
('600000812', 'Brown Sugar', 'S', 'Organic'),
('600000823', 'Wood table', 'S', null),
('600000825', 'Wood chair', 'S', null),
('600000826', 'Shelf', 'S', 'Stanley'),
('600000827', 'Microsoft license', 'S', null),
('600000834', 'Modern plate set', 'S', '12 plates per set'),
('600000836', 'Matcha Green Tea', 'U', 'Organic'),
('600000841', 'Strawberry', 'S', null),
('600000845', 'Milk', 'S', 'High fat'),
('600000850', 'Hand mixer', 'S', 'Medium size'),
('600000851', 'Industial oven', 'S', '10 years insurance'),
('600000852', 'Industial mixer', 'S', '8 years insurance'),
('610000053', 'Machine caring', 'S', 'checking main machines of central factory'),
('610000061', 'Cleaning service', 'S', 'Cleaning'),
('610000063', 'Survey and explore service', 'S', 'Do a customer survey for marketing'),
('610000065', 'Survey service', 'U', 'Do a customer survey for marketing'),
('610000103', 'Marketing consultant', 'S', 'Consulting for marketing'),
('610000114', 'Bread making expert', 'U', 'Explore new menu of bread'),
('610000134', 'Food scientist', 'S', 'checking main machine of central factory'),
('610000159', 'Business consultant', 'S', 'Consulting for business management'),
('610000168', 'IT consultant', 'U', 'Improving business by using technology'),
('610000169', 'Online Advertisement', 'U', 'Advertising on online platforms'),
('610000199', 'Delivery', 'U', 'Just for a busy day'),
('610000212', 'Mascot', 'S', 'For halloween theme');
```

4. Description = Insert a new status to the Goods table the following attributes.
   SQL Script:

```sql
INSERT INTO goods(prod_id, g_price, g_unit) VALUES
('600000600', '20.00', 'pieces'),
('600000601', '200.00', 'kg'),
('600000603', '160.00', 'kg'),
('600000605', '25.00', 'kg'),
('600000606', '40.00', 'kg'),
('600000711', '990.00', 'kg'),
('600000722', '18.00', 'kg'),
('600000733', '80.00', 'kg'),
('600000755', '45.00', 'bag'),
('600000800', '21.00', 'bag'),
('600000810', '100.00', 'kg'),
('600000811', '420.00', 'kg'),
('600000812', '16.50', 'kg'),
('600000823', '1200.00', 'unit'),
('600000825', '1050.00', 'unit'),
('600000826', '980.00', 'shelf'),
('600000827', '4000.00', 'unit'),
('600000834', '790.00', 'set'),
('600000836', '470.50', 'bag'),
('600000841', '510.00', 'kg'),
('600000845', '55.50', 'gallon'),
('600000850', '2690.00', 'unit'),
('600000851', '85000.00', 'machine'),
('600000852', '67500.00', 'machine');
```

5. Description = Insert a new status to the Services table the following attributes.
SQL Script:

```sql
INSERT INTO services(prod_id, s_wage, s_startdate, s_enddate, s_hour, s_reqprops) VALUES
('610000053', '12000.00' ,'2020-02-19', '2021-02-19', '4.50', 'Having highest standards of safety'),
('610000061', '25000.00' ,'2020-10-13', '2021-10-13', '8.00', 'Ability to work cohesively as part of a team'),
('610000063', '13000.00' ,'2020-08-28', '2021-08-28', NULL, 'Excellent communication and organizational skills'),
('610000065', '15000.00' ,'2020-08-28', '2021-08-28', NULL, 'Excellent communication and organizational skills'),
('610000114', '12000.00' ,'2020-02-03', '2021-02-03', '3.50', 'Attention to quailty of ingredients and products'),
('610000134', '15000.00' ,'2020-12-07', '2021-12-07', '5.00', 'Knowledge and understanding of data science'),
('610000159', '11000.00' ,'2020-03-25', '2021-03-25', '6.00', 'Great communication and interpersonal skills'),
('610000168', '27000.00' ,'2020-01-08', '2021-01-08', NULL, 'Proficiency with database languages'),
('610000169', '18000.00' ,'2020-11-01', '2021-11-01', '8.00', 'Experience working with Facebook Advertising is a plus'),
('610000199', '30000.00' ,'2020-04-11', '2021-04-11', '12.00', 'Experience working with Facebook Advertising is a plus'),
('610000212', '10000.00' ,'2020-03-05', '2021-03-05', NULL, 'Having previous mascot experience in college');
```

6. Description = Insert a new status to the Supplier table the following attributes.
SQL Script:

```sql
INSERT INTO supplier(sup_id, sup_rep, sup_comname, sup_typobus, sup_typoprod, sup_address, sup_description, sup_status, sup_email, sup_phone, sup_rating) VALUES
('555666112', 'Harry Potter', 'Hogwarts Inc.', 'Fruit supplier', 'G', '123/4 Silom road Bangkok 10500', 'ALL famous Thai fruits', 'S', 'Harry.pot@email.com', '0854323231', 4),
('555666113', 'Peter Parker', 'Marvels Co.', 'Bakery Ingredient supplier', 'S', '69/42 Sai Mai road Bangkok 10220', NULL, 'S', 'Peter.par@email.com', '0942526677', 2),
('555666114', 'Angelina Jolie', 'Asus Rice Itd.', 'Rice supplier', 'G', '123/4 Dusit road Bangkok 10300', 'Thai rice or rice from overseas','S','Angelina.jol@email.com', '0849727345', 3),
('555666120', 'Elle Fanning', 'Microsoft Co.', 'Software', 'G', '52/9 Ao Luk road Krabi 81110', 'Necesary programs for business', 'S', 'Elle.fan@email.com', '0928763453', 5),
('555666123', 'Winnie Pooh As', 'The Walt Disney Farm', 'Farm', 'S', '45/6 Pua road Nan 55120', NULL, 'U', 'Winnie.poo@email.com', '0882349899', 5),
('555666213', 'Toy Story', 'Pixar Furnituring Co.', 'Furniture and decoration', 'G', '123/4 Kathu road Phuket 83120', NULL, 'S', 'Toy.sto@email.com', '0918875467', 4),
('555666214', 'Lion King', 'Zimnba Itd.', 'Food science', 'G', '5/192 Phet Kasem road Bangkok 10160', 'Checking quality', 'S', 'Lion.kin@email.com', '0987548342', 1),
('555666220', 'Lily Collins', 'Apple Tool Co.', 'Kitchen tools', 'G', '456/7 Chiang Dao road Chiang Mai 50170', NULL, 'U', 'Lily.col@email.com', '0834427783', 5),
('555666235', 'Troye Sivan', 'Soundcore Inc.', 'Advertising agency company', 'G', '34/35 Omkoi road Chiang 50310', 'Promoting goods and services', 'U', 'Troye.siv@email.com', '0968837920', 5),
('555666251', 'Hermione Granger', 'Industial Mac Inc.', 'Industial Machine for Food Factory ', 'S', '123/4 Silom road Bangkok 10500', NULL, 'S', 'Hermione.gra@email.com', '0958485243', 5);
```

7. Description = Insert a new status to the Purchase Requisition table the following attributes.
SQL Script:

```sql
insert into purchase_requisition(pr_id, pr_date, pr_duedate, pr_shipaddress, pr_note, pr_discount, pr_shipcost, pr_tax, emp_id) values
('196000001', '2019-01-20', '2019-02-05', '7/19 Sathon Rd, Bkk 10120', 'For creating new menu', '5.00', '100.00', '7.00', '333444601'),
('196000002', '2019-01-20', '2019-01-30', '1/11 Sathon Rd, Bkk 10120', null, null, '100.00', null, '333444604'),
('196000006', '2019-02-04', '2019-03-04', 'Sanam Chan Sub-district, Mueang Nakhon Pathom District, Nakhon Pathom 73000', 'urgent!', null, '100.00', '7.00', '333444599'),
('196000020', '2019-05-16', '2019-06-16', 'Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160', null, '10.00', '100.00', null, '333444607'),
('196000150', '2019-06-29', '2019-07-15', 'Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160', null, '15.00', '100.00', null, '333444607'),
('196000174', '2019-07-03', '2019-08-23', 'Central Wongsawang, Wong Sawang, Bang Sue, Bangkok 10800', 'urgent!', null, '100.00', null, '333444603'),
('196000199', '2019-07-25', '2020-08-25', '1804, 1-3 Lat Phrao Rd, Wang Thonglang, Bangkok 10310', null, '5.00', '100.00', '5.00', '333444603'),
('196000201', '2019-02-20', '2019-03-05', '7/19 Sathon Rd, Bkk 10120', 'For creating new menu', '5.00', '100.00', '7.00', '333444601'),
('194400002', '2019-01-20', '2019-01-30', '1/11 Sathon Rd, Bkk 10120', null, null, '100.00', null, '333444604'),
('194400005', '2019-05-04', '2019-07-04', 'Sanam Chan Sub-district, Mueang Nakhon Pathom District, Nakhon Pathom 73000', 'urgent!', null, '100.00', '7.00', '333444599'),
('196700006', '2019-02-16', '2019-03-16', 'Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160', null, '10.00', '100.00', null, '333444607'),
('194400011', '2019-04-29', '2019-05-15', 'Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160', null, '15.00', '100.00', null, '333444607'),
('194400012', '2019-06-03', '2019-06-23', 'Central Wongsawang, Wong Sawang, Bang Sue, Bangkok 10800', 'urgent!', null, '100.00', null, '333444603'),
('194400013', '2019-07-25', '2020-08-25', '1804, 1-3 Lat Phrao Rd, Wang Thonglang, Bangkok 10310', null, '5.00', '100.00', '5.00', '333444603'),
('199100001', '2019-11-01', '2019-12-01', 'Nakhon Pathom Central Factory', 'Important', null, '100.00', '10.00', '333444602'),
('203500036', '2020-08-18', '2020-08-30', '7/19 Sathon Rd, Bkk 10120', null, '12.00', '100.00', null, '333444601'),
('206700084', '2020-09-18', '2020-10-20', 'Nakhon Pathom Central Factory', 'Important', '20.00', '100.00', null, '333444605'),
('206700110', '2020-03-11', '2020-04-11', '59/52 Yaowarat road Bangkok 10110', NULL, '0.00', NULL, '7.00', '333444606'),
('206700112', '2020-04-09', '2020-05-09', '1/129 Mittraphap road Khon Kaen 40000', NULL, '10.00', '70.00', '7.00', '333444603'),
('206700123', '2020-12-23', '2021-01-23', '999/9 Rama I road Bangkok 10330', 'For yearly seminar', '10.00', '20.00', NULL, '333444598'),
('206700156', '2020-12-01', '2021-01-01', '99/21 Baromrajchonnee road Nakhon Pathom 73210', null, NULL, '50.00', NULL, '333444606'),
('206700723', '2020-05-26', '2020-06-26', '999/1 Super Highway road Chiang Mai 50000', null, '10.00', NULL, '7.00', '333444601'),
('206700724', '2020-10-04', '2020-11-04', '199/2 Rattanathibet road Nonthaburi 11140', null, NULL, '40.00', '7.00', '333444605'),
('206700725', '2020-11-29', '2020-12-29', '1027 Phloen Chit road Bangkok 10330', null, NULL, '15.00', NULL, '333444599'),
('206700736', '2020-06-18', '2020-07-18', '206 Khao San road Bangkok 10200', NULL, '10.00', '20.00', '7.00', '333444607'),
('206700740', '2020-09-12', '2020-10-12', '99/99 Chaengwattana road Nonthaburi 11120', NULL, '10.00', '40.00', NULL, '333444604'),
('206700744', '2020-03-20', '2020-04-26', '1518 Kanjanavanich road Songkhla 90110', NULL, '0.00', '50.00', NULL, '333444604'),
('206700745', '2020-03-06', '2020-03-26', 'Nakhon Pathom Central Factory', NULL, '10.00', '50.00', NULL, '333444605'),
('206700767', '2020-05-26', '2020-06-26', 'Sanam Chan Sub-district, Mueang Nakhon Pathom District, Nakhon Pathom 73000', NULL, NULL, '0.00', NULL, '333444599'),
('206700774', '2020-05-26', '2020-06-16', '1518 Kanjanavanich road Songkhla 90110', NULL, '0.00', '5.00', NULL, '333444609'),
('206700775', '2020-11-02', '2020-11-30', '1/129 Mittraphap road Khon Kaen 40000', NULL, '20.00', '7.00', NULL, '333444609'),
('206700800', '2020-09-10', '2020-10-05', 'Nakhon Pathom Central Factory', NULL, '100.00', '50.00', NULL, '333444605'),
('206700801', '2020-09-01', '2020-10-01', '999/1 Super Highway road Chiang Mai 50000', NULL, '10.00', '7.00', NULL, '333444609'),
('206700802', '2020-10-10', '2020-10-30', '1/11 Sathon Rd, Bkk 10120', null, '300.00', '50.00', NULL, '333444604'),
('206700803', '2020-10-12', '2020-10-31', 'Nakhon Pathom Central Factory', null, '5000', '23.50', NULL, '333444605'),
('206700810', '2020-12-01', '2020-12-20', '1/129 Mittraphap road Khon Kaen 40000', null, '60.00', '3.00', NULL, '333444609'),
('206700811', '2020-12-04', '2021-01-09', '999/1 Super Highway road Chiang Mai 50000', null, '0.00', '5.00', NULL, '333444609'),
('206700812', '2020-12-03', '2021-01-10', 'Nakhon Pathom Central Factory', null, null, '15.00', null, '333444605');
```

8. Description = Insert a new status to the Purchase Requisition detail table the following attributes.
   SQL Script:

```sql
insert into purchase_requisition_detail(pr_id, prd_num, prd_budget, prd_quantity, prd_category, prod_id) values
    ('196000001', 1, '500.00', 10, 'Ingredient', '600000810'),
    ('196000001', 2, '1000.00', 4, 'Ingredient', '600000811'),
    ('196000001', 3, '5000.00', 20, 'Ingredient', '600000841'),
    ('196000001', 4, '500.00', 10, 'Ingredient', '600000845'),
    ('196000001', 5, '1000.00', 4, 'Ingredient', '600000836'),
    ('196000001', 6, '5000.00', 20, 'Ingredient', '600000812'),
    ('194400002', 1, '8000.00', 12, 'Kitchen tool', '600000834'),
    ('194400002', 2, '8000.00', 12, 'Kitchen tool', '600000850'),
    ('196700006', 1, '200000.00', 10, 'Furniture', '600000823'),
    ('196700006', 2, '200000.00', 20, 'Furniture', '600000825'),
    ('196700006', 3, '200000.00', 3, 'Furniture', '600000826'),
    ('194400011', 1, '7000.00', 15, 'Ingredient', '600000711'),
    ('194400011', 2, '3000.00', 12, 'Ingredient', '600000810'),
    ('194400011', 3, '7000.00', 10, 'Ingredient', '600000811'),
    ('194400011', 4, '3000.00', 6, 'Ingredient', '600000722'),
    ('194400011', 5, '7000.00', 8, 'Ingredient', '600000755'),
    ('194400011', 6, '3000.00', 4, 'Ingredient', '600000733'),
    ('194400013', 1, '4000.00', 1, 'License', '600000827'),
    ('203500036', 1, '1500.00', 3, 'Ingredient', '600000601'),
    ('203500036', 2, '2500.00', 3, 'Ingredient', '600000603'),
    ('203500036', 3, '2500.00', 30, 'Ingredient', '600000605'),
    ('206700084', 1, '350000.00', 5, 'Machine', '600000851'),
    ('206700084', 2, '400000.00', 10, 'Machine', '600000852'),
    ('206700110', 1, '50000.00', 3, 'Consulting', '610000103'),
    ('206700112', 1, '10000.00', 1, 'External service', '610000061'),
    ('206700123', 1, '30000.00', 1, 'Special guest', '610000114'),
    ('206700123', 2, '300000.00', 1, 'Special guest', '610000134'),
    ('206700156', 1, '5000.00', 20, 'Ingredient', '600000812'),
    ('206700156', 2, '12000.00', 5, 'Ingredient', '600000755'),
    ('206700156', 3, '3000.00', 10, 'Ingredient', '600000800'),
    ('206700156', 4, '9000.00', 12, 'Ingredient', '600000722'),
    ('206700156', 5, '35000.00', 8, 'Ingredient', '600000836'),
    ('206700156', 6, '100000.00', 6, 'Machine', '600000850'),
    ('206700812', 1, '10000.00', 1, 'External service', '610000061');
```

9. Description = Insert a new status to the Purchase order table the following attributes.
   SQL Script:

```sql
insert into purchase_order(po_id, po_date, po_shipaddress, po_note, po_discount, po_deldate, po_shipcost, po_tax, emp_id, sup_id) values
('305600012', '2019-01-23', '1/11 Sathon Rd, Bkk 10120', null, null, '2019-02-01', '100.00', null, '333444608', '555666114'),
('305600013', '2019-01-24', '7/19 Sathon Rd, Bkk 10120', null, null, '2019-02-02', '100.00', null, '333444608', '555666112'),
('305600015', '2019-01-25', '1/11 Sathon Rd, Bkk 10120', null, null, '2019-02-28', '100.00', null, '333444608', '555666220'),
('305600016', '2019-11-02', 'Nakhon Pathom Central Factory', null, null, '2019-12-01', '100.00', null, '333444618', null),
('305600022', '2019-07-27', '1804, 1-3 Lat Phrao Rd, Wang Thonglang, Bangkok 10310', null, null, '2019-08-17', '100.00', null, '333444608', '555666120'),
('305600033', '2020-09-20', 'Nakhon Pathom Central Factory', null, null, '2020-09-30', '100.00', null, '333444608', '555666251'),
('305600044', '2020-02-18', 'Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160', null, null, '2020-03-10', '100.00', null, '333444608', '555666213'),
('305600055', '2020-03-15', '59/52 Yaowarat road Bangkok 10110', null, null, '2020-04-01', '100.00', null, '333444608', null),
('305600066', '2020-04-10', '1/129 Mittraphap road Khon Kaen 40000', null, null, '2020-04-26', '100.00', null, '333444608', '555666235'),
('305600077', '2020-12-02', '99/21 Baromrajchonnee road Nakhon Pathom 73210', null, null, '2020-12-23', '100.00', null, '333444608', '555666220'),
('305600088', '2020-12-24', '999/9 Rama 1 road Bangkok 10330', null, null, '2021-01-08', '100.00', null, '333444608', null),
('305600099', '2019-04-30', 'Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160', null, null, '2019-05-10', '100.00', null, '333444618', '555666113'),
('305600111', '2020-05-27', '999/1 Super Highway road Chiang Mai 50000', null, null, '2020-06-16', '100.00', null, '333444618', '555666251'),
('305600112', '2020-10-04', '199/2 Rattanathibet road Nonthaburi 11140', null, null, '2020-11-04', '100.00', null, '333444608', '555666214'),
('305600113', '2020-11-29', '1027 Phloen Chit road Bangkok 10330', null, null, '2020-12-20', '100.00', null, '333444618', '555666220'),
('305600124', '2020-12-02', '99/21 Baromrajchonnee road Nakhon Pathom 73210', null, null, '2020-12-23', '100.00', null, '333444608', '555666123'),
('305600125', '2020-06-18', '206 Khao San road Bangkok 10200', null, null, '2020-07-18', '100.00', null, '333444618', '555666214'),
('305600133', '2019-08-20', '7/19 Sathon Rd, Bkk 10120', null, null, '2019-09-08', '100.00', null, '333444608', '555666112'),
('305600135', '2020-12-02', '99/21 Baromrajchonnee road Nakhon Pathom 73210', null, null, '2020-12-23', '100.00', null, '333444608', '555666113'),
('305600145', '2019-01-24', '7/19 Sathon Rd, Bkk 10120', null, null, '2019-02-02', '100.00', null, '333444608', '555666123'),
('305600156', '2020-09-12', '99/99 Chaengwattana road Nonthaburi 11120', null, null, '2020-10-12', '100.00', null, '333444618', '555666113'),
('305600167', '2020-03-20', '1518 Kanjanavanich road Songkhla 90110', null, null, '2020-04-26', '100.00', null, '333444618', '555666112'),
('305600178', '2020-03-06', 'Nakhon Pathom Central Factory', null, null, '2020-03-26', '100.00', null, '333444618', '555666213'),
('305600189', '2020-05-26', 'Sanam Chan Sub-district, Mueang Nakhon Pathom District, Nakhon Pathom 73000', null, null, '2020-06-26', '100.00', null, '333444608', null),
('305600201', '2020-05-26', '1518 Kanjanavanich road Songkhla 90110', null, null, '2020-06-16', '100.00', null, '333444618', '555666114'),
('305600211', '2020-11-02', '1/129 Mittraphap road Khon Kaen 40000', null, null, '2020-11-30', '100.00', null, '333444608', '555666213'),
('305600222', '2020-09-10', 'Nakhon Pathom Central Factory', null, null, '2020-10-05', '100.00', null, '333444618', null),
('305600234', '2020-09-01', '999/1 Super Highway road Chiang Mai 50000', null, null, '2020-10-01', '100.00', null, '333444608', '555666220'),
('305600235', '2020-10-10', '1/11 Sathon Rd, Bkk 10120', null, null, '2020-10-30', '100.00', null, '333444618', '555666113'),
('305600238', '2020-10-12', 'Nakhon Pathom Central Factory', null, null, '2020-10-31', '100.00', null, '333444608', null),
('305600239', '2020-12-01', '1/129 Mittraphap road Khon Kaen 40000', null, null, '2020-12-20', '100.00', null, '333444608', '555666114'),
('305600255', '2020-12-03', 'Nakhon Pathom Central Factory', null, null, '2021-01-10', '100.00', null, '333444618', null);
```

10. Description = Insert a new status to the Purchase order detail table the following attributes.
    SQL Script:

```sql
insert into purchase_order_detail(po_id, pod_num, pod_quantity, pod_price, pr_id, prd_num) values
('305600013', 1, 10, '500.00', '196000001', 1),
('305600013', 2, 4, '1000.00', '196000001', 2),
('305600013', 3, 20, '5000.00', '196000001', 3),
('305600013', 4, 10, '500.00', '196000001', 4),
('305600015', 1, 10, '7000.00', '194400002', 1),
('305600015', 2, 10, '7000.00', '194400002', 2),
('305600022', 1, 1, '3950.00', '194400013', 1),
('305600033', 1, 5, '320000.00', '206700084', 1),
('305600033', 2, 10, '400000.00', '206700084', 2),
('305600044', 1, 10, '200000.00', '196700006', 1),
('305600044', 2, 20, '200000.00', '196700006', 2),
('305600055', 1, 3, '50000.00', '206700110', 1),
('305600066', 1, 1, '10000.00', '206700112', 1),
('305600077', 1, 6, '100000.00', '206700156', 6),
('305600088', 1, 1, '30000.00', '206700123', 1),
('305600088', 2, 1, '30000.00', '206700123', 2),
('305600099', 1, 15, '6500.00', '194400011', 1),
('305600099', 2, 10, '7000.00', '194400011', 3),
('305600099', 3, 6, '2250.00', '194400011', 4),
('305600099', 4, 8, '7000.00', '194400011', 5),
('305600099', 5, 4, '3000.00', '194400011', 6),
('305600124', 1, 20, '5000.00', '206700156', 1),
('305600133', 1, 3, '1500.00', '203500036', 1),
('305600133', 2, 3, '2500.00', '203500036', 2),
('305600133', 3, 3, '2500.00', '203500036', 3),
('305600135', 1, 5, '10000.00', '206700156', 2),
('305600135', 2, 10, '2800.00', '206700156', 3),
('305600135', 3, 12, '9000.00', '206700156', 4),
('305600135', 4, 8, '30800.00', '206700156', 5),
('305600145', 1, 4, '1000.00', '196000001', 5),
('305600145', 2, 20, '4800.00', '196000001', 6);
```

11. Description = Update a new status to the Supplier table the following attributes.
    SQL Script:

```sql
-- -------------------------- UPDATE -- --------------------------
UPDATE supplier
SET sup_address = 'Sukhumvit 53 Alley, Khlong Tan Nuea, Watthana, Bangkok 10110'
WHERE sup_id = '555666235';
```

12. Description = Delete a new status to the Product table the following attributes.
    SQL Script:

```sql
-- -------------------------- DELECT -- --------------------------
DELETE FROM services WHERE prod_id = '610000065';
DELETE FROM product WHERE prod_id = '610000065';
```

Basic Queries

1. Find the employee who works at Department's ID `111222161`.The result must contain 2 columns 1 row: `dep_id, dep_name`.

```
SELECT dep_id, CONCAT(emp_fname,' ',emp_lname) AS emp_name
FROM employee
WHERE dep_id = '111222161';
```

dep_id	emp_name
111222161	Ariana Grande

2. List all suppliers who rating the supplier 5. The result must consist of `sup_id, sup_rep, sup_comname`, and `sup_rating`. Expected 4 attributes, 7 rows.

```
SELECT sup_id, sup_rep, sup_comname, sup_rating FROM supplier
WHERE sup_rating >= 4;
```

sup_id	sup_rep	sup_comname	sup_rating
555666112	Harry Potter	Hogwarts Inc.	4
555666120	Elle Fanning	Microsoft Co.	5
555666123	Winnie Pooh As	The Walt Disney Farm	5
555666213	Toy Story	Pixar Furnituring Co.	4
555666220	Lily Collins	Apple Tool Co.	5
555666235	Troye Sivan	Soundcore Inc.	5
555666251	Hermione Granger	Industial Mac Inc.	5

3. Find the department name "Production". The result must contain 2 columns 3 row: `dep_id, dep_name`.

```
SELECT dep_id, dep_name
FROM department
WHERE dep_name IN ('Production', 'Sales', 'Quality Control', 'Information Technology');
```

dep_id	dep_name
111222163	Sales
111222166	Production
111222168	Quality Control

4. Find all suppliers who have a `sup_status` 'S'. The result must contain 9 columns: Supplier's ID, Supplier's representative name, Supplier's company name, Supplier's type of business, Supplier's type of products, Supplier's address, Supplier's description (`sup_id, sup_rep, sup_comname, sup_typobus, sup_typoprod, sup_address` and `sup_description`). Expected 4 attributes, 7 rows.

```sql
SELECT sup_id, sup_typoprod, sup_comname, sup_email FROM supplier
WHERE sup_status = 'S' AND sup_description IS NOt NULL;
```

sup_id	sup_typoprod	sup_comname	sup_email
555666112	G	Hogwarts Inc.	Harry.pot@email.com
555666113	S	Marvels Co.	Peter.par@email.com
555666114	G	Asus Rice Itd.	Angelina.jol@email.com
555666120	G	Microsoft Co.	Elle.fan@email.com
555666213	G	Pixar Furnituring Co.	Toy.sto@email.com
555666214	G	Zimnba Itd.	Lion.kin@email.com
555666251	S	Industial Mac Inc.	Hermione.gra@email.com

5. Find the Department's ID `111222167 or 111222164`. The result must contain 2 columns: `dep_id` and `dep_name`.

```sql
SELECT dep_id, dep_name
FROM department
WHERE dep_id = '111222167' OR dep_id = '111222164';
```

dep_id	dep_name
111222164	Marketing
111222167	Human Resources

6. Find top 5 the Purchase order detail's quantity. The result must contain 4 columns: `po_id, pod_num, pod_quantity, pod_price.`, sort by smallest purchase order detail's quantity to biggest purchase order detail's quantity.

```sql
SELECT po_id, pod_num, pod_quantity, pod_price
FROM purchase_order_detail
ORDER BY pod_quantity ASC
LIMIT 5;
```

po_id	pod_num	pod_quantity	pod_price
305600088	1	1	30000.00
305600022	1	1	3950.00
305600088	2	1	30000.00
305600066	1	1	10000.00
305600055	1	3	50000.00

7. Display Purchase requisition's ID and Purchase requisition's date sorted by the most recent year/month/date. The result must contain 2 columns: `pr_id, pr_date.`

```sql
SELECT pr_id, pr_date
FROM purchase_requisition
WHERE YEAR(pr_date) < 2020
ORDER BY pr_date DESC;
```

pr_id	pr_date
199100001	2019-11-01
194400013	2019-07-25
196000199	2019-07-25
196000174	2019-07-03
196000150	2019-06-29
194400012	2019-06-03
196000020	2019-05-16
194400005	2019-05-04
194400011	2019-04-29
196000201	2019-02-20
196700006	2019-02-16
196000006	2019-02-04
194400002	2019-01-20
196000001	2019-01-20
196000002	2019-01-20

8. Find all products where product status is 'U', The result must contain 2 columns: `prod_id`, and `prod_name`.

