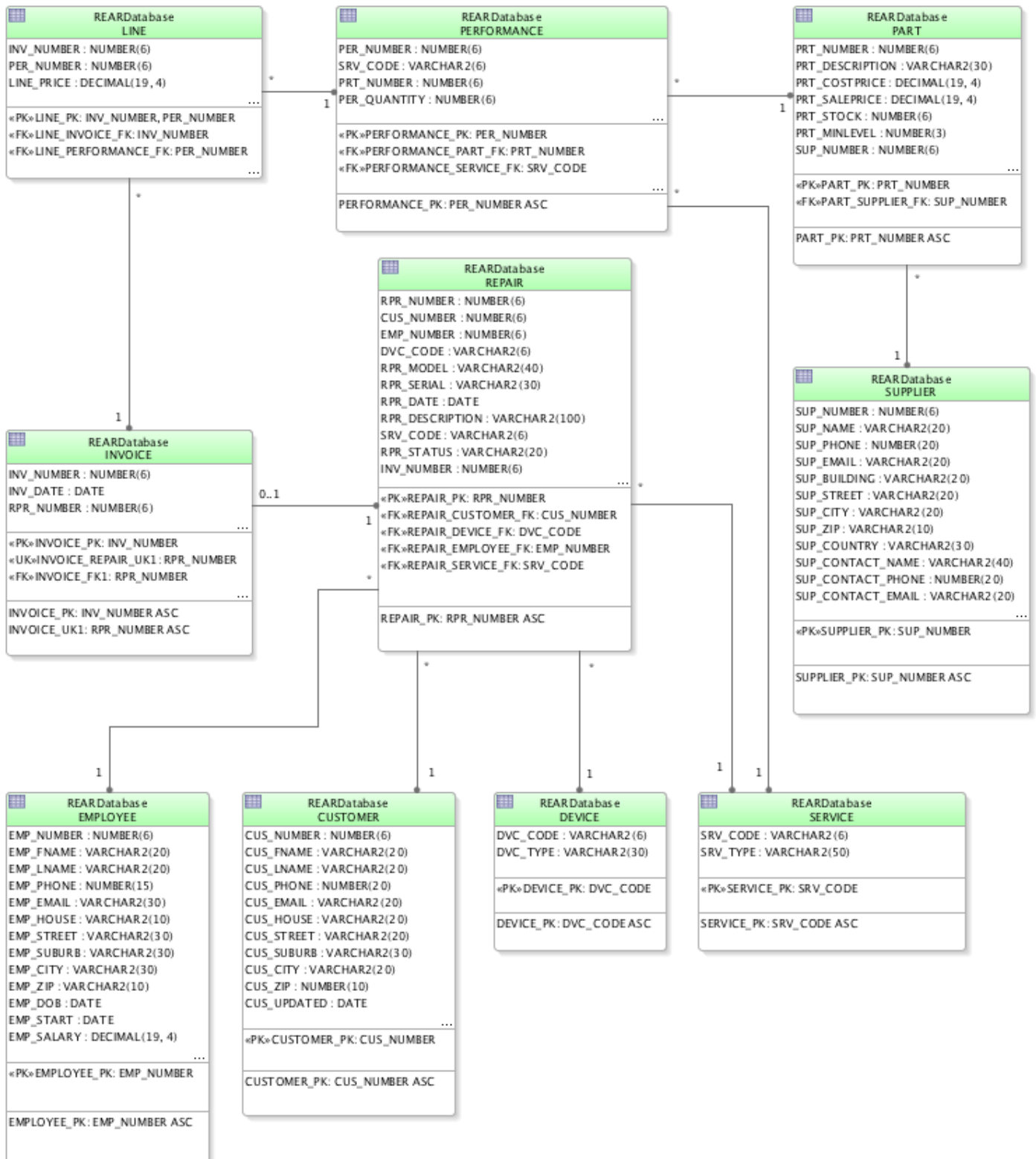


Reliable and Affordable Electronics Repairs (REAR) Case Study

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REAR Logical Data Model



Business Rules

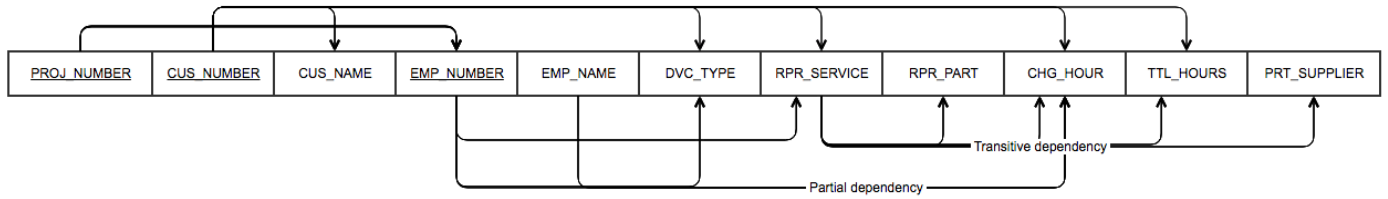
EMPLOYEE is a strong entity with a weak relationship to REPAIR. An EMPLOYEE may work on many REPAIR requests, however each REPAIR is only associated with one EMPLOYEE.
CUSTOMER is a strong entity with a weak relationship to REPAIR. A CUSTOMER will create as many REPAIR requests as they wish, however each REPAIR is only associated with one CUSTOMER.
DEVICE is a strong entity with a weak relationship to REPAIR. A DEVICE is part of a REPAIR and can be used in many different REPAIR, however only one DEVICE per REPAIR request.
SERVICE is a strong entity with a weak relationship to REPAIR and PERFORMANCE. A SERVICE fixes many different REPAIR requests, however each SERVICE requires only one REPAIR. A SERVICE comprises of many different PERFORMANCE but each PERFORMANCE can only comprise of one SERVICE.
SUPPLIER is a strong entity with a weak relationship with PART. A SUPPLIER supplies many different PART, but each part can only be supplied by one SUPPLIER.
PART is a strong entity with a weak relationship with both PERFORMANCE and SUPPLIER. A PART is used in many different PERFORMANCE, but each PERFORMANCE can only use one PART.
PERFORMANCE is a strong entity with a strong relationship to LINE. PERFORMANCE populates many LINE, but each LINE can only be populated by one PERFORMANCE.
LINE is a weak entity with a strong relationship with PERFORMANCE and INVOICE.
INVOICE is a strong entity with a strong relationship to LINE. AN INVOICE contains many LINE, but each LINE has only one INVOICE.
REPAIR is a strong entity; all its relationships are weak. A REPAIR will generate zero to one INVOICE depending on its status. However an INVOICE is only associated to one REPAIR.

