FINAL PROJECT

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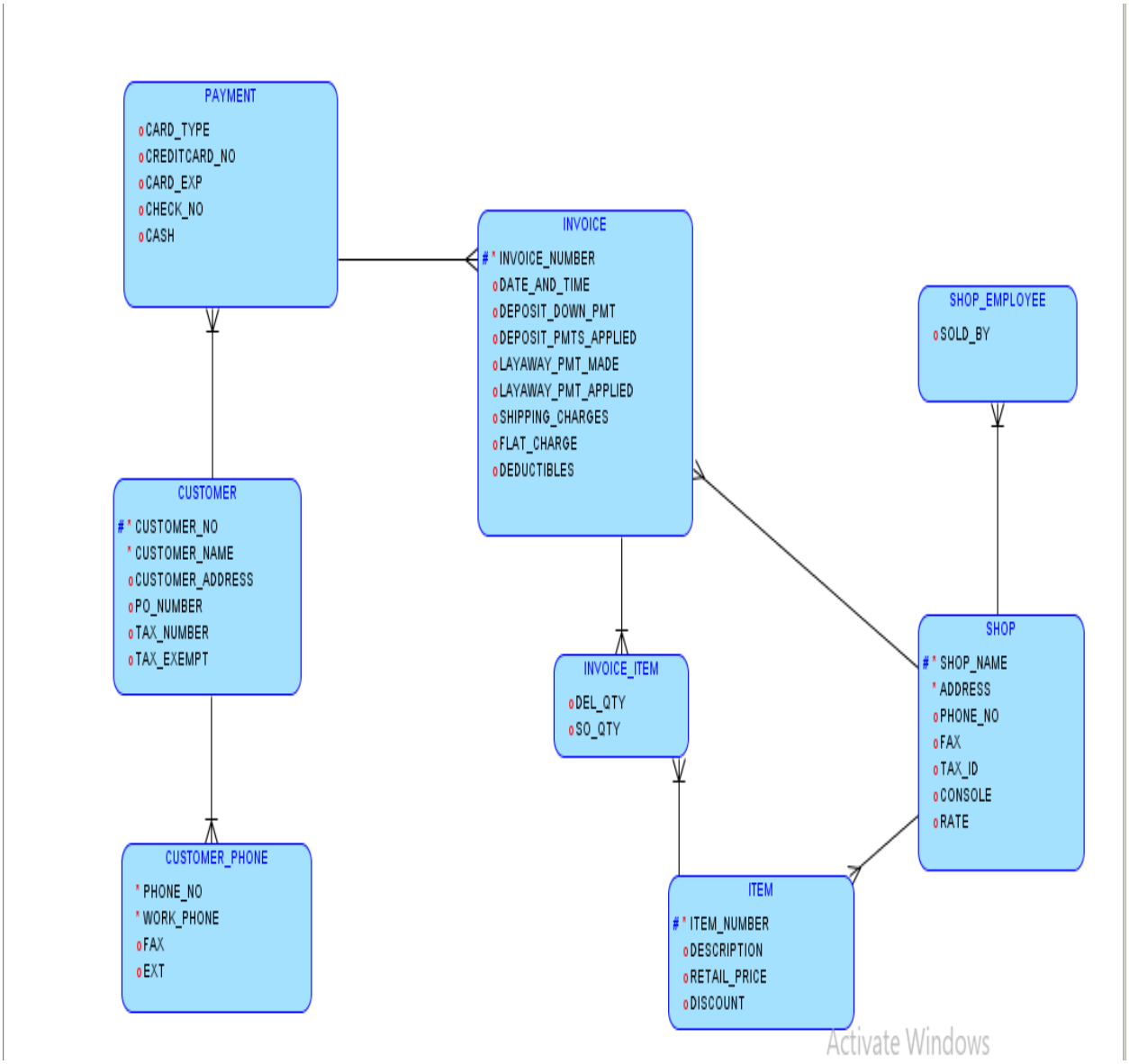
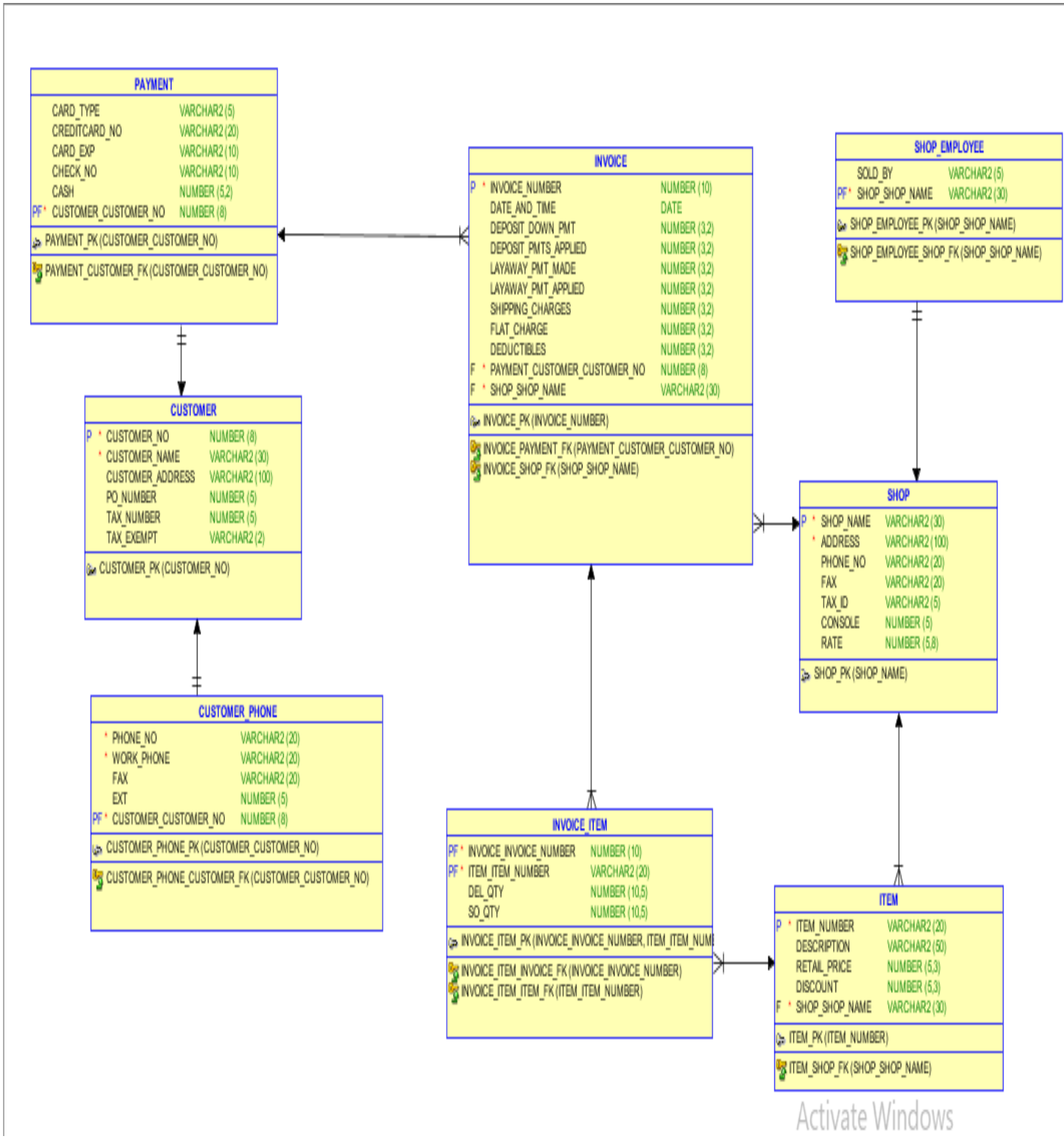
Course: **CSC 451**
Section: **701**