```sql
SELECT prod_id, prod_name FROM product
WHERE prod_status = 'U';
```

prod_id	prod_name
600000601	Japan rice
600000605	Mango
600000733	Apple
600000810	Chicken
600000836	Matcha Green Tea
610000114	Bread making expert
610000168	IT consultant
610000169	Online Advertisement
610000199	Delivery

9. Find the supplier whose Supplier's status is 'S' and Supplier's rating is more than 3. The result must contain 3 columns: `sup_id`, `sup_status`, `sup_rating`.

```sql
SELECT sup_id, sup_status, sup_rating
FROM supplier
WHERE sup_status = 'S' AND sup_rating > 3;
```

sup_id	sup_status	sup_rating
555666112	S	4
555666120	S	5
555666213	S	4
555666251	S	5

10. Find the Purchase order detail's quantity less than 5. The result must contain 4 columns: `po_id, pod_num, pod_quantity, pod_price`.

```sql
SELECT po_id, pod_num, pod_quantity, pod_price
FROM purchase_order_detail
WHERE pod_quantity < 5;
```

po_id	pod_num	pod_quantity	pod_price
305600013	2	4	1000.00
305600022	1	1	3950.00
305600055	1	3	50000.00
305600066	1	1	10000.00
305600088	1	1	30000.00
305600088	2	1	30000.00
305600099	5	4	3000.00
305600133	1	3	1500.00
305600133	2	3	2500.00
305600133	3	3	2500.00
305600145	1	4	1000.00

11. Find number of all requested quantity for each product category. The result must contain 2 columns 8 rows: `prd_category,` and `all request quantity`.

```sql
SELECT prd_category, COUNT(prd_quantity) AS 'all request quantity'
FROM purchase_requisition_detail
GROUP by prd_category
order by pr_id ASC;
```

prd_category	all request quantity
Kitchen tool	2
Ingredient	20
License	1
Furniture	3
Machine	3
Consulting	1
External service	2
Special guest	2

12. Find purchase requisition without any details percentage of tax is 0 and Purchase requisition's shipping cost more than 40. The result must contain 3 columns: `pr_id`, `pr_shipcost`, `pr_tax`.

```sql
SELECT pr_id, pr_shipcost, pr_tax
FROM purchase_requisition
WHERE pr_note IS NULL AND pr_tax IS NOT NULL AND pr_shipcost > 40;
```

pr_id	pr_shipcost	pr_tax
194400013	100.00	5.00
196000199	100.00	5.00
206700112	70.00	7.00

13. Find Purchase requisition detail's number, Purchase requisition detail's budget, Purchase requisition detail's quantity, Purchase requisition detail's category which the Purchase requisition detail's category is "Ingredient". The result must contain 4 columns 20 rows: `prd_num`, `prd_budget`, `prd_quantity`, and `prd_category`.

```sql
SELECT pr_id, prd_num, prd_budget, prd_quantity, prd_category
FROM purchase_requisition_detail
WHERE prd_category = 'Ingredient';
```

pr_id	prd_num	prd_budget	prd_quantity	prd_category
194400011	1	7000.00	15	Ingredient
194400011	2	3000.00	12	Ingredient
194400011	3	7000.00	10	Ingredient
194400011	4	3000.00	6	Ingredient
194400011	5	7000.00	8	Ingredient
194400011	6	3000.00	4	Ingredient
196000001	1	500.00	10	Ingredient
196000001	2	1000.00	4	Ingredient
196000001	3	5000.00	20	Ingredient
196000001	4	500.00	10	Ingredient
196000001	5	1000.00	4	Ingredient
196000001	6	5000.00	20	Ingredient
203500036	1	1500.00	3	Ingredient
203500036	2	2500.00	3	Ingredient
203500036	3	2500.00	30	Ingredient
206700156	1	5000.00	20	Ingredient
206700156	2	12000.00	5	Ingredient
206700156	3	3000.00	10	Ingredient
206700156	4	9000.00	12	Ingredient
206700156	5	35000.00	8	Ingredient

14. Find all employees whose first names begin with "a". The result must contain 3 columns 3 rows: `emp_id, emp_fname` and `emp_lname` (display name with capital letters).

```
SELECT emp_id, UPPER(emp_fname), UPPER(emp_lname)
FROM employee
WHERE emp_fname LIKE 'A%';
```

emp_id	UPPER(emp_fname)	UPPER(emp_lname)
333444598	ARIANA	GRANDE
333444604	ANDY	WILLIAMS

15. Find the product id, name which product name begins with the letter 'M'. The result must contain 2 columns 8 rows: `prod_id` and `prod_name`.

```
SELECT prod_id, prod_name
FROM product
WHERE prod_name LIKE 'M%';
```

prod_id	prod_name
600000605	Mango
600000827	Microsoft license
600000834	Modern plate set
600000836	Matcha Green Tea
600000845	Milk
610000053	Machine caring
610000103	Marketing consultant
610000212	Mascot

16. List product category, id and name with lowercase letters in purchase requisition. The result must contain 4 columns 34 rows: `pr_id, pr_category, prod_id` and `prod_name`.

```sql
SELECT pr_id, prd_category, prod.prod_id, LOWER(prod_name)
FROM purchase_requisition_detail prd
INNER JOIN product prod ON prd.prod_id = prod.prod_id
ORDER BY prd_category ASC;
```

pr_id	prd_category	prod_id	LOWER(prod_name)
206700110	Consulting	610000103	marketing consultant
206700812	External service	610000061	cleaning service
206700112	External service	610000061	cleaning service
196700006	Furniture	600000823	wood table
196700006	Furniture	600000825	wood chair
196700006	Furniture	600000826	shelf
194400011	Ingredient	600000711	beef meat
194400011	Ingredient	600000810	chicken
194400011	Ingredient	600000811	prawns
194400011	Ingredient	600000722	flour
194400011	Ingredient	600000755	syrup
194400011	Ingredient	600000733	apple
196000001	Ingredient	600000810	chicken
196000001	Ingredient	600000811	prawns
196000001	Ingredient	600000841	strawberry
196000001	Ingredient	600000845	milk
203500036	Ingredient	600000601	japan rice
203500036	Ingredient	600000603	striky thai rice
203500036	Ingredient	600000605	mango
196000001	Ingredient	600000812	brown sugar
196000001	Ingredient	600000836	matcha green tea
206700156	Ingredient	600000812	brown sugar
206700156	Ingredient	600000755	syrup
206700156	Ingredient	600000800	cocoa
206700156	Ingredient	600000722	flour
206700156	Ingredient	600000836	matcha green tea
194400002	Kitchen tool	600000850	hand mixer
194400002	Kitchen tool	600000834	modern plate set
194400013	License	600000827	microsoft license
206700084	Machine	600000851	industial oven
206700084	Machine	600000852	industial mixer
206700156	Machine	600000850	hand mixer
206700123	Special guest	610000114	bread making expert
206700123	Special guest	610000134	food scientist

17. Find the employee purchase requisition id, shipping address where shipping in Bkk. The result must contain 2 columns 10 rows : `pr_id, pr_shipaddress`.