Assumptions

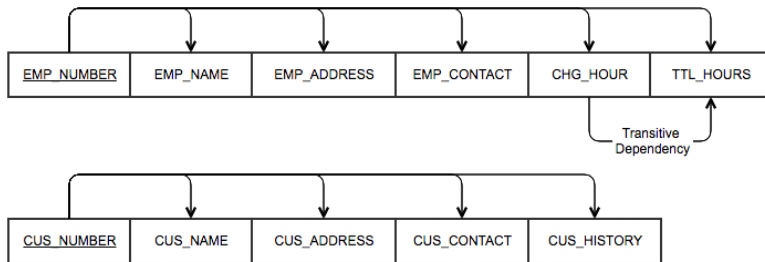
- A repair will only be worked on by one employee.
- The hourly charge will be stored as a wildcard in the PART table.
- All attributes are Not Null except supplier contact name, phone and email.
- All dates should be after 01-JAN-2012.
- A repair status can only be "NEW", "UNDER REPAIR" or "COMPLETE".
- Invoice should only be generated if repair is complete.
- The majority of repair data revolves around the REPAIR table.

Dependency Diagrams

FIRST NORMAL FORM



SECOND NORMAL FORM



THIRD NORMAL FORM

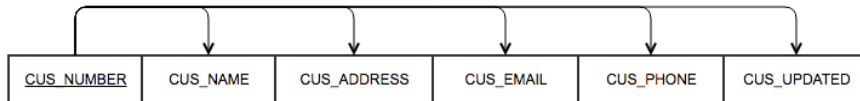
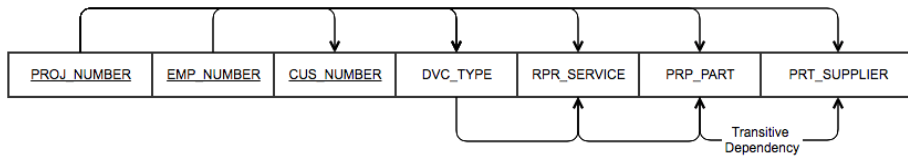


Table name : CUSTOMER

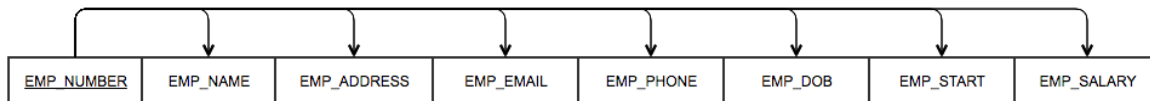


Table name : EMPLOYEE

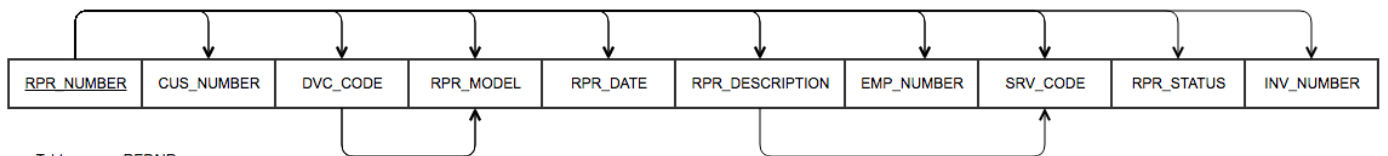


Table name : REPAIR

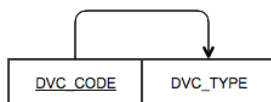


Table name : DEVICE

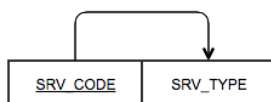
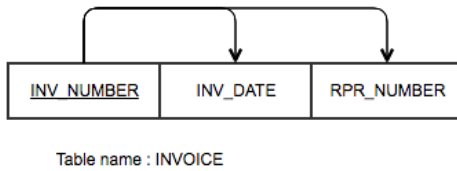
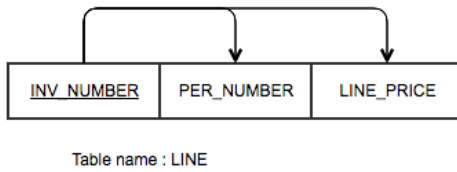
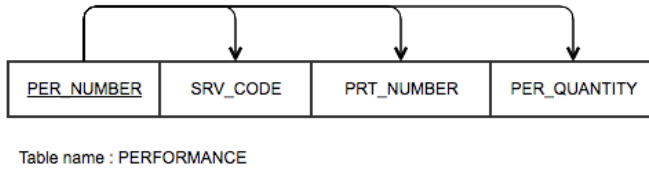
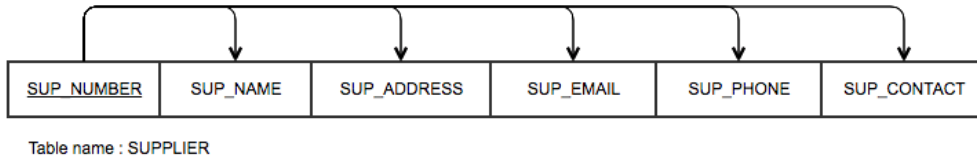
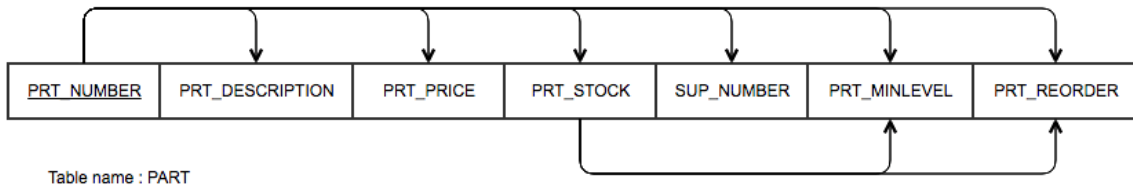


