**DB2 Final Report**

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**<Group members and their roles>**

공통 – 사업계획서, Useful Queries, 보고서 작성

신동욱 – ER Model 제작, Business Rules 작성

이서현 – 데이터베이스 주제 선정 아이디어 제공, DDL작성

이현우 – User Requirement 작성, DML작성

김정우 – Relational Data Model, 정규화

**<The project organization and its purpose>**

- 구축 목표

- 본 사업이 전국 대학으로 확장됨.

- 그에 따라 고양이 개체 수가 크게 증가하여 개체 관리에 어려움.

- 대학교 내에 서식하는 길고양이들과 대학생 및 시민들 사이에 갈등이 발함

- 일괄적인 관리를 위해 대학별로 쉼터를 만들고 관리자를 뽑아 관리하고자 함

- 쉼터에서 고양이들을 위해 여러가지 기능들을 제공하기로 함(먹이, 의료, 보금자리 등)

- 관리 및 유지에 발생하는 비용을 처리하기 위해 고양이 관련 상품을 만들어 충당하고자 함, 고양이 관련 상품들은 고양이 사료와, 길 고양이 마크가 그려진 팔찌, 모자 등으로 나눠서 판매함

- 이에 필요한 모든 정보들을 데이터베이스화 하여 모바일 어플리케이션으로 확인 및 관리가 가능하도록 하고자 함

**<User/Data requirements and business rules.>**

- 각각의 고양이는 Cat\_ID(identifier), Age, Gender, Name, TNR(Trap-Neuter-Return, 중성화 수술)를 가진다.

- TNR은 고양이의 중성화 수술 여부를 의미한다.

- VET는 VET\_ID(identifier), VET\_name, Career, Age, Phone\_number를 가진다.

- 한 마리의 고양이는 한 명의 VET(수의사)에만 관리 받을 수 있다.

- 한 명의 VET는 여러 마리의 고양이를 관리해 줄 수 있다.

- Cat을 적어도 한 번 관리한 적이 있는 VET만 데이터베이스에 기록된다.

- VET로부터 관리된 적이 있는 Cat도 데이터베이스 기록될 수 있다.

- Shelter는 Shelter\_ID(identifier), Shelter\_Name, Shelter\_Location, Shelter\_Size를 가진다.

- Shelter의 Size는 현재 쉼터의 크기를 의미한다.

- 길 고양이는 Shelter에서 휴식을 취한다.

- 한 마리의 고양이는 하나의 Shelter에서만 휴식을 취할 수 있고, 하나의 Shelter는 여러 마리의 고양이를 가질 수 있다.

- Shelter에서 휴식을 취하지 않은 Cat도 데이터베이스에 기록될 수 있다.

- Cat이 휴식을 취한 Shelter만 데이터베이스에 기록될 수 있다.

- Manager는 Manager\_ID(Identifier), Age, Manager\_Name, Major(s)를 가진다. Major는 여러 개의 값을 가질 수 있다.

- 한 명의 Manager는 여러 마리의 Cat을 관리할 수 있으며, 한 마리의 Cat은 여러 명의 Manager에 의해 관리 될 수 있다.

- Manager에 의해 관리된 적이 있는 Cat만 데이터베이스에 기록될 수 있다.

- Cat을 관리한 적이 있는 Manager만 데이터베이스에 기록될 수 있다.

- Department는 Department\_ID(Identifier), Department\_Name, Department\_Size, Department\_Head를 가진다 Department\_Head는 부서장을 의미한다.

- Department\_Size는 부서가 수용할 수 있는 최대 인원을 의미한다.

- 한 명의 Manager는 하나의 Department에만 소속될 수 있다

- 한 Department는 여러 명의 Manager를 가질 수 있다.

- Department는 Manager가 소속되어 있지 않아도 데이터베이스에 기록될 수 있다.

- Department에 소속되어 있는 Manager만 데이터베이스에 기록될 수 있다.

- University는 University\_Num(Identifier), Name, Address, Tel\_Number, Fax\_Num을 가진다.

- University에 반드시 소속되어 있는 Manager만 데이터베이스에 기록될 수 있다.

- Manager가 있는 University만 데이터베이스에 기록될 수 있다.

- 한 명의 Manager는 1개의 University에만 소속될 수 있다. University는 여러 명의 Manager를 가질 수 있다.

- Warehouse는 Warehouse\_ID(Identifier), Stock\_Date, Quantity, Product\_name, Product\_Num을 가진다. 여기서 Product\_name과 Product\_Num은 Manager가 판매하는 Item이 아니라 고양이를 관리하는데 사용하고자 하는 비품을 이야기 한다.

- 한 명의 Manager는 여러 개의 Warehouse를 관리 할 수 있다.

- 한 개의 Warehouse는 여러 명의 Manager에 의해 관리 받을 수 있다.

- Manager에 의해 관리된 적이 있는 Warehouse만 데이터베이스에 기록된다.

- Manager는 Warehouse를 관리한 적이 없어도 데이터베이스에 기록될 수 있다.

- Manager는 고양이들의 관리에 들어가는 비용을 충당하기 위해 여러가지 상품을 판매한다. 상품들은 Item이다.

- 각 Item은 Item\_ID(Identifier), Name, Barcode, Price를 가진다. 각 Item은 Food\_Item과 Goods\_Item으로 나눠진다.

- Food\_Item은 ShelfLife(유통기한)을 가진다. 이는 고양이 사료의 유통기한을 의미한다.

- Goods\_Item은 Type을 가진다. Type은 item의 색상을 의미한다.

- 데이터베이스에 기록되는 Item은 무조건 Food\_Item이거나 Goods\_Item이여야 한다.

- Food\_Item이면서 Goods\_Item일 수는 없다.

- 한 명의 Manager는 많은 Item을 판매할 수 있으며 하나의 Item은 많은 Manager들에게 팔릴 수 있다.

- Item을 판매한 적이 없는 Manager도 데이터베이스에 기록될 수 있다.

- Manager에게 팔리지 않은 Item도 데이터베이스에 기록될 수 있다.

- OrderList는 Order\_Num(Identifier), Order\_Time, Order\_Date, Requirement를 가진다. Requirement는 소비자의 요구사항을 기록한다.

- 하나의 OrderList는 많은 Item을 포함한다.

- 하나의 Item은 많은 OrderList에 포함된다.

- OrderList는 Item을 포함한 것만 데이터베이스에 기록된다.

- Item은 OrderList에 포함되지 않아도 데이터베이스에 기록될 수 있다.

- Customer는 Customer\_Id(Identifier), Customer\_Name, Address(Customer\_State, Customer\_City, Customer\_Zip\_Code)를 가진다**.**

- 한 명의 Customer는 많은 Order(OrderList)를 할 수 있다.

- 한 개의 Order(OrderList)는 한 명의 Customer의해서만 주문 된다.

- Customer가 주문을 한 Order(OrderList)만 데이터베이스에 기록될 수 있다.

- Order(OrderList)를 한 Customer만 데이터베이스에 기록될 수 있다.

- Order\_Line은 Order\_Line\_Num, Order\_num, Quantity를 갖는다.

- 하나의 Order(OrderList)는 많은 Order\_Line을 가질 수 있다.

- 하나의 Order\_Line은 하나의 Order(OrderList)에 의해서만 포함된다.