```sql
SELECT pr_id, pr_shipaddress
FROM purchase_requisition
WHERE pr_shipaddress LIKE '%Bkk%';
```

pr_id	pr_shipaddress
194400002	1/11 Sathon Rd, Bkk 10120
194400011	Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160
196000001	7/19 Sathon Rd, Bkk 10120
196000002	1/11 Sathon Rd, Bkk 10120
196000020	Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160
196000150	Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160
196000201	7/19 Sathon Rd, Bkk 10120
196700006	Petchkasem Rd, Lak Song, Bang Khae, Bkk 10160
203500036	7/19 Sathon Rd, Bkk 10120
206700802	1/11 Sathon Rd, Bkk 10120

Advanced Queries

1. Find the number of requirements for each employee. The result must contain 4 columns 10 rows: `emp_id`, `emp_name` (display with full name and capital letters), `dep_name` and `number of requirements`.

```sql
SELECT pr.emp_id, UPPER(CONCAT(emp_fname,' ',emp_lname)) AS emp_name, dep_name, COUNT(pr.pr_id) as 'number of requirements'
FROM purchase_requisition pr
INNER JOIN employee e ON pr.emp_id = e.emp_id
INNER JOIN department d ON e.dep_id = d.dep_id
GROUP BY pr.emp_id;
```

emp_id	emp_name	dep_name	number of requirements
333444598	ARIANA GRANDE	Account	1
333444604	ANDY WILLIAMS	Finance	5
333444599	JUSTIN BIEBER	Sales	4
333444609	SAMINA SMITH	Sales	5
333444603	TRAVIS SCOTT	Marketing	5
333444601	HARRY STYLES	Production	4
333444605	TAYLOR SWIFT	Production	6
333444607	SELENA GOMEZ	Production	5
333444606	BILLIE EILISH	Research and Develop	2
333444602	JEREMY ZUCKER	Information Technolo	1

2. List all names, ID, and descriptions of goods and services whose statuses are selected.

```sql
SELECT prod_name AS 'name', g.prod_id AS ID, prod_description AS 'description'
FROM goods g
LEFT OUTER JOIN product prod ON g.prod_id = prod.prod_id
WHERE prod_status = 'S' AND prod_description IS NOT NULL
UNION ALL
SELECT prod_name AS 'name', s.prod_id AS ID, prod_description AS 'description'
FROM services s
LEFT OUTER JOIN product prod ON s.prod_id = prod.prod_id
WHERE prod_status = 'S' AND prod_description IS NOT NULL;
```

name	ID	description
Beef Meat	600000711	A5
Flour	600000722	Low glutin for cake baking
Brown Sugar	600000812	Organic
Shelf	600000826	Stanley
Modern plate set	600000834	12 plates per set
Milk	600000845	High fat
Hand mixer	600000850	Medium size
Industial oven	600000851	10 years insurance
Industial mixer	600000852	8 years insurance
Machine caring	610000053	checking main machines of central factory
Cleaning service	610000061	Cleaning
Survey and expl...	610000063	Do a customer survey for marketing
Food scientist	610000134	checking main machine of central factory
Business consult...	610000159	Consulting for business management
Mascot	610000212	For halloween theme

3. Find the number of requirements for each department. The result must contain 2 columns 7 rows: `dep_id` and `number of requirements`.

```sql
SELECT dep_name, COUNT(pr.pr_id) as 'number of requirements'
FROM purchase_requisition pr
INNER JOIN employee e ON pr.emp_id = e.emp_id
INNER JOIN department d ON e.dep_id = d.dep_id
GROUP BY d.dep_id;
```

dep_name	number of requirements
Account	1
Finance	5
Sales	9
Marketing	5
Production	15
Research and Develop	2
Information Technolo	1

4. Find max of product quantity in each category. The result must contain 5 columns 8 rows: `prd_category`, `emp_id`, `dep_name`, `max(prd_quantity)` and `prd_id`.

```
select prd_category, pr.emp_id, d.dep_name, max(prd_quantity), prd.prod_id
from purchase_requisition_detail prd
LEFT OUTER JOIN purchase_requisition pr ON prd.pr_id = pr.pr_id
LEFT OUTER JOIN product p ON p.prod_id = prd.prod_id
LEFT OUTER JOIN employee e ON pr.emp_id = e.emp_id
LEFT OUTER JOIN department d ON e.dep_id = d.dep_id
GROUP BY prd_category;
```

prd_category	emp_id	dep_name	max(prd_quantity)	prod_id
Kitchen tool	333444604	Finance	12	600000834
Ingredient	333444607	Production	30	600000711
License	333444603	Marketing	1	600000827
Furniture	333444607	Production	20	600000823
Machine	333444605	Production	10	600000851
Consulting	333444606	Research and Develop	3	610000103
External service	333444603	Marketing	1	610000061
Special guest	333444598	Account	1	610000114

5. Display employee id and name, department name, purchase requisition detail number, and purchase requisition ID of purchase requisition that contains at least 1 purchase requisition detail but does not be written as purchase requisition order detail. The result must contain 6 columns 1 row: `emp_id, emp_name, dep_name, pr_id` and `prd_category`.

```
SELECT pr.emp_id, CONCAT(emp_fname,' ',emp_lname) AS emp_name, dep_name, prd.pr_id, prd.prd_num, prd.prd_category
FROM purchase_requisition_detail prd
INNER JOIN purchase_requisition pr ON prd.pr_id = pr.pr_id
INNER JOIN employee e ON pr.emp_id = e.emp_id
INNER JOIN department d ON e.dep_id = d.dep_id
WHERE prd.pr_id NOT IN (SELECT pod.pr_id FROM purchase_order_detail pod);
```

emp_id	emp_name	dep_name	pr_id	prd_num	prd_category
333444605	Taylor Swift	Production	206700812	1	External service

6. List po_id, pod_num, delivery date, product IDs and name, supplier IDs and company name of suppliers that have to deliver the products before '2019-08-01'.