Table name : SERVICE



SQL DDL Code

```
CREATE TABLE EMPLOYEE (  
  EMP_NUMBER NUMBER(6) CONSTRAINT EMP_NUMBER_PK PRIMARY KEY,  
  EMP_FNAME VARCHAR2(20) CONSTRAINT NN_EMP_FNAME NOT NULL,  
  EMP_LNAME VARCHAR2(20) CONSTRAINT NN_EMP_LNAME NOT NULL,  
  EMP_PHONE NUMBER(15) CONSTRAINT NN_EMP_PHONE NOT NULL,  
  EMP_EMAIL VARCHAR2(40) CONSTRAINT NN_EMP_EMAIL NOT NULL,  
  EMP_HOUSE VARCHAR2(10) CONSTRAINT NN_EMP_HOUSE NOT NULL,  
  EMP_STREET VARCHAR2(30) CONSTRAINT NN_EMP_STREET NOT NULL,  
  EMP_CITY VARCHAR2(30) CONSTRAINT NN_EMP_CITY NOT NULL,  
  EMP_SUBURB VARCHAR2(30) CONSTRAINT NN_EMP_SUBURB NOT NULL,  
  EMP_ZIP VARCHAR2(10) CONSTRAINT NN_EMP_ZIP NOT NULL,  
  EMP_DOB DATE CONSTRAINT NN_EMP_DOB NOT NULL,  
  EMP_START DATE DEFAULT SYSDATE CONSTRAINT NN_EMP_START NOT NULL,  
  EMP_SALARY DECIMAL(19,4) CONSTRAINT NN_EMP_SALARY NOT NULL,  
  CONSTRAINT EMP_UI1 UNIQUE(EMP_LNAME, EMP_FNAME),  
  CONSTRAINT EMP_CK1 CHECK (EMP_SALARY > 0),  
  CONSTRAINT EMP_CK2 CHECK (EMP_START > TO_DATE('01-JAN-2012','DD-MON-YYYY'))  
);
```

```
CREATE TABLE CUSTOMER (  
  CUS_NUMBER NUMBER(6) CONSTRAINT CUS_NUMBER_PK PRIMARY KEY,  
  CUS_FNAME VARCHAR2(20) CONSTRAINT NN_CUS_FNAME NOT NULL,  
  CUS_LNAME VARCHAR2(20) CONSTRAINT NN_CUS_LNAME NOT NULL,  
  CUS_PHONE NUMBER(15) CONSTRAINT NN_CUS_PHONE NOT NULL,  
  CUS_EMAIL VARCHAR2(40) CONSTRAINT NN_CUS_EMAIL NOT NULL,  
  CUS_HOUSE VARCHAR2(10) CONSTRAINT NN_CUS_HOUSE NOT NULL,  
  CUS_STREET VARCHAR2(30) CONSTRAINT NN_CUS_STREET NOT NULL,  
  CUS_SUBURB VARCHAR2(30) CONSTRAINT NN_CUS_SUBURB NOT NULL,  
  CUS_CITY VARCHAR2(30) CONSTRAINT NN_CUS_CITY NOT NULL,  
  CUS_ZIP VARCHAR2(10) CONSTRAINT NN_CUS_ZIP NOT NULL,  
  CUS_UPDATED DATE DEFAULT SYSDATE CONSTRAINT NN_CUS_UPDATED NOT NULL,  
  CONSTRAINT CUS_UI1 UNIQUE (CUS_LNAME, CUS_FNAME),  
  CONSTRAINT CUS_CK1 CHECK (CUS_UPDATED > TO_DATE('01-JAN-2012','DD-MON-YYYY'))  
);
```

```
CREATE TABLE SUPPLIER (  
  SUP_NUMBER NUMBER(6) CONSTRAINT SUP_NUMBER_PK PRIMARY KEY,  
  SUP_NAME VARCHAR2(20) CONSTRAINT NN_SUP_NAME NOT NULL,  
  SUP_PHONE NUMBER(20) CONSTRAINT NN_SUP_PHONE NOT NULL,  
  SUP_EMAIL VARCHAR2(40) CONSTRAINT NN_SUP_EMAIL NOT NULL,  
  SUP_BUILDING VARCHAR(20) CONSTRAINT NN_SUP_BUILDING NOT NULL,  
  SUP_STREET VARCHAR2(30) CONSTRAINT NN_SUP_STREET NOT NULL,  
  SUP_CITY VARCHAR2(30) CONSTRAINT NN_SUP_CITY NOT NULL,  
  SUP_ZIP VARCHAR2(10) CONSTRAINT NN_SUP_ZIP NOT NULL,  
  SUP_COUNTRY VARCHAR2(30) CONSTRAINT NN_SUP_COUNTRY NOT NULL,  
  SUP_CONTACT_NAME VARCHAR2(40),  
  SUP_CONTACT_PHONE NUMBER(20),  
  SUP_CONTACT_EMAIL VARCHAR2(40),  
  CONSTRAINT SUP_UI1 UNIQUE (SUP_NAME, SUP_BUILDING, SUP_STREET)  
);
```

```
CREATE TABLE DEVICE (  
  DVC_CODE VARCHAR2(6) CONSTRAINT DVC_CODE_PK PRIMARY KEY,  
  DVC_TYPE VARCHAR2(30) CONSTRAINT NN_DVC_TYPE NOT NULL  
);
```

```
CREATE TABLE PART (  
  PRT_NUMBER NUMBER(6) CONSTRAINT PRT_NUMBER_PK PRIMARY KEY,  
  PRT_DESCRIPTION VARCHAR2(30) CONSTRAINT NN_PRT_DESCRIPTION NOT NULL,  
  PRT_COSTPRICE DECIMAL(19,4) CONSTRAINT NN_PRT_COSTPRICE NOT NULL,  
  PRT_SALEPRICE DECIMAL(19,4) CONSTRAINT NN_PRT_SALEPRICE NOT NULL,  
  PRT_STOCK NUMBER(6) DEFAULT 0 CONSTRAINT NN_PRT_STOCK NOT NULL,  
  PRT_MINLEVEL NUMBER(3) DEFAULT 0 CONSTRAINT NN_PRT_MIN NOT NULL,
```

```

SUP_NUMBER NUMBER(6) CONSTRAINT NN_PRT_SUP_FK NOT NULL,
CONSTRAINT PRT_CK1 CHECK (PRT_COSTPRICE > 0),
CONSTRAINT PRT_CK2 CHECK (PRT_SALEPRICE > PRT_COSTPRICE),
CONSTRAINT PRT_SUP_FK FOREIGN KEY (SUP_NUMBER) REFERENCES SUPPLIER
);