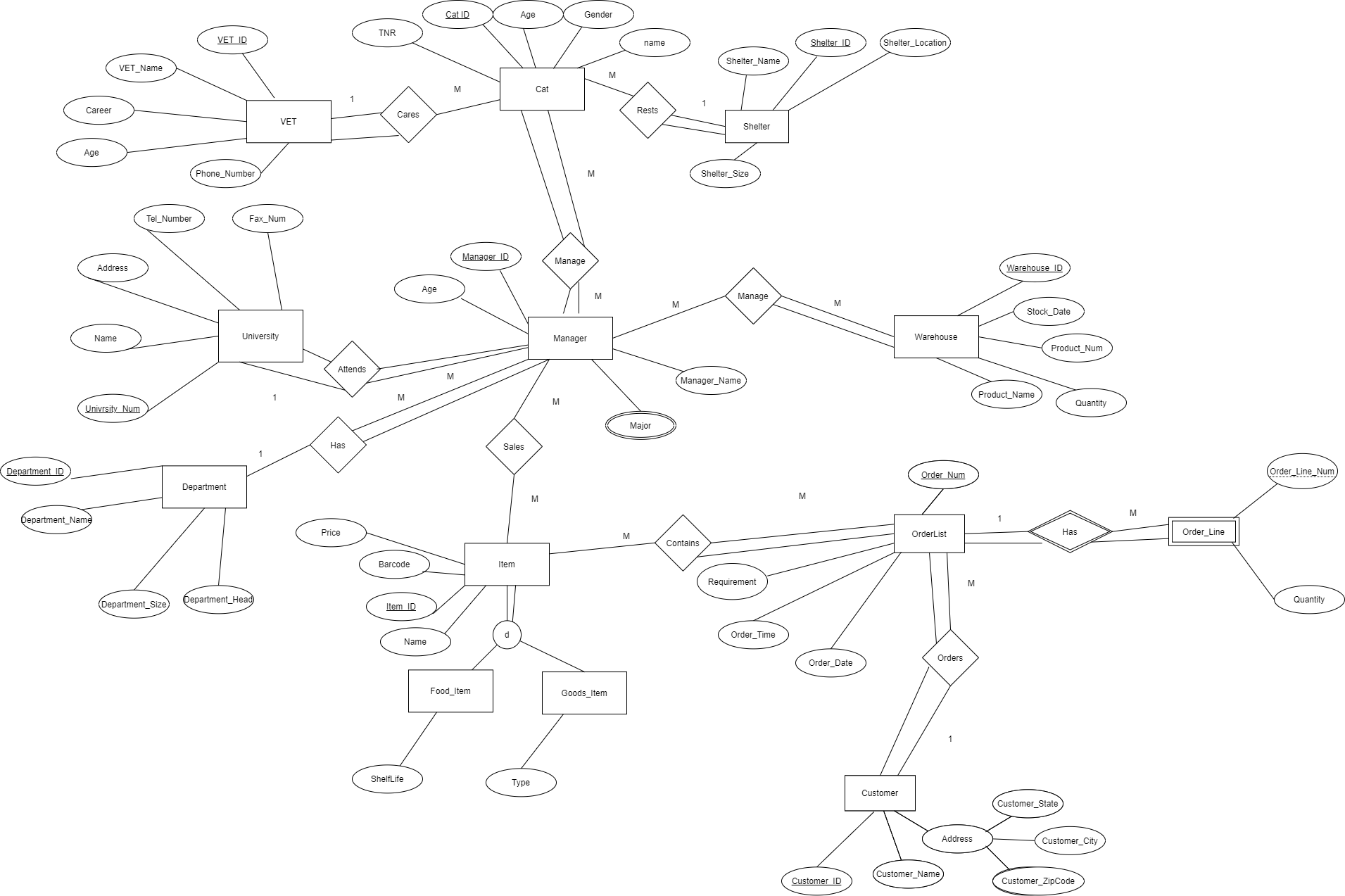
- Order\_Line은 Order(OrderList)가 없으면 존재할 수 없다.

- Order\_Line은 Order\_Line\_Num으로 한 Order\_Line을 동일한 Order(OrderList)에 대한 다른 Order\_Line과 구별할 수 있지만 Order\_Line을 고유하게 식별하지는 않는다.

- Order\_Line은 Order(OrderList)가 가지고 있는 것만 데이터베이스에 기록될 수 있다.

- Order(OrderList)는 Order\_Line을 가지고 있는 것만 데이터베이스에 기록될 수 있다.

**<Conceptual design: ER Model>**



**<Logical Database design>**

VET (VET\_ID, VET\_Name, Career, Age, Phone\_Number)

Shelter (Shelter\_ID, Shelter\_Name, Shelter\_Location, Shelter\_Size)

Cat (Cat\_ID, TNR, Age, Gender, Name, VET\_ID, Shelter\_ID)

Foreign key (VET\_ID) references VET (VET\_ID)

Foreign key (Shelter\_ID) references Shelter (Shelter\_ID)

University (University\_Num, Name, Address, Tel\_Number, Fax\_Num)

Department (Department\_ID, Department\_Name, Department\_Size, Department\_Head)

Manager (Manager\_ID, Age, Manager\_Name, University\_Num, Department\_ID)

Foreign key (University\_Num) references University (University\_Num)

Foreign key (Department\_ID) references Department (Department\_ID)

Manager\_Major (Manager\_ID, Major)

Foreign key (Manager\_ID) references Manager (Manager\_ID)

Warehouse (Warehouse\_ID, Stock\_Date, Quantity, Product\_Name, Product\_Num)

Cat\_Manager (Cat\_ID, Manager\_ID)

Foreign key (Cat\_ID) references Cat (Cat\_ID)

Foreign key (Manager\_ID) references Manager (Manager\_ID)

Warehouse\_Manager (Warehouse\_ID, Manager\_ID)

Foreign key (Warehouse\_ID) references Warehouse (Warehouse\_ID)

Foreign key (Manager\_ID) references Manager (Manager\_ID)

Item (Item\_ID, Name, Barcode, Price)

Manager\_Item (Manager\_ID, Item\_ID)

Foreign key (Manager\_ID) references Manager (Manager\_ID)

Foreign key (Item\_ID) references Item (Item\_ID)

Food\_Item (F\_Item\_ID, ShelfLife)

Foreign key (F\_Item\_ID) references Item (Item\_ID)

Goods\_Item (G\_Item\_ID, Type)

Foreign key (G\_Item\_ID) references Item (Item\_ID)

Customer (Customer\_ID, Customer\_Name, Customer\_State, Customer\_City, Customer\_zipCode)

OrderList (Order\_Num, Requirement, Order\_Time, Order\_Date, Customer\_ID)

Foreign key (Customer\_ID) references Customer (Customer\_ID)

Order\_Item (Item\_ID, Order\_Num)

Foreign key (Item\_ID) references Item (Item\_ID)

Foreign key (Order\_Num) references OrderList (Order\_Num)

Order\_Line (Order\_Line\_Num, Order\_Num, Quantity)

Foreign key (Order\_Num) references OrderList(Order\_Num)

<VET>

VET\_ID -> VET\_Name, Career, Age, Phone\_Number

● VET테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Shelter>

Shelter\_ID -> Shelter\_Name, Shelter\_Location, Shelter\_Size

● Shelter테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Cat>

Cat\_ID -> TNR, Age, Gender, Name, VET\_ID, Shelter\_ID

● Cat테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<University>

University\_Num -> Name, Address, Tel\_Number, Fax\_Num

● University테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Department>

Department\_ID -> Department\_Name, Department\_Size, Department\_Head

● Department테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Manager>

Manager\_ID -> Age, Manager\_Name, University\_Num, Department\_ID

● Manager테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Manager\_Major>

● Manager\_Major테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● primary key가 아닌 attribute가 존재하지 않으므로 Second Normal Form, Third Normal Form이다.

<Warehouse>

Warehouse\_ID -> Stock\_Date, Quantity, Product\_Name

● Warehouse테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Cat\_Manager>

● Cat\_Manager테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● primary key가 아닌 attribute가 존재하지 않으므로 Second Normal Form, Third Normal Form이다.

<Warehouse\_Manager>

● Warehouse\_Manager테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● primary key가 아닌 attribute가 존재하지 않으므로 Second Normal Form, Third Normal Form이다.

<Item>

Item\_ID -> Name, Barcode, Price

● Item테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Manager\_Item>

● Manager\_Item테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● primary key가 아닌 attribute가 존재하지 않으므로 Second Normal Form, Third Normal Form이다.

<Food\_Item>

F\_Item\_ID -> ShelfLife

● Food\_Item테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Goods\_Item>

G\_Item\_ID -> Type

● Goods\_Item테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<Customer>

Customer\_ID -> Customer\_Name, Customer\_State, Customer\_City, Customer\_zipCode

● Customer테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다.

<OrderList>

Order\_Num -> Requirement, Order\_Time, Order\_Date, Customer\_ID

● OrderList테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다

<Order\_Item>

● Order\_Item 테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● primary key가 아닌 attribute가 존재하지 않으므로 Second Normal Form, Third Normal Form이다.