LOGICAL MODEL



RELATIONAL MODEL



CREATE TABLES AND INSERTION OF DATA

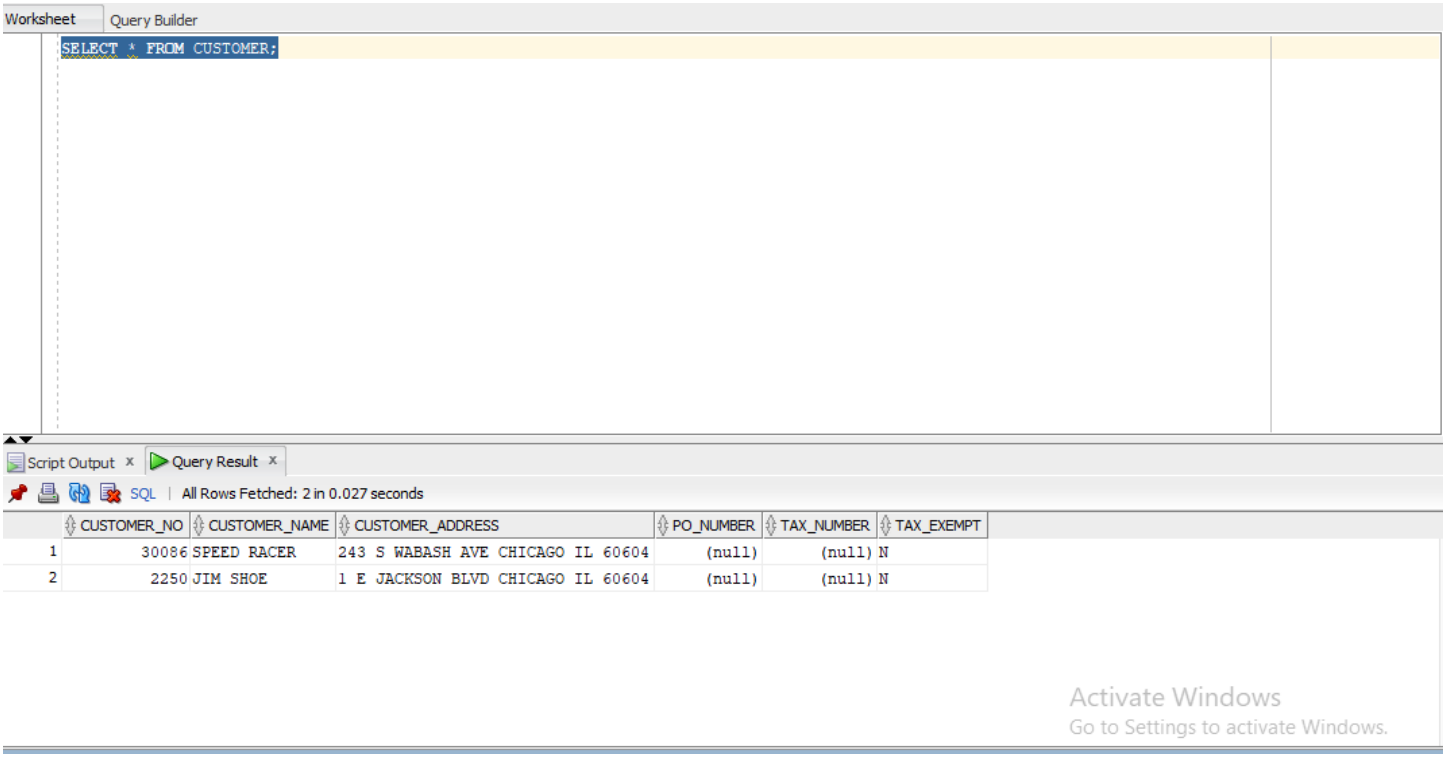
CUSTOMER TABLE

CREATE TABLE:

```
CREATE TABLE customer (
   customer_no       NUMBER(8) NOT NULL,
   customer_name     VARCHAR2(30) NOT NULL,
   customer_address  VARCHAR2(100),
   po_number         NUMBER(5),
   tax_number        NUMBER(5),
   tax_exempt        VARCHAR2(2)
);

ALTER TABLE customer ADD CONSTRAINT customer_pk PRIMARY KEY ( customer_no );
```

INSERT:

```
INSERT INTO CUSTOMER VALUES(30086,'SPEED RACER','243 S WABASH AVE
CHICAGO IL 60604',NULL,NULL,'N');

INSERT INTO CUSTOMER VALUES(2250,'JIM SHOE','1 E JACKSON BLVD CHICAGO IL
60604',NULL,NULL,'N');
```