```sql
SELECT pod.po_id, pod.pod_num, po.po_deldate, prd.prod_id, p.prod_name, po.sup_id, s.sup_comname
FROM purchase_order po
INNER JOIN purchase_order_detail pod ON pod.po_id = po.po_id
LEFT OUTER JOIN purchase_requisition_detail prd ON pod.pr_id = prd.pr_id AND pod.prd_num = prd.prd_num
LEFT OUTER JOIN product p ON prd.prod_id = p.prod_id
LEFT OUTER JOIN supplier s ON po.sup_id = s.sup_id
WHERE date(po.po_deldate) < '2019-08-01';
```

po_id	pod_num	po_deldate	prod_id	prod_name	sup_id	sup_comname
305600015	1	2019-02-28	600000834	Modern plate set	555666220	Apple Tool Co.
305600015	2	2019-02-28	600000850	Hand mixer	555666220	Apple Tool Co.
305600099	1	2019-05-10	600000711	Beef Meat	555666113	Marvels Co.
305600099	2	2019-05-10	600000811	Prawns	555666113	Marvels Co.
305600099	3	2019-05-10	600000722	Flour	555666113	Marvels Co.
305600099	4	2019-05-10	600000755	Syrup	555666113	Marvels Co.
305600099	5	2019-05-10	600000733	Apple	555666113	Marvels Co.
305600013	1	2019-02-02	600000810	Chicken	555666112	Hogwarts Inc.
305600013	2	2019-02-02	600000811	Prawns	555666112	Hogwarts Inc.
305600013	3	2019-02-02	600000841	Strawberry	555666112	Hogwarts Inc.
305600013	4	2019-02-02	600000845	Milk	555666112	Hogwarts Inc.
305600145	1	2019-02-02	600000836	Matcha Green Tea	555666123	The Walt Disn...
305600145	2	2019-02-02	600000812	Brown Sugar	555666123	The Walt Disn...

7. Display all purchase order ID, name of product, product ID, pod_price and prd_budget that the actual price exceeds purchase requisition budget of each product.

```sql
SELECT pod.po_id, pod.pod_num, prod_name, prd.prod_id, pod_price, prd_budget
FROM purchase_order_detail pod
LEFT OUTER JOIN purchase_requisition_detail prd ON pod.pr_id = prd.pr_id AND pod.prd_num = prd.prd_num
LEFT OUTER JOIN product p ON prd.prod_id = p.prod_id
HAVING pod_price = prd_budget;
```

po_id	pod_num	prod_name	prod_id	pod_price	prd_budget
305600013	1	Chicken	600000810	500.00	500.00
305600013	2	Prawns	600000811	1000.00	1000.00
305600013	3	Strawberry	600000841	5000.00	5000.00
305600013	4	Milk	600000845	500.00	500.00
305600033	2	Industial mixer	600000852	400000.00	400000.00
305600044	1	Wood table	600000823	200000.00	200000.00
305600044	2	Wood chair	600000825	200000.00	200000.00
305600055	1	Marketing consultant	610000103	50000.00	50000.00
305600066	1	Cleaning service	610000061	10000.00	10000.00
305600077	1	Hand mixer	600000850	100000.00	100000.00
305600088	1	Bread making expert	610000114	30000.00	30000.00
305600099	2	Prawns	600000811	7000.00	7000.00
305600099	4	Syrup	600000755	7000.00	7000.00
305600099	5	Apple	600000733	3000.00	3000.00
305600124	1	Brown Sugar	600000812	5000.00	5000.00
305600133	1	Japan rice	600000601	1500.00	1500.00
305600133	2	Striky Thai rice	600000603	2500.00	2500.00
305600133	3	Mango	600000605	2500.00	2500.00
305600135	3	Flour	600000722	9000.00	9000.00
305600145	1	Matcha Green Tea	600000836	1000.00	1000.00

8. Find all the names of products and the employees who request for purchase requisition whose budgets are equal or greater than the average budget of each category. Sort the result by category alphabetically.

```sql
SELECT prod_name, emp_id, prd_category, prd_budget
FROM purchase_requisition_detail prd1
INNER JOIN purchase_requisition pr ON prd1.pr_id = pr.pr_id
INNER JOIN product p ON prd1.prod_id = p.prod_id
WHERE prd1.prd_budget >= (SELECT AVG(prd_budget) FROM purchase_requisition_detail prd2
        WHERE prd1.prd_category = prd2.prd_category GROUP BY prd2.prd_category)
ORDER BY prd_category ASC;
```

prod_name	emp_id	prd_category	prd_budget
Marketing consultant	333444606	Consulting	50000.00
Cleaning service	333444603	External service	10000.00
Cleaning service	333444605	External service	10000.00
Wood table	333444607	Furniture	200000.00
Wood chair	333444607	Furniture	200000.00
Shelf	333444607	Furniture	200000.00
Beef Meat	333444607	Ingredient	7000.00
Prawns	333444607	Ingredient	7000.00
Syrup	333444607	Ingredient	7000.00
Syrup	333444606	Ingredient	12000.00
Flour	333444606	Ingredient	9000.00
Matcha Green Tea	333444606	Ingredient	35000.00
Modern plate set	333444604	Kitchen tool	8000.00
Hand mixer	333444604	Kitchen tool	8000.00
Microsoft license	333444603	License	4000.00
Industial oven	333444605	Machine	350000.00
Industial mixer	333444605	Machine	400000.00
Food scientist	333444598	Special guest	300000.00

9. Find the names of employees who request for the maximum budget of each category by displaying category, maximum budget, employee name, and department name. Sort the result by maximum budget in descending order.

```sql
SELECT prd_category, MAX(prd_budget), CONCAT(emp_fname,' ',emp_lname) AS emp_name, dep_name
FROM purchase_requisition_detail prd
INNER JOIN purchase_requisition pr ON prd.pr_id = pr.pr_id
INNER JOIN employee e ON pr.emp_id = e.emp_id
INNER JOIN department d ON e.dep_id = d.dep_id
group by prd_category
ORDER BY MAX(prd_budget) DESC;
```

prd_category	MAX(prd_budget)	emp_name	dep_name
Machine	400000.00	Taylor Swift	Production
Special guest	300000.00	Ariana Grande	Account
Furniture	200000.00	Selena Gomez	Production
Consulting	50000.00	Billie Eilish	Research and Develop
Ingredient	35000.00	Harry Styles	Production
External service	10000.00	Travis Scott	Marketing
Kitchen tool	8000.00	Andy Williams	Finance
License	4000.00	Travis Scott	Marketing

10. List all the suppliers who are in Bangkok but have to deliver the purchase order to the addresses that are not in Bangkok by displaying po.sup_id, sup_address, po.po_id, pod_num, prod_id, and po_shipaddress. Sort the result by po_id alphabetically.

```sql
SELECT po.sup_id, sup_address, po.po_id, pod_num, prod_id, po_shipaddress
FROM purchase_order po
INNER JOIN purchase_order_detail pod ON po.po_id = pod.po_id
INNER JOIN purchase_requisition_detail prd ON pod.pr_id = prd.pr_id AND pod.prd_num = prd.prd_num
INNER JOIN supplier s ON po.sup_id = s.sup_id
WHERE (sup_address LIKE '%Bkk%' OR sup_address LIKE '%Bangkok%') AND po_shipaddress NOT IN (SELECT po_shipaddress FROM purchase_order
        WHERE po_shipaddress LIKE '%Bkk%' OR po_shipaddress LIKE '%Bangkok%')
ORDER BY po_id ASC;
```

sup_id	sup_address	po_id	pod_num	prod_id	po_shipaddress
555666251	123/4 Silom road Bangkok 10500	305600033	1	600000851	Nakhon Pathom Central Factory
555666251	123/4 Silom road Bangkok 10500	305600033	2	600000852	Nakhon Pathom Central Factory
555666235	Sukhumvit 53 Alley, Khlong Tan Nuea, Watthan...	305600066	1	610000061	1/129 Mittraphap road Khon Kaen 40000
555666113	69/42 Sai Mai road Bangkok 10220	305600135	1	600000755	99/21 Baromrajchonnee road Nakhon Pathom 7...
555666113	69/42 Sai Mai road Bangkok 10220	305600135	2	600000800	99/21 Baromrajchonnee road Nakhon Pathom 7...
555666113	69/42 Sai Mai road Bangkok 10220	305600135	3	600000722	99/21 Baromrajchonnee road Nakhon Pathom 7...
555666113	69/42 Sai Mai road Bangkok 10220	305600135	4	600000836	99/21 Baromrajchonnee road Nakhon Pathom 7...

11. Display employee id, employee name, supplier company, and purchase order id that have no purchase order tax and the purchase order address is in Bangkok.