<Order\_Line>

Order\_Line\_Num, Order\_Num -> Product\_Num, Product\_Name, Quantity

● Order\_Line테이블의 모든 속성은 atomic하므로 First Normal Form이다.

● 모든 primary key가 아닌 attribute가 primary key에 fully functionally dependent하므로 Second Normal Form이다.

● Non primary key 중에 transitively하게 dependent한 attribute가 있지 않으므로 Third Normal Form이다

**<Physical Design/Data dictionary>**

**Table Name : VET**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data Type** | **Constraint** |
| Vet\_ID | Vet number | Varchar2(30) | Not null |
| vet\_name | Vet name | Varchar2(30) | Not null |
| career | Career | Number(3,0) | Not null |
| age | Vet age | Number(3,0) | Not null |
| Phone\_number | Phone number | Varchar2(30) | Not null |

**Table Name : SHELTER**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Shelter\_id | Shelter id | Verchar2(30) | Not null |
| Shelter\_name | Shelter name | Verchar2(30) | Not null |
| Shelter\_location | Shelter location | Verchar2(100) | Not null |
| Shelter\_size | Shelter size | Verchar2(30) | Not null |

**Table Name : CAT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Cat\_id | Cat id | Varchar2(30) | Not null |
| Age | Cat age | Number(2,0) | Not null |
| Gender | Cat gender | Varchar2(10) | Not null |
| TNR | TNR | Varchar2(30) | Not null |
| name | Cat name | Varchar2(30) | Not null |
| Vet\_id | Vet id | Varchar2(30) | Not null |
| Shelter\_id | Shelter id | Varchar2(30) | Not null |

**Table Name : UNIVERSITY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| University\_num | Univ. number | Varchar2(30) | Not null |
| Fax\_num | Fax number | Varchar2(30) | Not null |
| Tel\_num | Tel number | Varchar2(30) | Not null |
| Address | Address | Varchar2(30) | Not null |
| Name | Univ. name | Varchar2(30) | Not null |

**Table Name : DEPARTMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Department\_id | Dept. id | Varchar2(30) | Not null |
| Department\_name | Dept. name | Varchar2(30) | Not null |
| Department\_szie | Depat. Size | Varchar2(30) | Not null |
| Department\_head | Dept. head | Varchar2(30) | Not null |

**Table Name : MANAGER**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Manager\_id | Manage idr | Varchar2(30) | Not null |
| Age | Manager age | Number(3,0) | Not null |
| Manager\_name | Manager name | Varchar2(30) | Not null |
| University\_num | Univ. number | Varchar2(30) | Not null |
| Department\_id | Dept. number | Varchar2(30) | Not null |

**Table Name : MANAGER\_MAJOR**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Manager\_id | Manager id | Varchar2(30) | Not null |
| major | Major | Varchar2(30) | Not null |

**Table Name : WAREHOSE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Warehose\_id | Warehose id | Varchar2(30) | Not null |
| Stock\_date | Sotck date | Date | Not null |
| Quantity | quantity | Number(5,0) | Not null |
| Product\_name | Product name | Varchar2(30) | Not null |
| Product\_num | Product number | Varcjar2(30) | Not null |

**Table Name : CAT\_MANAGER**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| CAT\_ID | Cat id | Varchar2(20) | Not null |
| Manager\_id | Manager id | Varchar2(20) | Not null |

**Table Name : WAREHOSE\_MANAGER**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Warehose\_id | Warehose id | Varchar2(20) | Not null |
| Manager\_id | Manager id | Varchar2(20) | Not null |

**Table Name : ITEM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Item\_id | Item id | Varchar2(20) | Not null |
| name | Item name | Varchar2(20) | Not null |
| barcode | Barcode | Varchar2(20) | Not null |
| Price | price | Number(20,0) | Not null |

**Table Name : MANAGER\_ITEM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data type** | **Constraint** |
| Manager\_id | Manager id | Varhcar2(20) | Not null |
| Item\_id | Item id | Varchar2(20) | Not null |

**Table Name : FOOD\_ITEM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data Type** | **Constraint** |
| F\_ITEM\_ID | F\_ITEM ID | Varchar2(20) | Not null |
| ShelfLife | F\_ITEM ShelfLife | Date | Not null |

**Table Name : GOODS\_ITEM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data Type** | **Constraint** |
| G\_ITEM\_ID | G\_ITEM ID | Varchar2(20) | Not null |
| Type | G\_ITEM Type | Varchar2(20) | Not null |

**Table Name : CUSTOMER**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data Type** | **Constraint** |
| Customer\_ID | Customer id | Varchar2(20) | Not null |
| Customer\_Name | Customer Name | Varchar2(20) | Not null |
| Customer\_State | Customer State | Varchar2(30) | Not null |
| Customer\_City | Customer City | Varchar2(20) | Not null |
| Customer\_Zipcode | Customer Zipcode | Varchar2(5) | Not null |

**Table Name : ORDERLIST**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data Type** | **Constraint** |
| Order\_Num | Order number | Varchar2(20) | Not null |
| Requirement | Ordered Item Name | Varchar2(30) | Not null |
| Order\_Time | Ordered Time | Varchar2(30) | Not null |
| Order\_Date | Ordered Date | Date | Not null |
| Customer\_ID | Customer ID | Varchar2(20) | Not null |

**Table Name : ORDER\_ITEM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data Type** | **Constraint** |
| Item\_ID | Item ID | Varchar2(20) | Not null |
| Order\_Num | Order Number | Varchar2(20) | Not null |

**Table Name : ORDER\_LINE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Description** | **Data Type** | **Constraint** |
| Order\_Line\_Num | Order line Number | Varchar2(20) | Not null |
| Order\_Num | Order Number | Varchar2(20) | Not null |
| Quantity | Quantity | Number(5) | Not null |

**<SQL Statements (DDL)>**

create table vet (

vet\_ID varchar2(30) not null,

vet\_name varchar2(30) not null,

career number(3,0) not null,

age number(3,0) not null,

phone\_number varchar2(30) not null,

constraint vet\_pk primary key (vet\_ID)

);

create table shelter(

shelter\_id varchar2(30) not null ,

shelter\_name varchar2(30) not null,

shelter\_location varchar2(100) not null,

shelter\_size varchar2(30) not null,

constraint shelter\_pk primary key (shelter\_id)

);

create table cat (

cat\_id varchar2(30) not null,

age number(2,0) not null ,

gender varchar2(10) not null,

TNR varchar2(10) not null,

name varchar2(30) not null,

vet\_id varchar2(30) not null,

shelter\_id varchar2(30) not null ,

constraint cat\_pk primary key (cat\_id),

constraint cat\_fk1 foreign key (vet\_id) references vet(vet\_ID),

constraint cat\_fk2 foreign key (shelter\_id) references shelter(shelter\_id)

);

create table university (

university\_num varchar2(30) not null,

fax\_num varchar2(30) not null ,

tel\_num varchar2(30) not null ,

address varchar2(30) not null ,

name varchar2(30) not null ,

constraint university\_pk primary key (university\_num)

);

create table department (

department\_id varchar2(30) not null ,

department\_name varchar2(30) not null ,

department\_size varchar2(30) not null ,

department\_head varchar2(30) not null,

constraint department\_pk primary key (department\_id)

);

create table manager (

manager\_id varchar2(30) not null ,

age number(3, 0) not null ,

manager\_name varchar2(30) not null,

university\_num varchar2(30) not null ,

department\_id varchar2(30) not null,

constraint manager\_pk primary key (manager\_id),

constraint manager\_fk1 foreign key (university\_num) references university(university\_num),

constraint manager\_fk2 foreign key (department\_id) references department(department\_id)

);

create table manager\_major (

manager\_id varchar2(30) not null ,

major varchar2(30) not null ,

constraint manager\_major\_pk PRIMARY KEY (manager\_id, major),

constraint manager\_major\_pk foreign key (manager\_id) references manager(manager\_id)

);

create table warehouse (

warehouse\_id varchar2(30) not null ,

stock\_date date not null ,

quantity number(5, 0) not null ,

product\_name varchar2(30) not null,

product\_num varchar2(30),

constraint warehouse\_pk primary key (warehouse\_id)

);

