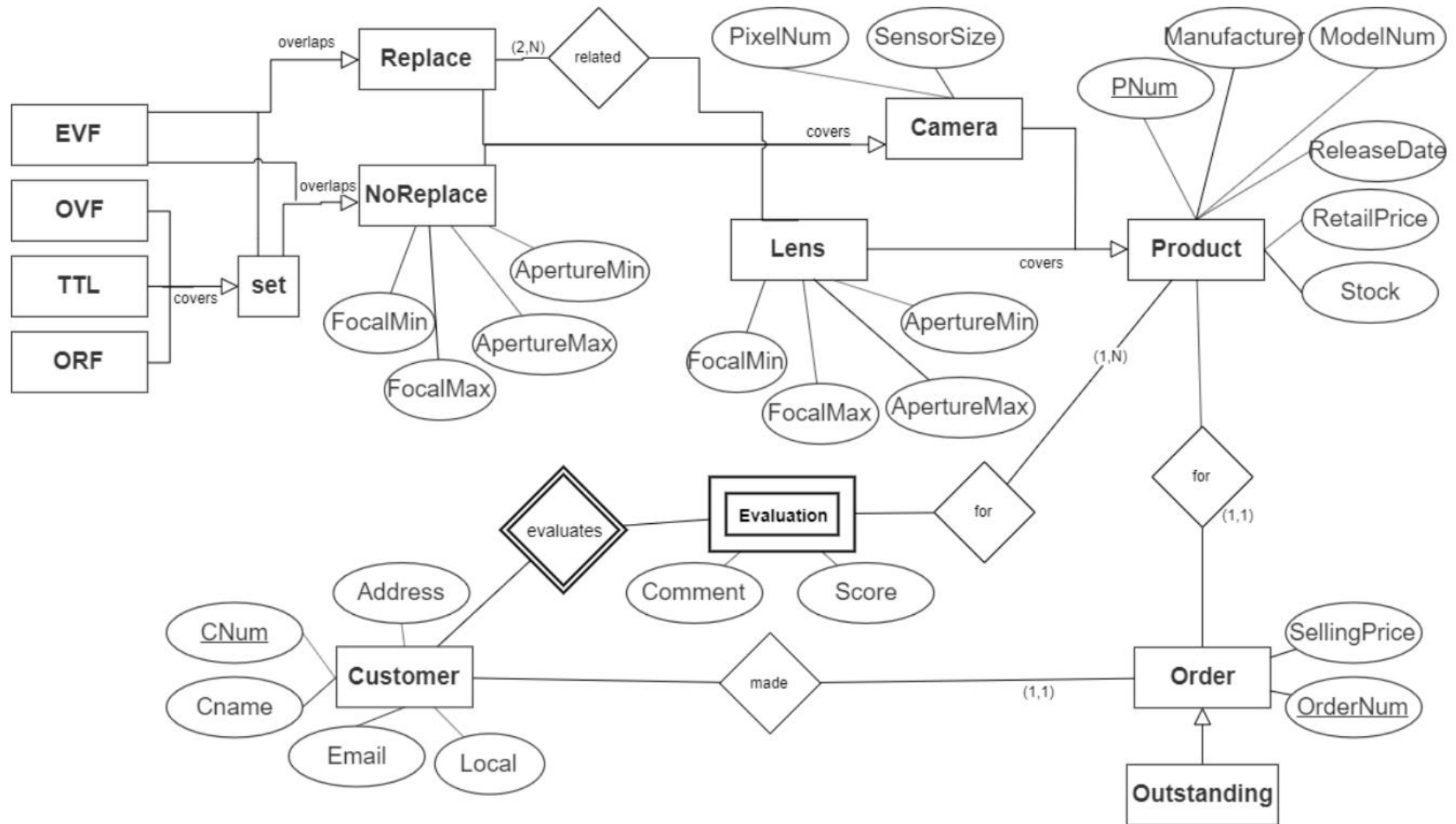


Q1.1 - ER Diagram



Q1.2

Prime Lens is not explicitly captured in the ER Diagram. In my database design, it will be treated as a lens (insert into lens table) with same value for FocalMin and FocalMax. Thus, to differentiate prime lens and other lens during query, use $\text{FocalMin} = \text{FocalMax}$ in the where condition to select prime lenses.