```sql
SELECT po.emp_id, CONCAT(emp_fname,' ',emp_lname) AS emp_name, sup_comname, po_shipcost, po_shipaddress, sup_address
FROM purchase_order po
INNER JOIN supplier s ON po.sup_id = s.sup_id
INNER JOIN employee e ON po.emp_id = e.emp_id
WHERE po_shipcost = '0.00'  AND (po_shipaddress LIKE '%Bkk%' OR po_shipaddress LIKE '%Bangkok%');
```

emp_id	emp_name	sup_comname	po_shipcost	po_shipaddress	sup_address
333444608	Sam Smith	The Walt Disney Farm	0.00	7/19 Sathon Rd, Bkk 10120	45/6 Pua road Nan 55120

12. Find the list of purchase orders that already have a supplier but have no purchase order details yet. Display po_id, sup_id, sup_comname, emp_id, and dep_name of who wrote these purchase orders. Sort the result by po_id in ascending order.

```sql
SELECT DISTINCT po_id, s.sup_id, sup_comname, po.emp_id, dep_name
FROM purchase_order po
LEFT OUTER JOIN supplier s ON po.sup_id = s.sup_id
LEFT OUTER JOIN employee e ON po.emp_id = e.emp_id
LEFT OUTER JOIN department d ON e.dep_id = d.dep_id
WHERE po.sup_id IS NOT NULL AND po_id NOT IN (SELECT DISTINCT po_id FROM purchase_order_detail)
ORDER BY po_id ASC;
```

po_id	sup_id	sup_comname	emp_id	dep_name
305600012	555666114	Asus Rice Itd.	333444608	Procurement
305600111	555666251	Industial Mac Inc.	333444618	Procurement
305600112	555666214	Zimnba Itd.	333444608	Procurement
305600113	555666220	Apple Tool Co.	333444618	Procurement
305600125	555666214	Zimnba Itd.	333444618	Procurement
305600156	555666113	Marvels Co.	333444618	Procurement
305600167	555666112	Hogwarts Inc.	333444618	Procurement
305600178	555666213	Pixar Furnituring Co.	333444618	Procurement
305600201	555666114	Asus Rice Itd.	333444618	Procurement
305600211	555666213	Pixar Furnituring Co.	333444608	Procurement
305600234	555666220	Apple Tool Co.	333444608	Procurement
305600235	555666113	Marvels Co.	333444618	Procurement
305600239	555666114	Asus Rice Itd.	333444608	Procurement

13. List all goods and services that were not supplied or ordered from any supplier. The result must contain 3 columns 9 rows: `prod_id, prod_name` and `prod_description`.

```sql
SELECT p.prod_id, prod_name, prod_description
FROM goods g
LEFT OUTER JOIN product p ON p.prod_id = g.prod_id
LEFT OUTER JOIN services s ON p.prod_id = s.prod_id
LEFT OUTER JOIN purchase_requisition_detail prd ON p.prod_id = prd.prod_id
WHERE prd.pr_id IS NULL
UNION ALL
SELECT p.prod_id, prod_name, prod_description
FROM services s
LEFT OUTER JOIN product p ON p.prod_id = s.prod_id
LEFT OUTER JOIN purchase_requisition_detail prd ON p.prod_id = prd.prod_id
WHERE prd.pr_id IS NULL;
```

prod_id	prod_name	prod_description
600000600	Spatular	NULL
600000606	Jack fruit	NULL
610000053	Machine caring	checking main machines of central factory
610000063	Survey and explore s	Do a customer survey for marketing
610000159	Business consultant	Consulting for business management
610000168	IT consultant	Improving business by using technology
610000169	Online Advertisement	Advertising on online platforms
610000199	Delivery	Just for a busy day
610000212	Mascot	For halloween theme

14. List all purchase requisitions that were required in a particular year, but they will be delivered from the supplier in next year. The result must contain 5 columns 7 rows: `pr_id, pr_date, po_id, pod_num` and `po_deldate`.

```sql
SELECT pr.pr_id, pr_date, po.po_id, pod.pod_num, po_deldate
FROM purchase_requisition pr
INNER JOIN purchase_requisition_detail prd ON pr.pr_id = prd.pr_id
INNER JOIN purchase_order_detail pod ON prd.pr_id = pod.pr_id AND prd.prd_num = pod.prd_num
INNER JOIN purchase_order po ON pod.po_id = po.po_id
WHERE year(pr.pr_date) - year(po.po_deldate) <> 0 ;
```

pr_id	pr_date	po_id	pod_num	po_deldate
196700006	2019-02-16	305600044	1	2020-03-10
196700006	2019-02-16	305600044	2	2020-03-10
203500036	2020-08-18	305600133	1	2019-09-08
203500036	2020-08-18	305600133	2	2019-09-08
203500036	2020-08-18	305600133	3	2019-09-08
206700123	2020-12-23	305600088	1	2021-01-08
206700123	2020-12-23	305600088	2	2021-01-08

15. Find the supplier that never supplies any products for the production department by showing `sup_id, sup_rep, sup_comname, and sup_description.` of each supplier.

```sql
SELECT sup_id, sup_rep, sup_comname, sup_description
FROM supplier
WHERE sup_id NOT IN (SELECT DISTINCT s.sup_id FROM supplier s
                LEFT OUTER JOIN purchase_order po ON s.sup_id = po.sup_id
                LEFT OUTER JOIN purchase_order_detail pod ON po.po_id = pod.po_id
                LEFT OUTER JOIN purchase_requisition_detail prd ON prd.pr_id = pod.pr_id AND prd.prd_num = pod.prd_num
                LEFT OUTER JOIN purchase_requisition pr ON prd.pr_id = pr.pr_id
                LEFT OUTER JOIN employee e ON pr.emp_id = e.emp_id
                LEFT OUTER JOIN department d ON e.dep_id = d.dep_id
                WHERE d.dep_id = '111222166');
```

sup_id	sup_rep	sup_comname	sup_description
555666114	Angelina Jolie	Asus Rice Itd.	Thai rice or rice from overseas
555666120	Elle Fanning	Microsoft Co.	Necesary programs for business
555666214	Lion King	Zimnba Itd.	Checking quality
555666220	Lily Collins	Apple Tool Co.	
555666235	Troye Sivan	Soundcore Inc.	Promoting goods and services

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https://www.purchasecontrol.com/blog/procurement-process-cycle/

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https://snpfood.com/%e0%b9%80%e0%b8%81%e0%b8%b5%e0%b9%88%e0%b8%a2%e0%b8%a7%e0%b8%81%e0%b8%b1%e0%b8%9a%e0%b9%80%e0%b8%a3%e0%b8%b2/

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