-- ////////////////////////////////////////////////////////

CREATE TABLE Cat\_Manager (

Cat\_ID varchar2(20) not null,

Manager\_ID varchar2(20) not null,

CONSTRAINT Cat\_Manager\_pk PRIMARY KEY (Cat\_ID, Manager\_ID),

CONSTRAINT Cat\_Manager\_fk1 FOREIGN KEY (Cat\_ID) REFERENCES Cat(Cat\_ID),

CONSTRAINT Cat\_Manager\_fk2 FOREIGN KEY (Manager\_ID) REFERENCES Manager(Manager\_ID)

);

CREATE TABLE Warehouse\_Manager (

Warehouse\_ID varchar2(20) not null,

Manager\_ID varchar2(20) not null,

CONSTRAINT Warehouse\_Manager\_pk PRIMARY KEY (Warehouse\_ID, Manager\_ID),

CONSTRAINT Warehouse\_Manager\_fk1 FOREIGN KEY (Warehouse\_ID) REFERENCES Warehouse(Warehouse\_ID),

CONSTRAINT Warehouse\_Manager\_fk2 FOREIGN KEY (Manager\_ID) REFERENCES Manager(Manager\_ID)

);

CREATE TABLE Item (

Item\_ID varchar2(20) not null,

Name varchar2(20) not null,

Barcode varchar2(20) not null,

Price number(20,0) not null,

CONSTRAINT Item\_pk1 PRIMARY KEY (Item\_ID)

);

CREATE TABLE Manager\_Item(

Manager\_ID varchar2(20) not null,

Item\_ID varchar2(20) not null,

CONSTRAINT Manager\_Item\_pk PRIMARY KEY (Manager\_ID, Item\_ID),

CONSTRAINT Manager\_Item\_fk1 FOREIGN KEY (Manager\_ID) REFERENCES Manager(Manager\_ID),

CONSTRAINT Manager\_Item\_fk2 FOREIGN KEY (Item\_ID) REFERENCES Item(Item\_ID)

);

CREATE TABLE Food\_Item(

F\_Item\_ID varchar2(20) not null,

ShelfLife date not null,

CONSTRAINT Food\_Item\_pk1 PRIMARY KEY (F\_Item\_ID),

CONSTRAINT Food\_Item\_fk1 FOREIGN KEY (F\_Item\_ID) REFERENCES Item(Item\_ID)

);

CREATE TABLE Goods\_Item(

G\_Item\_ID varchar2(20) not null,

Type varchar2(20) not null,

CONSTRAINT Goods\_Item\_pk1 PRIMARY KEY (G\_Item\_ID),

CONSTRAINT Goods\_Item\_fk1 FOREIGN KEY (G\_Item\_ID) REFERENCES Item(Item\_ID)

);

-- ###########################################################

CREATE TABLE customer(

customer\_ID varchar2(20) not null,

customer\_Name varchar2(20) not null,

customer\_State varchar2(30),

customer\_city varchar2(20),

customer\_zipCode varchar2(5),

CONSTRAINT customer\_pk PRIMARY KEY (customer\_ID)

);

CREATE TABLE orderlist (

order\_num varchar(20) not null,

requirement varchar(30) not null,

order\_time varchar(30) not null,

order\_date date not null,

customer\_id varchar(20) not null,

Constraint order\_pk Primary key (order\_num),

Constraint order\_fk Foreign key (customer\_id) References Customer(customer\_id)

);

CREATE Table Order\_Item (

Item\_ID varchar(20) not null,

Order\_Num varchar(20) not null,

Constraint Order\_Item\_pk1 primary key (Item\_ID, Order\_Num),

Constraint Order\_Item\_fk1 foreign key (Item\_ID) References Item(Item\_ID),

Constraint Order\_Item\_fk2 foreign key (Order\_Num) References Orderlist(order\_num)

);

CREATE Table Order\_Line (

Order\_Line\_Num varchar(20) not null,

Order\_Num varchar(20) not null,

Quantity number(5) not null,

Constraint Order\_Line\_pk1 primary key (Order\_Line\_Num),

Constraint Order\_Line\_fk1 foreign key (Order\_Num) References orderlist(Order\_Num)

);

**<SQL Statements (DML)>**

-- insert data vet

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (1, 'Otter, african clawless', 18, 37, '401-533-9658');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (2, 'American black bear', 27, 34, '566-882-8559');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (3, 'Vine snake (unidentified)', 16, 21, '612-953-5774');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (4, 'Waxbill, violet-eared', 4, 28, '334-674-5822');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (5, 'Common boubou shrike', 24, 32, '462-535-3349');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (6, 'Blue-footed booby', 14, 36, '457-482-4639');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (7, 'Pine squirrel', 10, 29, '733-178-1291');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (8, 'Possum, common brushtail', 26, 30, '699-266-1281');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (9, 'Grouse, sage', 2, 24, '219-361-2225');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (10, 'Four-horned antelope', 22, 31, '502-756-3299');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (11, 'Woodpecker, red-headed', 2, 37, '937-165-3617');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (12, 'Barbet, crested', 10, 43, '402-114-6034');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (13, 'Fox, pampa gray', 7, 21, '498-186-1972');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (14, 'Black-collared barbet', 18, 30, '593-697-2410');

insert into vet (vet\_id, vet\_name, career, age, phone\_number) values (15, 'Crowned eagle', 4, 30, '693-859-7802');

-- insert shelter data

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (1, 'Common green iguana', '10 Service Lane', 5);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (2, 'Butterfly, tropical buckeye', '227 Golden Leaf Pass', 4);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (3, 'Bobcat', '6739 Reindahl Pass', 4);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (4, 'hi shelter', 'incheon', 10);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (5, 'Snake, carpet', '20499 Larry Avenue', 2);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (6, 'Langur, common', '3 Portage Road', 1);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (7, 'Common brushtail possum', '999 Schmedeman Center', 3);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (8, 'Eastern box turtle', '44714 Barnett Road', 3);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (9, 'Duck, white-faced whistling', '21923 Talisman Hill', 5);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (10, 'Saddle-billed stork', '596 Crescent Oaks Street', 1);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (11, 'Sheep, stone', '1522 Ludington Avenue', 3);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (12, 'Possum, golden brush-tailed', '81 Hansons Circle', 2);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (13, 'Pelican, brown', '1189 Commercial Circle', 2);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (14, 'Grey mouse lemur', '12808 Russell Parkway', 4);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (15, 'Carpet snake', '2 Browning Pass', 5);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (16, 'Greater roadrunner', '687 Judy Terrace', 4);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (17, 'Lynx, african', '9 Lotheville Circle', 5);

insert into shelter (shelter\_id, shelter\_name, shelter\_location, shelter\_size) values (18, 'Armadillo, giant', '7 Ridgeway Parkway', 1);