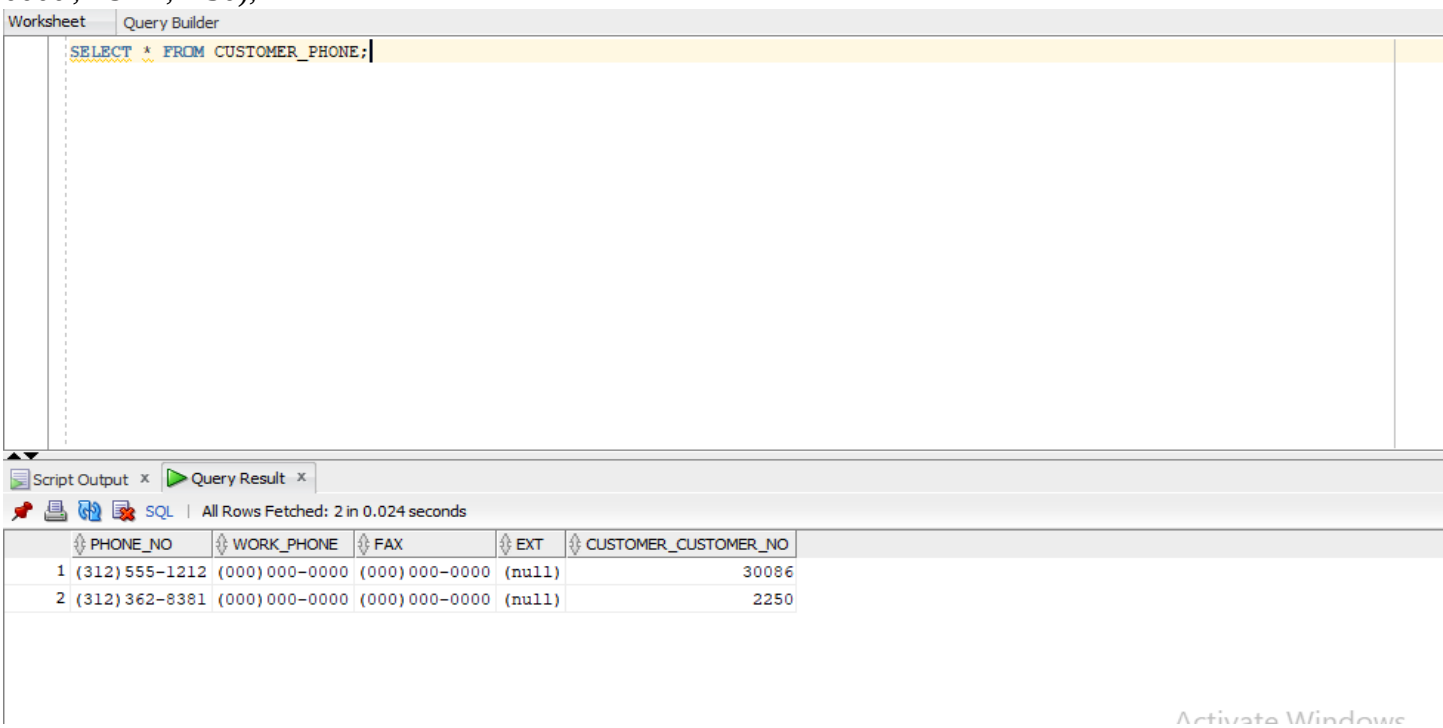
CUSTOMER_PHONE TABLE

CREATE:

```
CREATE TABLE customer_phone (
    phone_no             VARCHAR2(20) NOT NULL,
    work_phone           VARCHAR2(20) NOT NULL,
    fax                  VARCHAR2(20),
    ext                  NUMBER(5),
    customer_customer_no   NUMBER(8) NOT NULL
);

ALTER TABLE customer_phone ADD CONSTRAINT customer_phone_pk PRIMARY KEY (
customer_customer_no );

ALTER TABLE customer_phone
    ADD CONSTRAINT customer_phone_customer_fk FOREIGN KEY (
customer_customer_no )
        REFERENCES customer ( customer_no );
```

INSERT:

```
INSERT INTO CUSTOMER_PHONE  VALUES('(312)555-1212','(000)000-0000','(000)000-
0000',NULL,30086);

INSERT INTO CUSTOMER_PHONE  VALUES('(312)362-8381','(000)000-0000','(000)000-
0000',NULL,2250);
```