```

```

CREATE TABLE SERVICE (
  SRV_CODE VARCHAR2(6) CONSTRAINT SRV_CODE_PK PRIMARY KEY,
  SRV_TYPE VARCHAR2(50) CONSTRAINT NN_SRV_TYPE NOT NULL
);

```

```

CREATE TABLE PERFORMANCE (
  PER_NUMBER NUMBER(6) CONSTRAINT PER_NUMBER_PK PRIMARY KEY,
  SRV_CODE VARCHAR2(6) CONSTRAINT NN_PER_SRV_FK NOT NULL,
  PRT_NUMBER NUMBER(6) CONSTRAINT NN_PER_PRT_FK NOT NULL,
  PER_QUANTITY NUMBER(3) CONSTRAINT NN_PER_QUANTITY NOT NULL,
  CONSTRAINT PER_PRT_FK FOREIGN KEY (PRT_NUMBER) REFERENCES PART,
  CONSTRAINT PER_SRV_FK FOREIGN KEY (SRV_CODE) REFERENCES SERVICE,
  CONSTRAINT PER_CK1 CHECK (PER_QUANTITY > 0)
);

```

```

CREATE TABLE REPAIR (
  RPR_NUMBER NUMBER(6) CONSTRAINT RPR_NUMBER_PK PRIMARY KEY,
  CUS_NUMBER NUMBER(6) CONSTRAINT NN_RPR_CUS_FK NOT NULL,
  EMP_NUMBER NUMBER(6) CONSTRAINT NN_RPR_EMP_FK NOT NULL,
  DVC_CODE VARCHAR2(6) CONSTRAINT NN_RPR_DVC_FK NOT NULL,
  RPR_MODEL VARCHAR2(40) CONSTRAINT NN_RPR_MODEL NOT NULL,
  RPR_SERIAL VARCHAR2(40) CONSTRAINT NN_RPR_SERIAL NOT NULL,
  RPR_DATE DATE DEFAULT SYSDATE CONSTRAINT NN_RPR_DATE NOT NULL,
  RPR_DESCRIPTION VARCHAR2(100) CONSTRAINT NN_RPR_DESCRIPTION NOT NULL,
  SRV_CODE VARCHAR2(6) CONSTRAINT NN_RPR_SRV_FK NOT NULL,
  RPR_STATUS VARCHAR2(20) DEFAULT 'NEW' CONSTRAINT NN_RPR_STATUS NOT NULL,
  CONSTRAINT RPR_CUS_FK FOREIGN KEY (CUS_NUMBER) REFERENCES CUSTOMER,
  CONSTRAINT RPR_DVC_FK FOREIGN KEY (DVC_CODE) REFERENCES DEVICE,
  CONSTRAINT RPR_SRV_FK FOREIGN KEY (SRV_CODE) REFERENCES SERVICE,
  CONSTRAINT RPR_EMP_FK FOREIGN KEY (EMP_NUMBER) REFERENCES EMPLOYEE,
  CONSTRAINT RPR_CK1 CHECK (RPR_DATE > TO_DATE('01-JAN-2012','DD-MON-YYYY')),
  CONSTRAINT RPR_CK2 CHECK (RPR_STATUS IN ('NEW', 'UNDER REPAIR', 'COMPLETE'))
);

```

```

CREATE TABLE INVOICE (
  INV_NUMBER NUMBER(6) CONSTRAINT INV_NUMBER_PK PRIMARY KEY,
  INV_DATE DATE DEFAULT SYSDATE CONSTRAINT NN_INV_DATE NOT NULL,
  RPR_NUMBER NUMBER(6) CONSTRAINT NN_INV_RPR_FK NOT NULL,
  CONSTRAINT INV_CK1 CHECK (INV_DATE > TO_DATE('01-JAN-2012','DD-MON-YYYY')),
  CONSTRAINT INV_RPR_FK FOREIGN KEY (RPR_NUMBER) REFERENCES REPAIR,
  CONSTRAINT INV_UI1 UNIQUE (RPR_NUMBER)
);

```

```

CREATE TABLE LINE (
  INV_NUMBER NUMBER(6) CONSTRAINT NN_INV_LINE_FK NOT NULL,
  PER_NUMBER NUMBER(6) CONSTRAINT NN_LINE_PER_FK NOT NULL,
  LINE_PRICE DECIMAL(19,4) DEFAULT 0 CONSTRAINT NN_LINE_PRICE NOT NULL,
  CONSTRAINT INV_PER_PK PRIMARY KEY (INV_NUMBER, PER_NUMBER),
  CONSTRAINT LINE_INV_FK FOREIGN KEY (INV_NUMBER) REFERENCES INVOICE ON DELETE CASCADE,
  CONSTRAINT LINE_PER_FK FOREIGN KEY (PER_NUMBER) REFERENCES PERFORMANCE
);