-- insert cat data

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (1, 1, 'Female', 0, 'Grey mouse lemur', 4, 17);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (2, 15, 'Female', 1, 'Ibis, glossy', 13, 16);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (3, 8, 'Female', 0, 'Cat, miner', 11, 2);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (4, 9, 'Male', 0, 'Blue', 7, 1);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (5, 14, 'Female', 0, 'Bird, secretary', 7, 4);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (6, 6, 'Female', 1, 'Sambar', 7, 3);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (7, 3, 'Male', 0, 'Blackbuck', 6, 2);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (8, 9, 'Female', 1, 'Blue wildebeest', 5, 5);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (9, 12, 'Female', 1, 'Eagle, pallas''s fish', 1, 7);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (10, 5, 'Female', 0, 'Common wallaroo', 2, 6);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (11, 10, 'Female', 1, 'Goose, andean', 3, 5);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (12, 6, 'Female', 0, 'Smith''s bush squirrel', 7, 6);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (13, 14, 'Male', 1, 'Spotted hyena', 12, 7);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (14, 11, 'Male', 0, 'Land iguana', 6, 11);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (15, 2, 'Male', 1, 'Tortoise, radiated', 8, 12);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (16, 7, 'Male', 1, 'Francolin, swainson''s', 12, 14);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (17, 12, 'Male', 0, 'White-mantled colobus', 13, 3);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (18, 11, 'Male', 1, 'Euro wallaby', 6, 5);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (19, 13, 'Female', 0, 'Hippopotamus', 11, 7);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (20, 15, 'Male', 0, 'Black-crowned night heron', 3, 11);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (21, 1, 'Female', 1, 'White-necked raven', 3, 12);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (22, 10, 'Female', 1, 'Lemming, collared', 5, 2);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (23, 6, 'Female', 1, 'Black-throated cardinal', 6, 1);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (24, 14, 'Female', 0, 'Wolf, mexican', 7, 4);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (25, 12, 'Male', 0, 'Heron, black-crowned night', 8, 3);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (26, 13, 'Female', 1, 'Jackal, silver-backed', 8, 7);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (27, 1, 'Female', 1, 'Elephant, african', 6, 1);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (28, 1, 'Male', 0, 'Little blue penguin', 8, 8);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (29, 8, 'Female', 0, 'Gray rhea', 10, 9);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (30, 5, 'Female', 1, 'Sloth, two-toed tree', 12, 10);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (31, 4, 'Female', 0, 'Red-shouldered glossy starling', 12, 1);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (32, 1, 'Female', 0, 'Eleven-banded armadillo', 7, 11);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (33, 13, 'Female', 0, 'Honey badger', 11, 12);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (34, 1, 'Male', 0, 'Capuchin, weeper', 1, 8);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (35, 12, 'Female', 0, 'Bent-toed gecko', 2, 7);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (36, 4, 'Female', 1, 'Otter, oriental short-clawed', 3, 9);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (37, 14, 'Female', 1, 'Lizard, mexican beaded', 3, 3);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (38, 9, 'Male', 0, 'Sugar glider', 4, 2);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (39, 14, 'Male', 1, 'Black-capped capuchin', 1, 3);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (40, 12, 'Female', 1, 'Whale, southern right', 10, 12);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (41, 2, 'Male', 0, 'North American porcupine', 11, 13);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (42, 14, 'Female', 1, 'Tortoise, asian foreset', 12, 11);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (43, 6, 'Female', 0, 'Bear, black', 4, 10);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (44, 7, 'Male', 1, 'Badger, european', 5, 7);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (45, 2, 'Female', 1, 'Eagle, bateleur', 2, 9);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (46, 4, 'Female', 1, 'Snake-necked turtle', 9, 10);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (47, 2, 'Female', 0, 'Brown antechinus', 10, 11);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (48, 15, 'Female', 0, 'Ring-tailed gecko', 7, 5);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (49, 4, 'Male', 1, 'Stork, saddle-billed', 6, 4);

insert into cat (cat\_id, age, gender, TNR, name, vet\_id, shelter\_id) values (50, 10, 'Female', 1, 'Bent-toed gecko', 5, 9);

-- insert university data

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('132975821-8', '405-61-0250', '421-920-4078', '9565 Old Shore Alley', 'Universidad de');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('686621366-5', '846-95-5073', '540-496-6725', '7806 Farwell Parkway', 'Fachhochschule');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('190407508-8', '362-86-8147', '410-742-9778', '3258 Chinook Crossing', 'Ioannina');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('300510950-X', '322-06-4670', '298-662-9100', '53 Colorado Park', 'Universidad Central');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('265306490-1', '451-62-9955', '523-814-4548', '08760 Bluejay Court', 'University of Kragujevac');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('095470014-7', '258-60-2448', '716-726-6495', '49 Corscot Alley', 'University of Northern Iowa');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('359464387-5', '781-84-0645', '827-715-3029', '41815 Utah Avenue', 'Hagenberg');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('519623727-5', '158-17-7797', '987-128-7067', '8 Monument Crossing', 'Christian College');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('356400793-8', '591-78-1830', '658-167-7099', '479 Golf Pass', 'University of Washington');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('521470971-4', '803-15-2999', '571-781-8368', '52957 Bay Terrace', 'Assumption College');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('297442974-2', '175-95-5159', '406-658-3221', '0 Golf Course Alley', 'Ibra College of Technology');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('462217123-6', '405-44-4416', '786-731-5013', '63 Loomis Center', 'Nakhchivan State University');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('905966566-X', '561-90-7899', '661-653-5920', '0272 Hoard Junction', 'Alderson Broaddus College');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('421722409-5', '589-14-0883', '245-148-1590', '1 Debra Avenue', 'Islamic College University');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('528308897-9', '779-99-3634', '441-519-2686', '6956 Autumn Leaf Pass', 'Shanghai Second University');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('690650484-3', '844-88-9853', '352-312-4750', '22 Del Sol Court', 'Edison State College');

insert into university (university\_num, fax\_num, tel\_num, address, name) values ('275614579-3', '446-94-8748', '512-237-9095', '457 Northland Park', 'Akaki Tsereteli University');

-- insert department data

insert into department (department\_id, department\_name, department\_size, department\_head) values (1, 'Sales', 20, 'Thorny');

insert into department (department\_id, department\_name, department\_size, department\_head) values (2, 'Engineering', 12, 'Charmane');

insert into department (department\_id, department\_name, department\_size, department\_head) values (3, 'Business Development', 20, 'Vinnie');

insert into department (department\_id, department\_name, department\_size, department\_head) values (5, 'Business Development', 15, 'Ashbey');

insert into department (department\_id, department\_name, department\_size, department\_head) values (7, 'Accounting', 30, 'Barr');

insert into department (department\_id, department\_name, department\_size, department\_head) values (8, 'Legal', 20, 'Wendall');

insert into department (department\_id, department\_name, department\_size, department\_head) values (10, 'Accounting', 20, 'Hadleigh');

insert into department (department\_id, department\_name, department\_size, department\_head) values (11, 'Training', 20, 'Regine');

insert into department (department\_id, department\_name, department\_size, department\_head) values (12, 'Sales', 20, 'Alida');

insert into department (department\_id, department\_name, department\_size, department\_head) values (13, 'Services', 15, 'Frederica');

insert into department (department\_id, department\_name, department\_size, department\_head) values (15, 'Legal', 15, 'Dulcy');

insert into department (department\_id, department\_name, department\_size, department\_head) values (16, 'Marketing', 16, 'Angelia');

insert into department (department\_id, department\_name, department\_size, department\_head) values (9, 'Legal', 30, 'Derrek');

insert into department (department\_id, department\_name, department\_size, department\_head) values (4, 'Engineering', 40, 'Hyacinthe');

insert into department (department\_id, department\_name, department\_size, department\_head) values (14, 'Engineering', 30, 'Caron');

insert into department (department\_id, department\_name, department\_size, department\_head) values (6, 'Business Development', 10, 'Nicol');

-- insert manager data

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('430-75-5676', 20, 'Jakob', '132975821-8', 12);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('640-83-4858', 22, 'Reggie', '686621366-5', 11);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('406-63-2568', 23, 'Palm', '190407508-8', 3);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('510-74-7094', 21, 'Roy', '421722409-5', 4);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('718-27-4599', 20, 'Norby', '190407508-8', 10);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('321-54-1409', 21, 'Milty', '421722409-5', 12);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('142-68-4630', 22, 'Arne', '421722409-5', 12);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('113-10-9730', 26, 'Fairfax', '421722409-5',11);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('410-16-3923', 25, 'Pace', '905966566-X', 9);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('115-85-2042', 27, 'Dietrich', '421722409-5', 13);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('302-31-1417', 22, 'Shawn', '297442974-2', 11);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('796-46-0064', 23, 'Michail', '297442974-2', 12);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('353-85-7553', 28, 'Kevan', '297442974-2', 13);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('339-25-0074', 21, 'Israel', '300510950-X', 1);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('331-12-5988', 20, 'Washington', '690650484-3', 1);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('582-45-9273', 21, 'Mackenzie', '297442974-2', 12);

insert into manager (manager\_id, age, manager\_name, university\_num, department\_id) values ('733-48-0004', 20, 'Yvor', '686621366-5', 2);