Q2.1

```
CREATE TABLE PRODUCT (  
    Pnum integer not null,  
    Manufacturer varchar(30) not null,  
    ModelNum varchar(30) not null,  
    ReleaseDate date,  
    RetailPrice decimal(8,2),  
    Stock int,  
    Primary key (Pnum),  
    Check ( RetailPrice > 0)  
)  
  
CREATE TABLE CAMERA (  
    Pnum integer not null,  
    PixelNum int not null,  
    Sensorsize int not null,  
    Primary key (Pnum),  
    Foreign key (Pnum) references PRODUCT (Pnum)  
)  
  
CREATE TABLE Replace (  
    Pnum integer not null,  
    Primary key (Pnum),  
    Foreign key (Pnum) references CAMERA (Pnum)  
)  
  
CREATE TABLE NoReplace (  
    Pnum integer not null,  
    FocalMin int not null,  
    FocalMax int not null,  
    ApertureMin decimal(4,2) not null,  
    ApertureMax decimal(4,2) not null,  
    Primary key (Pnum),  
    Foreign key (Pnum) references CAMERA (Pnum)  
)  
  
CREATE TABLE EVF (  
    Pnum integer not null,  
    Primary key (Pnum),  
    Foreign key (Pnum) references CAMERA(Pnum)  
)
```

```

CREATE TABLE SET (
    Pnum integer not null,
    Primary key (Pnum),
    Foreign key (Pnum) references CAMERA (Pnum)
)

CREATE TABLE OVF (
    Pnum integer not null,
    Primary key (Pnum),
    Foreign key (Pnum) references SET (Pnum)
)

CREATE TABLE TTL (
    Pnum integer not null,
    Primary key (Pnum),
    Foreign key (Pnum) references SET (Pnum)
)

CREATE TABLE ORF (
    Pnum integer not null,
    Primary key (Pnum),
    Foreign key (Pnum) references SET (Pnum)
)

CREATE TABLE RELATED (
    CPnum integer not null,
    LPnum integer not null,
    Primary key (CPnum, LPnum),
    Foreign key (CPnum) references CAMERA (Pnum),
    Foreign key (LPnum) references LENS (Pnum)
)

CREATE TABLE LENS (
    Pnum integer not null,
    FocalMin int not null,
    FocalMax int not null,
    ApertureMin decimal(4,2) not null,
    ApertureMax decimal(4,2) not null,
    Primary key (Pnum),
    Foreign key (Pnum) references PRODUCT (Pnum)
)

CREATE TABLE CUSTOMER (
    Cnum integer not null,
    Cname varchar(30) not null,
    Address varchar (50) not null,
    Email varchar(30) not null,
    Local boolean not null,
    Primary key (Cnum)
)

```

```
CREATE TABLE ORDER (  
    OrderNum integer not null,  
    Cnum integer not null,  
    Pnum integer not null,  
    SellingPrice decimal(8,2),  
    Primary key (OrderNum),  
    Foreign key (Pnum) references PRODUCT (Pnum),  
    Foreign key (Cnum) references CUSTOMER (Cnum),  
    Check ( SellingPrice > 0)  
)
```

```
CREATE TABLE OUTSTANDING (  
    OrderNum integer not null,  
    Primary key (OrderNum)  
)
```

```
CREATE TABLE EVALUATION (  
    Cnum integer not null,  
    Pnum integer not null,  
    Score integer not null,  
    Comment text not null,  
    Primary key (Cnum,Pnum),  
    Foreign key (Pnum) references PRODUCT (Pnum),  
    Foreign key (Cnum) references CUSTOMER (Cnum),  
    Check ( Score >= 1 AND Score <= 5)  
)
```