```

SQL DML Code

```
INSERT INTO EMPLOYEE VALUES (200001, 'Cira', 'Guerrero', 2321322, 'cira@mail.com', '23', 'North Street', 'Tawa', 'Wellington', '5278', '03-SEP-1983', '10-JAN-2013', 100000);
INSERT INTO EMPLOYEE VALUES (200002, 'Essie', 'Sparks', 8270462, 'essie@mail.com', '32', 'South Street', 'Tawa', 'Wellington', '5278', '10-JAN-1983', '20-JAN-2013', 50000);
INSERT INTO EMPLOYEE VALUES (200003, 'Kellie', 'Mendoza', 7049605, 'kellie@mail.com', '223', 'Strawberry Lane', 'Thorndon', 'Wellington', '5433', '04-APR-2000', '9-JAN-2014', 45769);
INSERT INTO EMPLOYEE VALUES (200004, 'Sherman', 'Hudson', 2435421, 'sherman@mail.com', '2a', 'Depot Street', 'Te Aro', 'Wellington', '5270', '10-FEB-1999', '04-APR-2014', 60000);
INSERT INTO EMPLOYEE VALUES (200005, 'Kelly', 'Spencer', 1165121, 'kelly@mail.com', '545', 'Orchard Avenue', 'Brooklyn', 'Wellington', '5273', '11-FEB-1991', '07-MAY-2014', 50000);
INSERT INTO EMPLOYEE VALUES (200006, 'Scott', 'Roberts', 6886164, 'scott@mail.com', '89', 'Hawthorne Avenue', 'Tawa', 'Wellington', '5278', '10-MAR-1989', '22-JAN-2015', 55600);
INSERT INTO EMPLOYEE VALUES (200007, 'Dora', 'Schmidt', 4927862, 'dora@mail.com', '400', '3rd Street West', 'Newtown', 'Wellington', '5300', '20-MAR-1999', '10-SEP-2015', 40500);
INSERT INTO EMPLOYEE VALUES (200008, 'Rita', 'Alexander', 6177467, 'rita@mail.com', '344', 'Green Street', 'Island bay', 'Wellington', '5590', '06-MAR-2001', '14-DEC-2015', 100000);
INSERT INTO EMPLOYEE VALUES (200009, 'Edna', 'Gardner', 9524261, 'edna@mail.com', '45', 'Holly Court', 'Tawa', 'Wellington', '5278', '29-JAN-1996', '10-DEC-2016', 25000);
INSERT INTO EMPLOYEE VALUES (200010, 'Virginia', 'Fields', 3145665, 'virginia@mail.com', '3b', 'Academy Street', 'Te Aro', 'Wellington', '5270', '25-JAN-1999', '03-OCT-2017', 10000);
```

```
INSERT INTO CUSTOMER VALUES (100001, 'Cira', 'Nordberg', 2321322, 'cira@mail.com', '23', 'North Street', 'Tawa', 'Wellington', '5278', '01-APR-2018');
INSERT INTO CUSTOMER VALUES (100002, 'Denisha', 'Sligh', 8270462, 'denisha@mail.com', '32', 'South Street', 'Tawa', 'Wellington', '5278', '10-JAN-2018');
INSERT INTO CUSTOMER VALUES (100003, 'Helene', 'Mandel', 7049605, 'helene@mail.com', '223', 'Strawberry Lane', 'Thorndon', 'Wellington', '5433', '04-APR-2018');
INSERT INTO CUSTOMER VALUES (100004, 'Nam', 'Regis', 2435421, 'nam@mail.com', '2a', 'Depot Street', 'Te Aro', 'Wellington', '5270', '10-FEB-2018');
INSERT INTO CUSTOMER VALUES (100005, 'Yung', 'Cyrus', 1165121, 'yung@mail.com', '545', 'Orchard Avenue', 'Brooklyn', 'Wellington', '5273', '11-FEB-2018');
INSERT INTO CUSTOMER VALUES (100006, 'Tiffany', 'Simons', 6886164, 'tiffany@mail.com', '89', 'Hawthorne Avenue', 'Tawa', 'Wellington', '5278', '10-MAR-2018');
INSERT INTO CUSTOMER VALUES (100007, 'Marlene', 'Cannaday', 4927862, 'marlene@mail.com', '400', '3rd Street West', 'Newtown', 'Wellington', '5300', '20-MAR-2018');
```

```
INSERT INTO SUPPLIER VALUES (300001, 'Computer City', 2345645, 'cc@supplier.com', '23', 'Flat Street', 'Auckland', 1003, 'New Zealand', 'Brian Green', 04132345, 'brian@supplier.com');
INSERT INTO SUPPLIER VALUES (300002, 'Electec', 3425645, 'electec@supplier.com', '577', 'Tech Street', 'Wellington', 1005, 'New Zealand', 'Lisa Door', 04123432, 'ldoor@supplier.com');
INSERT INTO SUPPLIER VALUES (300003, 'Central Supplies', 9995645, 'central.info@supplier.com', '2443', 'Corner Avenue', 'Sydney', 5555, 'Australia', 'Brian Green', 09342423, 'greenman@supplier.com');
INSERT INTO SUPPLIER VALUES (300004, 'Best Buy', 193433432, 'bb_help@supplier.com', '3', '69th Street', 'San Francisco', 10001, 'United States of America', 'David Yankee', 9174785678, 'yankee@supplier.com');
INSERT INTO SUPPLIER VALUES (300005, 'Central Electric', 23432455, 'c.electric@supplier.com', '4566', 'Nortchen Street', 'Auckland', 1003, 'New Zealand', 'William', 04132356, 'will@supplier.com');
INSERT INTO SUPPLIER VALUES (300006, 'Cellinc', 2563457, 'cellingroup@supplier.com', '1', 'Inner Street', 'Wellington', 1023, 'New Zealand', 'Sara Whilkens', 04132345, 'sara@supplier.com');
INSERT INTO SUPPLIER VALUES (399999, 'REAR - In House', 2322000, 'rear@rear.com', '1', 'Central Street', 'Wellington', 1023, 'New Zealand', 'David Massey', 04132345, 'david@rear.com');
```

```
INSERT INTO DEVICE VALUES ('CELL01', 'iPhone');
INSERT INTO DEVICE VALUES ('CELL02', 'Android Phone');
INSERT INTO DEVICE VALUES ('COMP01', 'Mac Desktop');
INSERT INTO DEVICE VALUES ('COMP02', 'MacBook Pro');
INSERT INTO DEVICE VALUES ('COMP03', 'Apple iPad');
INSERT INTO DEVICE VALUES ('COMP04', 'PC Desktop');
INSERT INTO DEVICE VALUES ('COMP05', 'PC Laptop');
INSERT INTO DEVICE VALUES ('HARD01', 'Hard drive');
INSERT INTO DEVICE VALUES ('HARD02', 'Monitor');
```

```
INSERT INTO PART VALUES (400001, 'iPhone 6 screen', 30.00, 80.00, 20, 5, 300003);
INSERT INTO PART VALUES (400002, 'iPhone battery', 50.50, 110.45, 30, 5, 300006);
```



```

INSERT INTO PART VALUES (400003, 'Samsung hard drive', 120.10 , 213.00 , 14 , 4 , 300004);
INSERT INTO PART VALUES (400004, 'Apple USB port', 30.33 , 40.00 , 50 , 10 , 300001);
INSERT INTO PART VALUES (400005, '15inch HP screen', 400.00 , 548.34 , 5 , 1 , 300003);
INSERT INTO PART VALUES (400006, '15inch Apple screen', 507.67 , 800.00 , 3 , 2 , 300004);
INSERT INTO PART VALUES (400007, '1.5 amp power cord', 10.45 , 12.45 , 30 , 10 , 300002);
INSERT INTO PART VALUES (400008, 'IBM CPU 3Ghz', 345.67 , 414.45 , 4 , 1 , 300001);
INSERT INTO PART VALUES (400009, '2amp 100mm fan', 80.00 , 100.00 , 24 , 5 , 300006);
INSERT INTO PART VALUES (400010, 'Flux capacitor', 1005.59 , 1500.56 , 145 , 20 , 300005);
INSERT INTO PART VALUES (400011, 'Android screen GXV1', 23.55 , 50.00 , 20 , 5 , 300005);
INSERT INTO PART VALUES (400012, 'Android battery GXV1', 30.00 , 50.00 , 34 , 5 , 300001);
INSERT INTO PART VALUES (400013, 'Computer chip VER23D', 56.00 , 104.00 , 120 , 10 , 300003);
INSERT INTO PART VALUES (400014, 'Power inlet DC/AC', 345.99 , 400.00 , 12 , 2 , 300003);
INSERT INTO PART VALUES (499999, 'LABOUR', 99 , 100 , 1 , 1 , 399999);