-- insert manager data

insert into manager\_major (manager\_id, major) values ('113-10-9730', 'Health Care');

insert into manager\_major (manager\_id, major) values ('582-45-9273', 'Physics');

insert into manager\_major (manager\_id, major) values ('733-48-0004', 'Finance');

insert into manager\_major (manager\_id, major) values ('733-48-0004', 'Public Utilities');

insert into manager\_major (manager\_id, major) values ('113-10-9730', 'Consumer Services');

insert into manager\_major (manager\_id, major) values ('113-10-9730', 'Finance');

insert into manager\_major (manager\_id, major) values ('113-10-9730', 'Consumer Services');

insert into manager\_major (manager\_id, major) values ('321-54-1409', 'Department of Economics');

insert into manager\_major (manager\_id, major) values ('410-16-3923', 'Finance');

insert into manager\_major (manager\_id, major) values ('321-54-1409', 'Technology');

insert into manager\_major (manager\_id, major) values ('353-85-7553', 'Consumer Services');

insert into manager\_major (manager\_id, major) values ('410-16-3923', 'Basic Industries');

insert into manager\_major (manager\_id, major) values ('410-16-3923', 'Finance');

insert into manager\_major (manager\_id, major) values ('353-85-7553', 'BioEnergy');

insert into manager\_major (manager\_id, major) values ('321-54-1409', 'fsdfsd');

-- insert warehouse data

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (1, '2020-08-06', 1, 'sgillmore0', 1);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (2, '2020-09-05', 2, 'kcoleborn1', 12);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (3, '2020-11-03', 3, 'dtilmouth2', 13);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (4, '2020-09-05', 13, 'rsizey3', 5);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (5, '2020-11-10', 14, 'fmacpaden4', 6);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (6, '2020-05-11', 20, 'deke5', 7);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (7, '2020-05-05', 7, 'sdreus6', 11);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (8, '2020-06-05', 9, 'mnannizzi7', 20);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (9, '2020-07-05', 11, 'kmattock8', 15);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (10, '2020-08-05', 12, 'dhannant9', 12);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (11, '2020-11-05', 20, 'gomalleya', 9);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (12, '2020-12-04', 30, 'fdixonb', 21);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (13, '2020-02-05', 40, 'dblofieldc', 22);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (14, '2020-01-11', 10, 'jbalhamd', 23);

insert into warehouse (warehouse\_id, stock\_date, quantity, product\_name, product\_num) values (15, '2020-07-05', 11, 'hmaltmane', 30);

-- insert Cat\_Manager data

insert into cat\_manager (Cat\_id, Manager\_id) values (7, '406-63-2568');

insert into cat\_manager (Cat\_id, Manager\_id) values (6, '406-63-2568');

insert into cat\_manager (Cat\_id, Manager\_id) values (9, '510-74-7094');

insert into cat\_manager (Cat\_id, Manager\_id) values (11, '718-27-4599');

insert into cat\_manager (Cat\_id, Manager\_id) values (5, '733-48-0004');

insert into cat\_manager (Cat\_id, Manager\_id) values (10, '339-25-0074');

insert into cat\_manager (Cat\_id, Manager\_id) values (7, '331-12-5988');

insert into cat\_manager (Cat\_id, Manager\_id) values (8, '331-12-5988');

insert into cat\_manager (Cat\_id, Manager\_id) values (9, '733-48-0004');

insert into cat\_manager (Cat\_id, Manager\_id) values (11, '353-85-7553');

insert into cat\_manager (Cat\_id, Manager\_id) values (11, '733-48-0004');

insert into cat\_manager (Cat\_id, Manager\_id) values (3, '339-25-0074');

insert into cat\_manager (Cat\_id, Manager\_id) values (13, '331-12-5988');

insert into cat\_manager (Cat\_id, Manager\_id) values (4, '331-12-5988');

insert into cat\_manager (Cat\_id, Manager\_id) values (15, '733-48-0004');

-- insert Warehouse\_Manager data

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('3', '430-75-5676');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('13', '796-46-0064');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('12', '302-31-1417');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('11', '302-31-1417');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('8', '410-16-3923');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('9', '410-16-3923');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('10', '510-74-7094');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('3', '582-45-9273');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('4', '582-45-9273');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('1', '302-31-1417');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('2', '302-31-1417');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('10', '410-16-3923');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('11', '510-74-7094');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('12', '582-45-9273');

insert into Warehouse\_Manager (Warehouse\_ID, Manager\_id) values ('8', '430-75-5676');

-- insert Item data

insert into Item (Item\_ID, Name, Barcode, Price ) values (1, 'fpattle0', '692885361-1', '8');

insert into Item (Item\_ID, Name, Barcode, Price ) values (2, 'ptrahear1', '667959591-6', '6');

insert into Item (Item\_ID, Name, Barcode, Price ) values (3, 'aholstein2', '683445790-9', '3');

insert into Item (Item\_ID, Name, Barcode, Price ) values (4, 'pniemiec3', '987152128-6', '8');

insert into Item (Item\_ID, Name, Barcode, Price ) values (5, 'tgoade4', '881728712-1', '4');

insert into Item (Item\_ID, Name, Barcode, Price ) values (6, 'rcarabine5', '271740258-6', '7');

insert into Item (Item\_ID, Name, Barcode, Price ) values (7, 'cpriel6', '104119163-4', '2');

insert into Item (Item\_ID, Name, Barcode, Price ) values (8, 'dfeldbaum7', '267567567-9', '3');

insert into Item (Item\_ID, Name, Barcode, Price ) values (9, 'llehucquet8', '169669862-6', '7');

insert into Item (Item\_ID, Name, Barcode, Price ) values (10, 'hbestar9', '587405801-X', '4');

insert into Item (Item\_ID, Name, Barcode, Price ) values (11, 'cgerolda', '527502574-2', '7');

insert into Item (Item\_ID, Name, Barcode, Price ) values (12, 'clambrickb', '394707928-1', '3');

insert into Item (Item\_ID, Name, Barcode, Price ) values (13, 'talderwickc', '233943118-2', '7');

insert into Item (Item\_ID, Name, Barcode, Price ) values (14, 'sblockeyd', '812414657-8', '2');

insert into Item (Item\_ID, Name, Barcode, Price ) values (15, 'cjedrzejewskye', '609431930-3', '10');

insert into Item (Item\_ID, Name, Barcode, Price ) values (16, 'nwaslinf', '453647260-6', '8');

insert into Item (Item\_ID, Name, Barcode, Price ) values (17, 'asnarrg', '665634616-2', '3');

insert into Item (Item\_ID, Name, Barcode, Price ) values (18, 'nioanh', '217249798-3', '10');

insert into Item (Item\_ID, Name, Barcode, Price ) values (19, 'iantonoczyki', '880065853-9', '5');

insert into Item (Item\_ID, Name, Barcode, Price ) values (20, 'gcianij', '743017578-3', '5');

insert into Item (Item\_ID, Name, Barcode, Price ) values (21, 'tuglowk', '834559437-9', '2');

insert into Item (Item\_ID, Name, Barcode, Price ) values (22, 'nseggel', '843827539-7', '1');

insert into Item (Item\_ID, Name, Barcode, Price ) values (23, 'tnutonm', '048603577-8', '3');

insert into Item (Item\_ID, Name, Barcode, Price ) values (24, 'ysalzburgn', '057927482-9', '4');

insert into Item (Item\_ID, Name, Barcode, Price ) values (25, 'ysalucrgn', '057027482-9', '4');

insert into Item (Item\_ID, Name, Barcode, Price ) values (26, 'ysurcgn', '157127482-9', '5');

insert into Item (Item\_ID, Name, Barcode, Price ) values (27, 'alzcburgn', '257227482-9', '6');

insert into Item (Item\_ID, Name, Barcode, Price ) values (28, 'zbcurgn', '057327482-9', '4');

insert into Item (Item\_ID, Name, Barcode, Price ) values (29, 'ybsrgn', '057427482-9', '9');

insert into Item (Item\_ID, Name, Barcode, Price ) values (30, 'aburgn', '057827482-9', '4');

-- insert Manager\_Item data

insert into Manager\_Item (Manager\_id, Item\_ID) values ('339-25-0074', 7);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('510-74-7094', 2);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('339-25-0074', 3);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('510-74-7094', 4);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('733-48-0004', 5);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('410-16-3923', 6);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('510-74-7094', 21);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('331-12-5988', 22);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('733-48-0004', 9);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('733-48-0004', 3);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('733-48-0004', 11);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('302-31-1417', 12);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('733-48-0004', 21);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('331-12-5988', 14);

insert into Manager\_Item (Manager\_id, Item\_ID) values ('339-25-0074', 5);