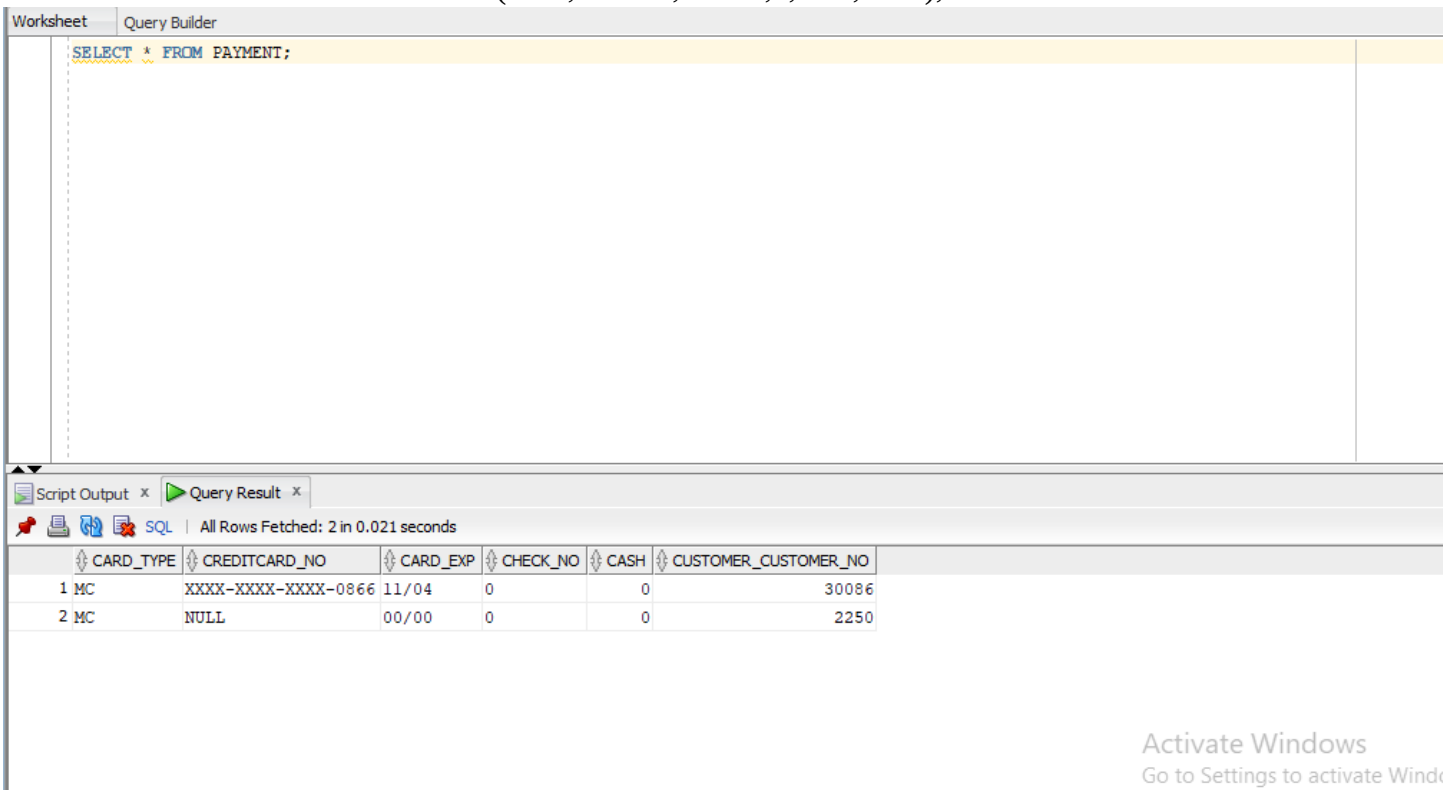
PAYMENT TABLE

CREATE:

```
CREATE TABLE payment (
   card_type            VARCHAR2(5),
   creditcard_no         VARCHAR2(20),
   card_exp             VARCHAR2(10),
   check_no             VARCHAR2(10),
   cash                 NUMBER(5,2),
   customer_customer_no   NUMBER(8) NOT NULL
);

ALTER TABLE payment ADD CONSTRAINT payment_pk PRIMARY KEY (
customer_customer_no );

ALTER TABLE payment
   ADD CONSTRAINT payment_customer_fk FOREIGN KEY ( customer_customer_no )
      REFERENCES customer ( customer_no );
```

INSERT:

```
INSERT INTO PAYMENT VALUES('MC','XXXX-XXXX-XXXX-0866','11/04',0,0.00,30086);

INSERT INTO PAYMENT VALUES('MC','NULL','00/00',0,0.00,2250);
```