```

```

INSERT INTO SERVICE VALUES ('APL001', 'Replace broken screen iPhone');
INSERT INTO SERVICE VALUES ('APL002', 'Repair MacBook screen');
INSERT INTO SERVICE VALUES ('APL003', 'Repair iPad screen Apple');
INSERT INTO SERVICE VALUES ('AND001', 'Repair screen');
INSERT INTO SERVICE VALUES ('DRV001', 'Recover data from HD');
INSERT INTO SERVICE VALUES ('PC001', 'Replace fan');
INSERT INTO SERVICE VALUES ('PC002', 'Replace power supply');
INSERT INTO SERVICE VALUES ('MNT001', 'Replace monitor');

```

```

INSERT INTO PERFORMANCE VALUES (600001, 'APL001', 400001, 1);
INSERT INTO PERFORMANCE VALUES (600002, 'APL001', 499999, 1);
INSERT INTO PERFORMANCE VALUES (600003, 'APL002', 400006, 1);
INSERT INTO PERFORMANCE VALUES (600004, 'APL002', 499999, 3);
INSERT INTO PERFORMANCE VALUES (600005, 'APL003', 400006, 1);
INSERT INTO PERFORMANCE VALUES (600006, 'APL003', 499999, 2);
INSERT INTO PERFORMANCE VALUES (600007, 'DRV001', 499999, 4);
INSERT INTO PERFORMANCE VALUES (600008, 'PC001', 400007, 2);
INSERT INTO PERFORMANCE VALUES (600009, 'PC001', 400010, 1);
INSERT INTO PERFORMANCE VALUES (600010, 'PC001', 499999, 5);
INSERT INTO PERFORMANCE VALUES (600011, 'PC002', 400009, 1);
INSERT INTO PERFORMANCE VALUES (600012, 'PC002', 400014, 2);
INSERT INTO PERFORMANCE VALUES (600013, 'PC002', 400010, 1);
INSERT INTO PERFORMANCE VALUES (600014, 'PC002', 499999, 5);
INSERT INTO PERFORMANCE VALUES (600015, 'MNT001', 400005, 1);
INSERT INTO PERFORMANCE VALUES (600016, 'MNT001', 499999, 2);

```

```

INSERT INTO REPAIR VALUES (700001, 100001, 200001, 'COMP05', 'IBM Smart Top', 'XCV1274', '15-JAN-2013',
'Smoke coming from fan', 'PC001', 'COMPLETE');
INSERT INTO REPAIR VALUES (700002, 100002, 200002, 'HARD02', 'HP Black Box', 'BB412545532', '14-JAN-
2013', 'Monitor does not turn on', 'MNT001', 'COMPLETE');
INSERT INTO REPAIR VALUES (700003, 100001, 200001, 'COMP02', '2013 MacBook Pro', '32535-0563-674', '01-
JAN-2013', 'Smashed screen', 'APL002', 'COMPLETE');
INSERT INTO REPAIR VALUES (700004, 100003, 200003, 'CELL01', 'iPhone 4s', '42456-15123-4111', '04-APR-
2014', 'Screen not working after dropping it', 'APL001', 'COMPLETE');
INSERT INTO REPAIR VALUES (700005, 100004, 200004, 'HARD01', 'Seagate', 'ZZZ62362363-09', '05-APR-2014',
'Accidentally formatted hard drive', 'DRV001', 'COMPLETE');
INSERT INTO REPAIR VALUES (700006, 100005, 200002, 'COMP04', 'IBM Tower of Power', 'XCV12GAG4DS74',
'29-JAN-2016', 'Loud BANG came from back of machine', 'PC002', 'COMPLETE');
INSERT INTO REPAIR VALUES (700007, 100006, 200001, 'CELL02', 'Samsung Galaxy X1', 'A1-FF52-F3515', '25-
FEB-2018', 'Broken screen', 'AND001', 'COMPLETE');
INSERT INTO REPAIR VALUES (700008, 100004, 200010, 'COMP03', 'Apple iPad V3', 'FDSA9843-GG4-45GRF-01',
'10-MAR-2018', 'Screen not responding to touch', 'APL003', 'UNDER REPAIR');
INSERT INTO REPAIR VALUES (700009, 100007, 200006, 'COMP05', 'HP Gamer', '1998-VAFD-5235', '03-APR-
2018', 'Fan stopped working', 'PC001', 'UNDER REPAIR');
INSERT INTO REPAIR VALUES (700010, 100007, 200006, 'COMP05', 'HP Gamer', '1998-VA32-4243', '08-JAN-
2013', 'Not turning on', 'PC002', 'NEW');