-- insert Food\_Item data

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('1', '2021-05-06');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('2', '2021-07-06');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('3', '2021-06-06');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('4', '2021-12-12');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('5', '2021-05-07');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('6', '2021-07-14');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('7', '2021-07-12');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('8', '2021-12-06');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('9', '2021-12-06');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('10', '2021-05-06');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('11', '2021-03-06');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('12', '2021-04-16');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('13', '2021-03-26');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('14', '2021-01-07');

insert into Food\_Item (F\_Item\_ID, ShelfLife) values ('15', '2021-02-16');

-- insert Goods\_Item data

insert into Goods\_Item (G\_Item\_ID, Type) values ('16', 'Violet');

insert into Goods\_Item (G\_Item\_ID, Type) values ('17', 'Maroon');

insert into Goods\_Item (G\_Item\_ID, Type) values ('18', 'Maroon');

insert into Goods\_Item (G\_Item\_ID, Type) values ('19', 'Goldenrod');

insert into Goods\_Item (G\_Item\_ID, Type) values ('20', 'Teal');

insert into Goods\_Item (G\_Item\_ID, Type) values ('21', 'Puce');

insert into Goods\_Item (G\_Item\_ID, Type) values ('22', 'Red');

insert into Goods\_Item (G\_Item\_ID, Type) values ('23', 'Red');

insert into Goods\_Item (G\_Item\_ID, Type) values ('24', 'Indigo');

insert into Goods\_Item (G\_Item\_ID, Type) values ('25', 'Mauv');

insert into Goods\_Item (G\_Item\_ID, Type) values ('26', 'Teal');

insert into Goods\_Item (G\_Item\_ID, Type) values ('27', 'Red');

insert into Goods\_Item (G\_Item\_ID, Type) values ('28', 'Yellow');

insert into Goods\_Item (G\_Item\_ID, Type) values ('29', 'Maroon');

insert into Goods\_Item (G\_Item\_ID, Type) values ('30', 'Fuscia');

-- insert customer data

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('1', 'Nicol', 'Nevada', 'Reno', '89550');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('7', 'Yulma', 'Virginia', 'Reston', '20195');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('6', 'Ambrose', 'Mississippi', 'Hattiesburg', '39404');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('5', 'Slade', 'Tennessee', 'Nashville', '37220');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('15', 'Ezekiel', 'Florida', 'Tampa', '33610');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('4', 'Nolie', 'Texas', 'El Paso', '88589');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('17', 'Anne-marie', 'Texas', 'El Paso', '88546');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('16', 'Michaeline', 'Tennessee', 'Knoxville', '37924');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('18', 'Ali', 'North Carolina', 'Charlotte', '28263');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('19', 'Blondy', 'Minnesota', 'Saint Paul', '55127');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('20', 'Merissa', 'California', 'Sacramento', '95823');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('10', 'Cherianne', 'Oklahoma', 'Norman', '73071');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('11', 'Bo', 'Pennsylvania', 'Reading', '19605');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('13', 'Aggie', 'Minnesota', 'Saint Paul', '55123');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('12', 'Boony', 'Wisconsin', 'Madison', '53705');

insert into customer (customer\_ID, customer\_Name, customer\_State, customer\_city, customer\_zipcode) values ('14', 'Sella', 'Texas', 'Lubbock', '79415');

-- insert orderlist data

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (1, 'Stronghold', '4:55 PM', '2021-04-05', 11);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (2, 'Opela', '9:10 AM', '2021-08-07', 11);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (3, 'Tin', '10:05 PM', '2021-04-11', 20);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (4, 'Cookley', '12:36 AM', '2021-12-05', 4);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (5, 'Flowdesk', '5:10 AM', '2021-12-05', 15);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (6, 'Bitchip', '9:19 AM', '2021-01-05', 15);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (7, 'Sonsing', '5:29 AM', '2021-04-12', 4);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (8, 'Job', '12:24 PM', '2021-07-22', 6);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (9, 'Gembucket', '6:58 PM', '2021-06-11', 6);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (10, 'Temp', '10:17 PM', '2021-06-16', 12);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (11, 'It', '11:57 AM', '2021-11-06', 12);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (12, 'Tresom', '7:21 AM', '2021-11-05', 14);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (13, 'Gembucket', '3:22 PM', '2021-04-05', 14);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (14, 'Stringtough', '8:21 AM', '2021-03-05', 14);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (15, 'Greenlam', '4:16 PM', '2021-02-05', 18);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (16, 'Otcom', '11:16 PM', '2021-01-05', 16);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (17, 'Bamity', '7:00 AM', '2021-11-15', 16);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (18, 'Duobam', '12:48 PM', '2021-07-22', 16);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (19, 'Lotstring', '7:11 AM', '2021-06-22', 16);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (20, 'Daltfresh', '6:54 AM', '2021-08-12', 10);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (21, 'Subin', '7:27 PM', '2021-03-13', 17);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (22, 'Rank', '12:44 PM', '2021-02-11', 17);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (23, 'Tin', '1:00 PM', '2021-12-12', 17);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (24, 'Cardguard', '12:33 AM', '2021-12-25', 7);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (25, 'Zoolab', '5:47 AM', '2021-02-25', 7);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (26, 'Fixflex', '9:39 AM', '2021-01-15', 7);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (27, 'Konklab', '8:42 PM', '2021-02-16', 18);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (28, 'Voltsillam', '9:28 PM', '2021-08-17', 18);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (29, 'Subin', '10:57 AM', '2021-06-11', 18);

insert into orderlist (order\_num, requirement, order\_time, order\_date, customer\_id) values (30, 'Bytecard', '9:32 AM', '2021-04-12', 18);

-- insert order\_Item data

insert into order\_Item (Item\_id, order\_num) values ('1', 1);

insert into order\_Item (Item\_id, order\_num) values ('12', 2);

insert into order\_Item (Item\_id, order\_num) values ('12', 3);

insert into order\_Item (Item\_id, order\_num) values ('13', 4);

insert into order\_Item (Item\_id, order\_num) values ('11', 5);

insert into order\_Item (Item\_id, order\_num) values ('20', 6);

insert into order\_Item (Item\_id, order\_num) values ('21', 7);

insert into order\_Item (Item\_id, order\_num) values ('11', 8);

insert into order\_Item (Item\_id, order\_num) values ('7', 9);

insert into order\_Item (Item\_id, order\_num) values ('17', 11);

insert into order\_Item (Item\_id, order\_num) values ('18', 11);

insert into order\_Item (Item\_id, order\_num) values ('20', 12);

insert into order\_Item (Item\_id, order\_num) values ('22', 13);

insert into order\_Item (Item\_id, order\_num) values ('7', 14);

insert into order\_Item (Item\_id, order\_num) values ('22', 15);

insert into order\_Item (Item\_id, order\_num) values ('22', 16);

insert into order\_Item (Item\_id, order\_num) values ('11', 17);

insert into order\_Item (Item\_id, order\_num) values ('14', 18);

insert into order\_Item (Item\_id, order\_num) values ('15', 19);

insert into order\_Item (Item\_id, order\_num) values ('17', 20);

insert into order\_Item (Item\_id, order\_num) values ('16', 21);

insert into order\_Item (Item\_id, order\_num) values ('13', 22);

insert into order\_Item (Item\_id, order\_num) values ('3', 23);

insert into order\_Item (Item\_id, order\_num) values ('4', 24);

insert into order\_Item (Item\_id, order\_num) values ('1', 25);

insert into order\_Item (Item\_id, order\_num) values ('7', 26);

insert into order\_Item (Item\_id, order\_num) values ('8', 27);

insert into order\_Item (Item\_id, order\_num) values ('9', 28);

insert into order\_Item (Item\_id, order\_num) values ('7', 29);

insert into order\_Item (Item\_id, order\_num) values ('22', 30);