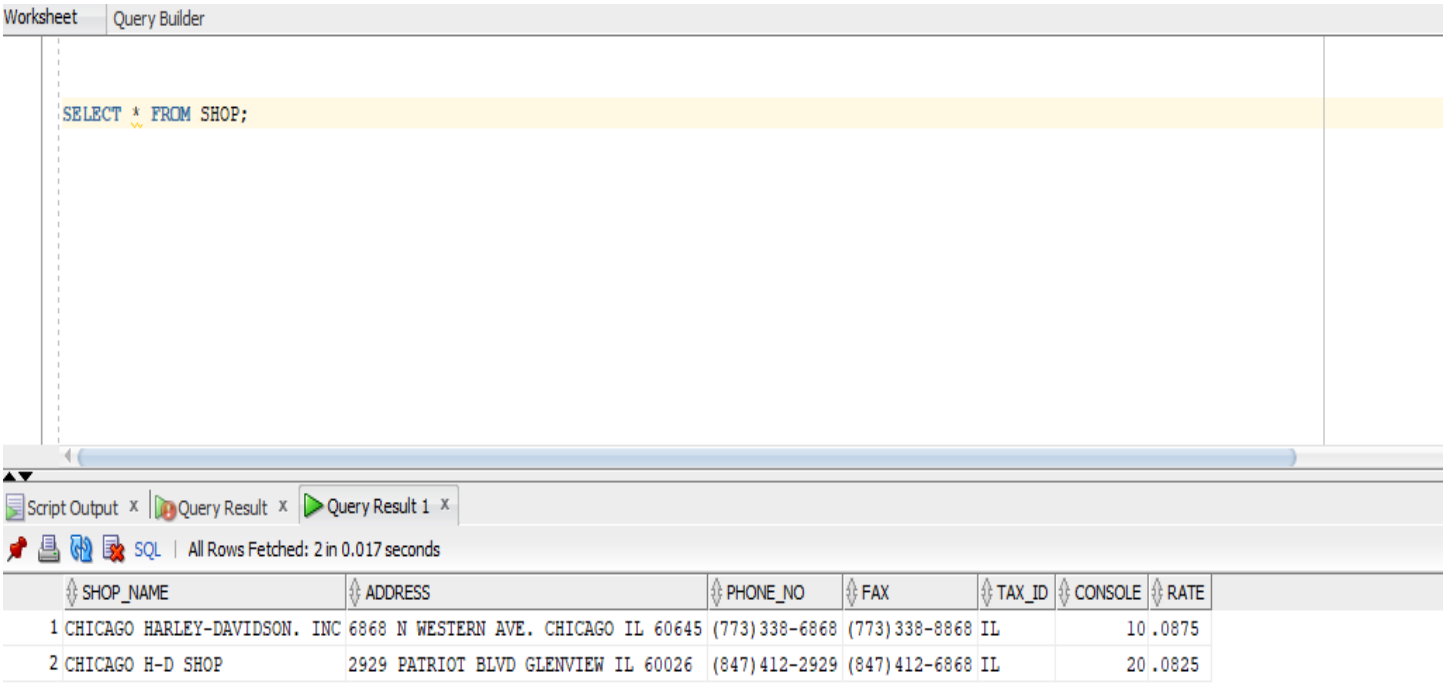
SHOP TABLE

CREATE:

```
CREATE TABLE shop (
   shop_name   VARCHAR2(30) NOT NULL,
   address     VARCHAR2(100) NOT NULL,
   phone_no    VARCHAR2(20),
   fax         VARCHAR2(20),
   tax_id      VARCHAR2(5),
   console     NUMBER(5),
   rate        VARCHAR2(20)
);

ALTER TABLE shop ADD CONSTRAINT shop_pk PRIMARY KEY ( shop_name );
```

INSERT:

```
INSERT INTO SHOP VALUES('CHICAGO HARLEY-DAVIDSON. INC','6868 N WESTERN AVE. CHICAGO IL 60645','(773)338-6868','(773)338-8868','IL',010,0.0875);

INSERT INTO SHOP VALUES('CHICAGO H-D SHOP','2929 PATRIOT BLVD GLENVIEW IL 60026','(847)412-2929','(847)412-6868','IL',020,0.0825);
```



	SHOP_NAME	ADDRESS	PHONE_NO	FAX	TAX_ID	CONSOLE	RATE
1	CHICAGO HARLEY-DAVIDSON. INC	6868 N WESTERN AVE. CHICAGO IL 60645	(773)338-6868	(773)338-8868	IL	10	.0875
2	CHICAGO H-D SHOP	2929 PATRIOT BLVD GLENVIEW IL 60026	(847)412-2929	(847)412-6868	IL	20	.0825