```

```

INSERT INTO INVOICE VALUES (500001, '01-APR-2013', 700001);
INSERT INTO INVOICE VALUES (500002, '15-JAN-2013', 700002);
INSERT INTO INVOICE VALUES (500003, '20-JAN-2013', 700003);
INSERT INTO INVOICE VALUES (500004, '08-APR-2014', 700005);

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INSERT INTO INVOICE VALUES (500005, '10-APR-2014', 700004);
 INSERT INTO INVOICE VALUES (500006, '11-FEB-2016', 700006);
 INSERT INTO INVOICE VALUES (500007, '01-MAR-2018', 700007);

INSERT INTO LINE VALUES (500001, 600008, 24.90);
 INSERT INTO LINE VALUES (500001, 600009, 1500.56);
 INSERT INTO LINE VALUES (500002, 600015, 548.34);
 INSERT INTO LINE VALUES (500002, 600016, 200.00);
 INSERT INTO LINE VALUES (500003, 600003, 800.00);
 INSERT INTO LINE VALUES (500003, 600004, 300.00);
 INSERT INTO LINE VALUES (500004, 600007, 400.00);
 INSERT INTO LINE VALUES (500005, 600001, 80.00);
 INSERT INTO LINE VALUES (500005, 600002, 100.00);
 INSERT INTO LINE VALUES (500006, 600011, 800.00);
 INSERT INTO LINE VALUES (500006, 600012, 1500.50);
 INSERT INTO LINE VALUES (500006, 600013, 500.00);
 INSERT INTO LINE VALUES (500007, 600001, 80.00);
 INSERT INTO LINE VALUES (500007, 600002, 100.00);

Tables

Customer

CUS_NUMBER	CUS_FNAME	CUS_LNAME	CUS_PHONE	CUS_EMAIL	CUS_HOUSE	CUS_STREET	CUS_SUBURB	CUS_CITY	CUS_ZIP	CUS_UPDATED
100001	Cira	Nordberg	2321322	cira@mail.com	23	North Street	Tawa	Wellington	5278	01-APR-18
100002	Denisha	Sligh	8270462	denisha@mail.com	32	South Street	Tawa	Wellington	5278	10-JAN-18
100003	Helene	Mandel	7049605	helene@mail.com	223	Strawberry Lane	Thorndon	Wellington	5433	04-APR-18
100004	Nam	Regis	2435421	nam@mail.com	2a	Depot Street	Te Aro	Wellington	5270	10-FEB-18
100005	Yung	Cyru	1165121	yung@mail.com	545	Orchard Avenue	Brooklyn	Wellington	5273	11-FEB-18
100006	Tiffany	Simons	6886164	tiffany@mail.com	89	Hawthorne Avenue	Tawa	Wellington	5278	10-MAR-18
100007	Marlene	Cannaday	4927862	marlene@mail.com	400	3rd Street West	Newtown	Wellington	5300	20-MAR-18

Employee

EMP_NUMBER	EMP_FNAME	EMP_LNAME	EMP_PHONE	EMP_EMAIL	EMP_HOUSE	EMP_STREET	EMP_CITY	EMP_SUBURB	EMP_ZIP	EMP_DOB	EMP_START	EMP_SALARY
200001	Cira	Guerrero	2321322	cira@mail.com	23	North Street	Tawa	Wellington	5278	03-SEP-83	10-JAN-13	100000
200002	Essie	Sparks	8270462	essie@mail.com	32	South Street	Tawa	Wellington	5278	10-JAN-83	20-JAN-13	50000
200003	Kellie	Mendoza	7049605	kellie@mail.com	223	Strawberry Lane	Thorndon	Wellington	5433	04-APR-00	09-JAN-14	45769
200004	Sherman	Hudson	2435421	sherman@mail.com	2a	Depot Street	Te Aro	Wellington	5270	10-FEB-99	04-APR-14	60000
200005	Kelly	Spencer	1165121	kelly@mail.com	545	Orchard Avenue	Brooklyn	Wellington	5273	11-FEB-91	07-MAY-14	50000
200006	Scott	Roberts	6886164	scott@mail.com	89	Hawthorne Avenue	Tawa	Wellington	5278	10-MAR-89	22-JAN-15	55600
200007	Dora	Schmidt	4927862	dora@mail.com	400	3rd Street West	Newtown	Wellington	5300	20-MAR-99	10-SEP-15	40500
200008	Rita	Alexander	6177467	rita@mail.com	344	Green Street	Island bay	Wellington	5590	06-MAR-01	14-DEC-15	100000
200009	Edna	Gardner	9524261	edna@mail.com	45	Holly Court	Tawa	Wellington	5278	29-JAN-96	10-DEC-16	25000
200010	Virginia	Fields	3145665	virginia@mail.com	3b	Academy Street	Te Aro	Wellington	5270	25-JAN-99	03-OCT-17	10000

Device

DVC_CODE	DVC_TYPE
CELL01	iPhone
CELL02	Android Phone
COMP01	Mac Desktop
COMP02	MacBook Pro
COMP03	Apple iPad
COMP04	PC Desktop
COMP05	PC Laptop
HARD01	Hard drive
HARD02	Monitor

Part

PRT_NUMBER	PRT_DESCRIPTION	PRT_COSTPRICE	PRT_SALEPRICE	PRT_STOCK	PRT_MINLEVEL	SUP_NUMBER
400001	iPhone 6 screen	30	80	20	5	300003
400002	iPhone battery	50.5	110.45	30	5	300006
400003	Samsung hard drive	120.1	213	14	4	300004
400004	Apple USB port	30.33	40	50	10	300001
400005	15inch HP screen	400	548.34	5	1	300003
400006	15inch Apple screen	507.67	800	3	2	300004