-- insert order\_line data

insert into order\_line (order\_line\_num, order\_num, quantity) values ('253430770-3', 11, 11);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('209189797-3', 22, 3);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('936098666-6', 13, 3);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('185642509-6', 14, 5);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('681605044-4', 14, 5);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('159767025-1', 15, 6);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('886126186-8', 6, 7);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('653812066-0', 6, 18);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('163573986-1', 7, 20);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('087562353-0', 17, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('976160928-6', 16, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('974024100-X', 20, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('484845751-3', 22, 13);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('234175519-4', 22, 14);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('130614300-4', 1, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('901632525-5', 1, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('394595490-8', 15, 17);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('257180869-9', 13, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('269077041-5', 12, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('902463187-4', 12, 2);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('610802061-X', 11, 3);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('553765883-6', 11, 10);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('886267835-5', 11, 23);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('943855095-X', 18, 24);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('107558121-4', 17, 15);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('956154403-2', 26, 16);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('203875679-1', 27, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('144032872-2', 28, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('253369249-2', 28, 1);

insert into order\_line (order\_line\_num, order\_num, quantity) values ('105653489-3', 30, 1);

**<Useful SQL Queries>**

**1. Roy매니저가 관리하는 물품인 Food\_Item중에 유통기한이 2021-07-01 이내인 모든 매니저의 이름, 아이템의 이름, 수량을 나열하세요. (특정 매니저가 특정 유통 기한 이내의 음식 아이템들을 유통기한이 지나는 것을 막기 위해 빨리 판매하고자 할 때 해당 쿼리를 유용하게 사용할 수 있다.)**

select manager\_name, name, count(name) as quantity from Manager natural join Manager\_Item natural join Item natural join Food\_Item

where manager\_name='Roy' and ShelfLife <='2021-07-01' group by manager\_name, name;

**2. Accounting부서에 속한 부서 아이디, 매니저의 아이디, 매니저의 이름을 나열하세요. (이 쿼리를 통해 특정 부서에 속한 매니저들의 이름을 알 수 있다.)**

select Department\_ID, Manager\_Name, Manager\_id from Manager where Department\_ID in (select Department\_ID from Department where Department\_Name = 'Accounting');

**3. Goods\_Item중에 Goods\_Item의 Type이 Maroon타입이 아닌 Goods\_Item\_ID, Type을 나열하세요. 또한 Goods\_Item\_ID로 오름차순 정렬하세요. (이 쿼리를 통해 특정한Goods\_Item들의 명확한 특성을 알 수 있다..)**

select G\_Item\_ID, Type from Goods\_Item

minus

select G\_Item\_ID, Type from Goods\_Item where type='Maroon' order by G\_Item\_ID;

**4. 나이가 3살 이상인 고양이들중에 중성화수술이 되지않은 고양이들의 id 를 나열하세요. (이 쿼리를 통해 특정한 속성을 충족하는 고양이들의 중성화 여부를 알 수 있어 유용하다.)**

select cat\_id

from CAT

where age>=3 and tnr=0;

**5. 2021년 5월 1일 이후로 주문한적이 있는 고객의 이름을 중복없이 오름차순으로 정렬하세요. (예를 들어 특정 기간 이후로 주문한 고객들을 대상으로 주문을 장려하기 위해 사용될 수 있다.)**

select distinct customer\_name

from orderlist,customer

where orderlist.customer\_id = customer.customer\_id and order\_date>='2021-05-01'

order by customer\_name ASC;

**6. 10개 이상씩 주문된적이 있는 제품중 가격이 4 이상인 제품의 이름과 그 제품의 총 판매량을 총판매량 기준 내림차순으로 정렬하세요. (가장 판매량이 많은 제품을 나열하고 그에 대한 판매 수익을 확인하기 위해 사용한다.)**

select name,sum(quantity) AS SUM\_OF\_QUANTITY

from order\_line,order\_item,item

where order\_line.order\_num = order\_item.order\_num and order\_line.quantity>=10 and order\_item.item\_id = item.item\_id

group by name

intersect

select name,sum(quantity) AS SUM\_OF\_QUANTITY

from order\_line,order\_item,item

where order\_line.order\_num = order\_item.order\_num and order\_line.quantity>=10 and order\_item.item\_id = item.item\_id

and price>4

group by name

order by SUM\_OF\_QUANTITY DESC;

**7. 크기가 3평 이상인 보금자리에 상주하는 암컷 고양이의 수를 보금자리의 이름과 함께 TOTAL\_FEMALE\_CATS\_COUNTS로 나타내고 TOTAL\_FEMALE\_CATS\_COUNTS의 수를 기준으로 내림차순으로 정렬하세요. (in and subquery 사용) (특정 크기 이상의 보금자리에 몇마리의 특정 성별의 고양이가 거주하고 있는지를 알아보기 위함이다.)**

select shelter.shelter\_name,count(cat\_id) AS TOTAL\_FEMALE\_CATS\_COUNTS

from CAT,shelter

where shelter.shelter\_id=cat.shelter\_id and cat.shelter\_id in (select shelter.shelter\_id from shelter where shelter\_size>=3) and gender='Female'

group by shelter.shelter\_name

order by TOTAL\_FEMALE\_CATS\_COUNTS DESC;

**8. manager의 name과, 해당 manager가 관리하는 warehouse의 갯수를 구하세요. (각 매니저가 몇개의 창고를 담당하고 있는지 한눈에 보기 위함이며 어떤 매니저가 너무 많이 혹은 너무 적게 담당하고 있는지 판단할때 사용할수 있는 쿼리이다.)**

select manager\_name, count(warehouse\_id)as total\_warehouse from warehouse\_manager natural join manager

group by manager\_name;

**9. 수의사가 관리하고 있는 고양이 수를 나열하세요. (수의사가 담당하고 있는 고양이 수를 파악함으로서 수의사가 너무 많은 고양이를 담당하고 있지 않은지 파악할 수 있다.)**

select vet.vet\_id, vet\_name, count(\*) AS Total\_Cats from vet, cat

where cat.vet\_id = vet.vet\_ID

group by vet.vet\_id, vet\_name

order by vet.vet\_ID;

**10. 쉼터에 있는 고양이 수를 쉼터의 ID , 쉼터의 이름과 함께 나열하고 고양이의 수가 많은 쉼터를 기준으로 내림차순으로 나열하세요. (쉼터에 개체 수를 파악함으로서 각 쉼터의 적정 수용량의 개체수를 조절하는데 중요한 자료가 된다.)**

select shelter.shelter\_id, shelter\_name, count(cat\_id) AS Total\_Cats from shelter, cat

where shelter.shelter\_id = cat.shelter\_id

group by shelter.shelter\_id, shelter.shelter\_name

order by TOTAL\_CATS DESC;

**11. 고양이들의 평균 나이를 구하세요. (길고양이들의 평균 나이를 계산함으로서 집고양이와 길고양이간의 생활환경에 따른 수명 차이가 나타나고 있다. 따라서 이러한 조사결과를 바탕으로 길고양이 생활 환경 개선을 촉구할 수 있는 자료가 될 수 있다.)**

select avg(age) AS Cats\_Ages\_Average from cat;

**12. 고양이 성별 별 평균 나이를 구하세요. (본 사업에서 관리중인 고양이의 데이터를 파악하는데 유용하게 사용된다.)**

select gender, avg(age) AS Cats\_Ages\_Average from cat

group by gender;

**13. 아직 중성화 되지 않은 고양이 수를 모두 구하세요. (고양이의 개체를 파악하여 중성화 여부를 파악해야 본 사업의 목적을 정확하게 파악하고 달성할 수 있다. TNR의 여부와 주변환경 개선과 관련한 조사에도 중요한 역할을 하기 때문이다)**

select count(TNR) as not\_neutralized from cat where tnr = 0;

**14. 10살 이상의 고양이의 중성화 여부에 따른 고양이의 수를 구하세요. (중성화의 경우 고양이의 나이가 고령일 수록 수술 후 부담이 매우크다 따라서 고양이들의 나이를 파악하고 중성화(TNR) 여부를 결정하는 것은 고양이의 목숨과 직결되어 이 사업에서 매우 중요하다.)**

select tnr, count(\*) as Sum\_Of\_Cats from cat

where age in (

select age from cat where age >= 10

)

group by tnr;

**<System manual>**

보고서에 적힌 DDL로 테이블을 정의하고 DML로 데이터를 추가한다. 그 후 DML목차에서 제공된 유용한 SQL를 사용하여 원하는 데이터를 끄집어낼 수 있다.