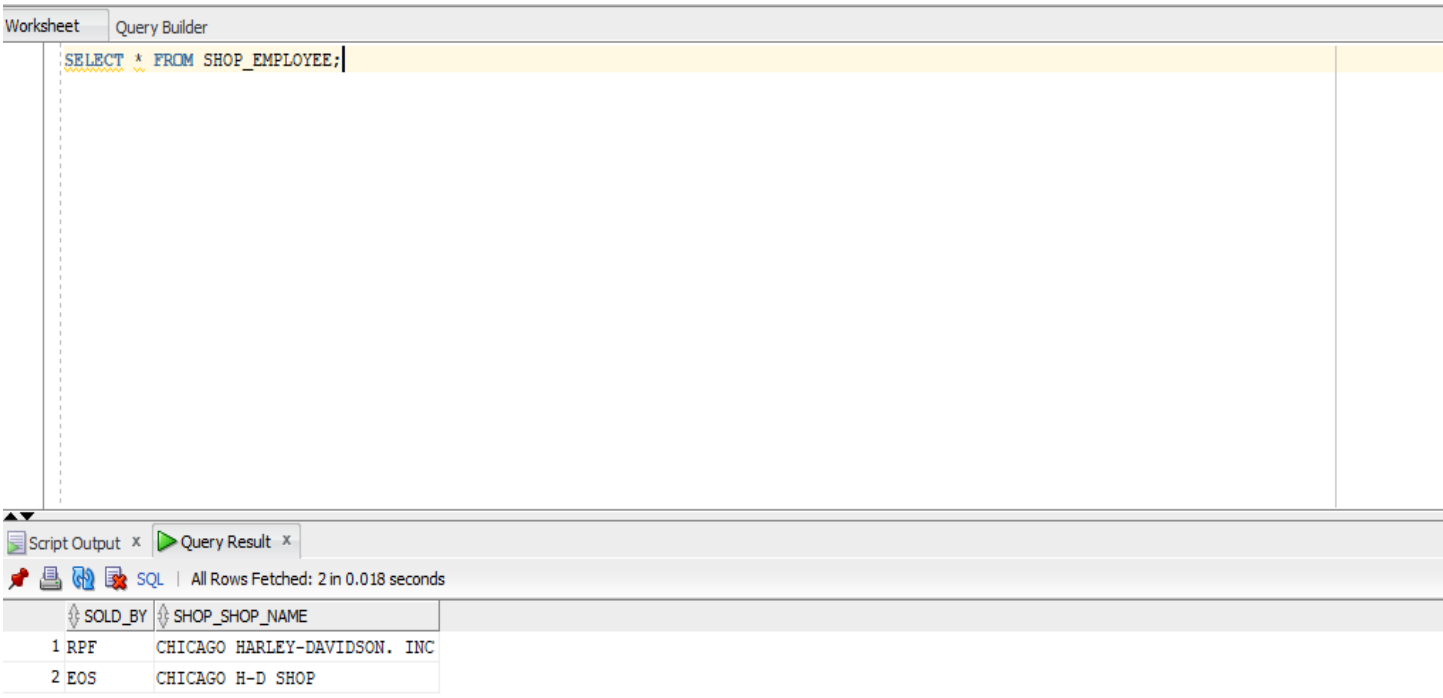
SHOP_EMPLOYEE TABLE

CREATE:

```
CREATE TABLE shop_employee (
   sold_by         VARCHAR2(5),
   shop_shop_name   VARCHAR2(30) NOT NULL
);

ALTER TABLE shop_employee ADD CONSTRAINT shop_employee_pk PRIMARY KEY (
shop_shop_name );

ALTER TABLE shop_employee
   ADD CONSTRAINT shop_employee_shop_fk FOREIGN KEY ( shop_shop_name )
      REFERENCES shop ( shop_name );
```

INSERT:

```
INSERT INTO SHOP_EMPLOYEE VALUES('RPF','CHICAGO HARLEY-DAVIDSON.
INC');