400007	1.5 amp power cord	10.45	12.45	30	10	300002
400008	IBM CPU 3Ghz	345.67	414.45	4	1	300001
400009	2amp 100mm fan	80	100	24	5	300006
400010	Flux capacitor	1005.59	1500.56	145	20	300005
400011	Android screen GXV1	23.55	50	20	5	300005
400012	Android battery GXV1	30	50	34	5	300001
400013	Computer chip VER23D	56	104	120	10	300003
400014	Power inlet DC/AC	345.99	400	12	2	300003
499999	LABOUR	99	100	1	1	399999

Supplier

SUP_NUMBER	SUP_NAME	SUP_PHONE	SUP_EMAIL	SUP_BUILDING	SUP_STREET	SUP_CITY	SUP_ZIP	SUP_COUNTRY	SUP_CONTACT_NAME	SUP_CONTACT_PHONE	SUP_CONTACT_EMAIL
300001	Computer City	2345645	cc@supplier.com	23	Flat Street	Auckland	1003	New Zealand	Brian Green	4132345	brian@supplier.com
300002	Electec	3425645	electec@supplier.com	577	Tech Street	Wellington	1005	New Zealand	Lisa Door	4123432	ldoor@supplier.com
300003	Central Supplies	9995645	central.info@supplier.com	2443	Corner Avenue	Sydney	5555	Australia	Brian Green	9342423	greenman@supplier.com
300004	Best Buy	193433432	bb_help@supplier.com	3	69th Street	San Francisco	10001	United States of America	David Yankee	9174785678	yankee@supplier.com
300005	Central Electric	23432455	c.electric@supplier.com	4566	Northern Street	Auckland	1003	New Zealand	William	4132356	will@supplier.com
300006	Cellinc	2563457	cellingroup@supplier.com	1	Inner Street	Wellington	1023	New Zealand	Sara Whikens	4132345	sara@supplier.com
399999	REAR - In House	2322000	rear@rear.com	1	Central Street	Wellington	1023	New Zealand	David Massey	4132345	david@rear.com

Service

SRV_CODE	SRV_TYPE
APL001	Replace broken screen iPhone
APL002	Repair MacBook screen
APL003	Repair iPad screen Apple
AND001	Repair screen
DRV001	Recover data from HD
PC001	Replace fan
PC002	Replace power supply
MNT001	Replace monitor

Performance

PER_NUMBER	SRV_CODE	PRT_NUMBER	PER_QUANTITY
600001	APL001	400001	1
600002	APL001	499999	1
600003	APL002	400006	1
600004	APL002	499999	3
600005	APL003	400006	1
600006	APL003	499999	2
600007	DRV001	499999	4
600008	PC001	400007	2
600009	PC001	400010	1
600010	PC001	499999	5
600011	PC002	400009	1
600012	PC002	400014	2
600013	PC002	400010	1
600014	PC002	499999	5
600015	MNT001	400005	1
600016	MNT001	499999	2

Repair

RPR_NUMBER	CUS_NUMBER	EMP_NUMBER	DVC_CODE	RPR_MODEL	RPR_SERIAL	RPR_DATE	RPR_DESCRIPTION	SRV_CODE	RPR_STATUS
700001	100001	200001	COMP05	IBM Smart Top	XCV1274	15-JAN-13	Smoke coming from fan	PC001	COMPLETE
700002	100002	200002	HARD02	HP Black Box	BB412545532	14-JAN-13	Monitor does not turn on	MNT001	COMPLETE
700003	100001	200001	COMP02	2013 MacBook Pro	32535-0563-674	01-JAN-13	Smashed screen	APL002	COMPLETE
700004	100003	200003	CELL01	iPhone 4s	42456-15123-4111	04-APR-14	Screen not working after dropping it	APL001	COMPLETE
700005	100004	200004	HARD01	Seagate	ZZZ62362363-09	05-APR-14	Accidently formatted hard drive	DRV001	COMPLETE
700006	100005	200002	COMP04	IBM Tower of Power	XCV12GAG4DS74	29-JAN-16	Loud BANG came from back of machine	PC002	COMPLETE
700007	100006	200001	CELL02	Samsung Galaxy X1	A1-FF52-F3515	25-FEB-18	Broken screen	AND001	COMPLETE
700008	100004	200010	COMP03	Apple iPad V3	FDSA9843-GG4-45GRF-01	10-MAR-18	Screen not responding to touch	APL003	UNDER REPAIR
700009	100007	200006	COMP05	HP Gamer	1998-VAFD-5235	03-APR-18	Fan stopped working	PC001	UNDER REPAIR
700010	100007	200006	COMP05	HP Gamer	1998-VA32-4243	08-JAN-13	Not turning on	PC002	NEW

Invoice

INV_NUMBER	INV_DATE	RPR_NUMBER
500001	01-APR-13	700001
500002	15-JAN-13	700002
500003	20-JAN-13	700003
500004	08-APR-14	700005
500005	10-APR-14	700004
500006	11-FEB-16	700006
500007	01-MAR-18	700007

Line

INV_NUMBER	PER_NUMBER	LINE_PRICE
500001	600008	24.9
500001	600009	1500.56
500002	600015	548.34
500002	600016	200
500003	600003	800
500003	600004	300
500004	600007	400
500005	600001	80
500005	600002	100
500006	600011	800
500006	600012	1500.5
500006	600013	500
500007	600001	80
500007	600002	100