INSERT INTO SHOP_EMPLOYEE VALUES('EOS','CHICAGO H-D SHOP');
```



ITEM TABLE

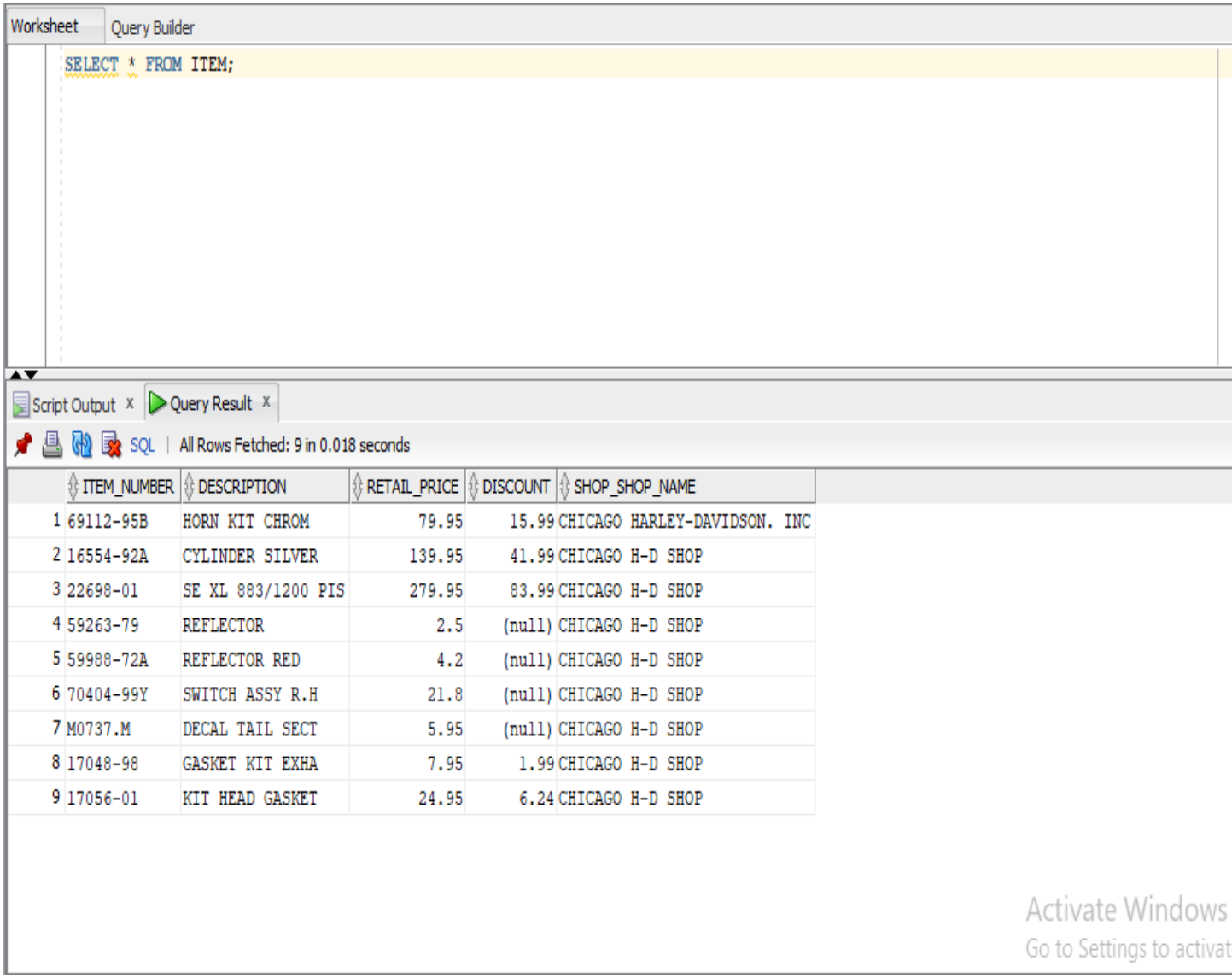
CREATE:

```
CREATE TABLE item (
   item_number      VARCHAR2(20) NOT NULL,
   description      VARCHAR2(50),
   retail_price     NUMBER(10,5),
   discount         NUMBER(10,5),
   shop_shop_name   VARCHAR2(50) NOT NULL
);
ALTER TABLE item ADD CONSTRAINT item_pk PRIMARY KEY ( item_number );

ALTER TABLE item
   ADD CONSTRAINT item_shop_fk FOREIGN KEY ( shop_shop_name )
      REFERENCES shop ( shop_name );
```

INSERT:

```
INSERT INTO ITEM VALUES('69112-95B','HORN KIT CHROM',79.95,15.99,'CHICAGO
HARLEY-DAVIDSON. INC');

INSERT INTO ITEM VALUES('16554-92A','CYLINDER SILVER',139.95,41.99,'CHICAGO
H-D SHOP');

INSERT INTO ITEM VALUES('22698-01','SE XL 883/1200 PIS',279.95,83.99,'CHICAGO H-
D SHOP');

INSERT INTO ITEM VALUES('59263-79','REFLECTOR',2.50,NULL,'CHICAGO H-D
SHOP');

INSERT INTO ITEM VALUES('59988-72A','REFLECTOR RED',4.20,NULL,'CHICAGO H-D
SHOP');

INSERT INTO ITEM VALUES('70404-99Y','SWITCH ASSY R.H',21.80,NULL,'CHICAGO
H-D SHOP');

INSERT INTO ITEM VALUES('M0737.M','DECAL TAIL SECT',5.95,NULL,'CHICAGO H-D
SHOP');

INSERT INTO ITEM VALUES('17048-98','GASKET KIT EXHA',7.95,1.99,'CHICAGO H-D
SHOP');
```

INSERT INTO ITEM VALUES('17056-01','KIT HEAD GASKET',24.95,6.24,'CHICAGO H-D SHOP');



	ITEM_NUMBER	DESCRIPTION	RETAIL_PRICE	DISCOUNT	SHOP_SHOP_NAME
1	69112-95B	HORN KIT CHROM	79.95	15.99	CHICAGO HARLEY-DAVIDSON. INC
2	16554-92A	CYLINDER SILVER	139.95	41.99	CHICAGO H-D SHOP
3	22698-01	SE XL 883/1200 PIS	279.95	83.99	CHICAGO H-D SHOP
4	59263-79	REFLECTOR	2.5	(null)	CHICAGO H-D SHOP
5	59988-72A	REFLECTOR RED	4.2	(null)	CHICAGO H-D SHOP
6	70404-99Y	SWITCH ASSY R.H	21.8	(null)	CHICAGO H-D SHOP
7	M0737.M	DECAL TAIL SECT	5.95	(null)	CHICAGO H-D SHOP
8	17048-98	GASKET KIT EXHA	7.95	1.99	CHICAGO H-D SHOP
9	17056-01	KIT HEAD GASKET	24.95	6.24	CHICAGO H-D SHOP

INVOICE TABLE

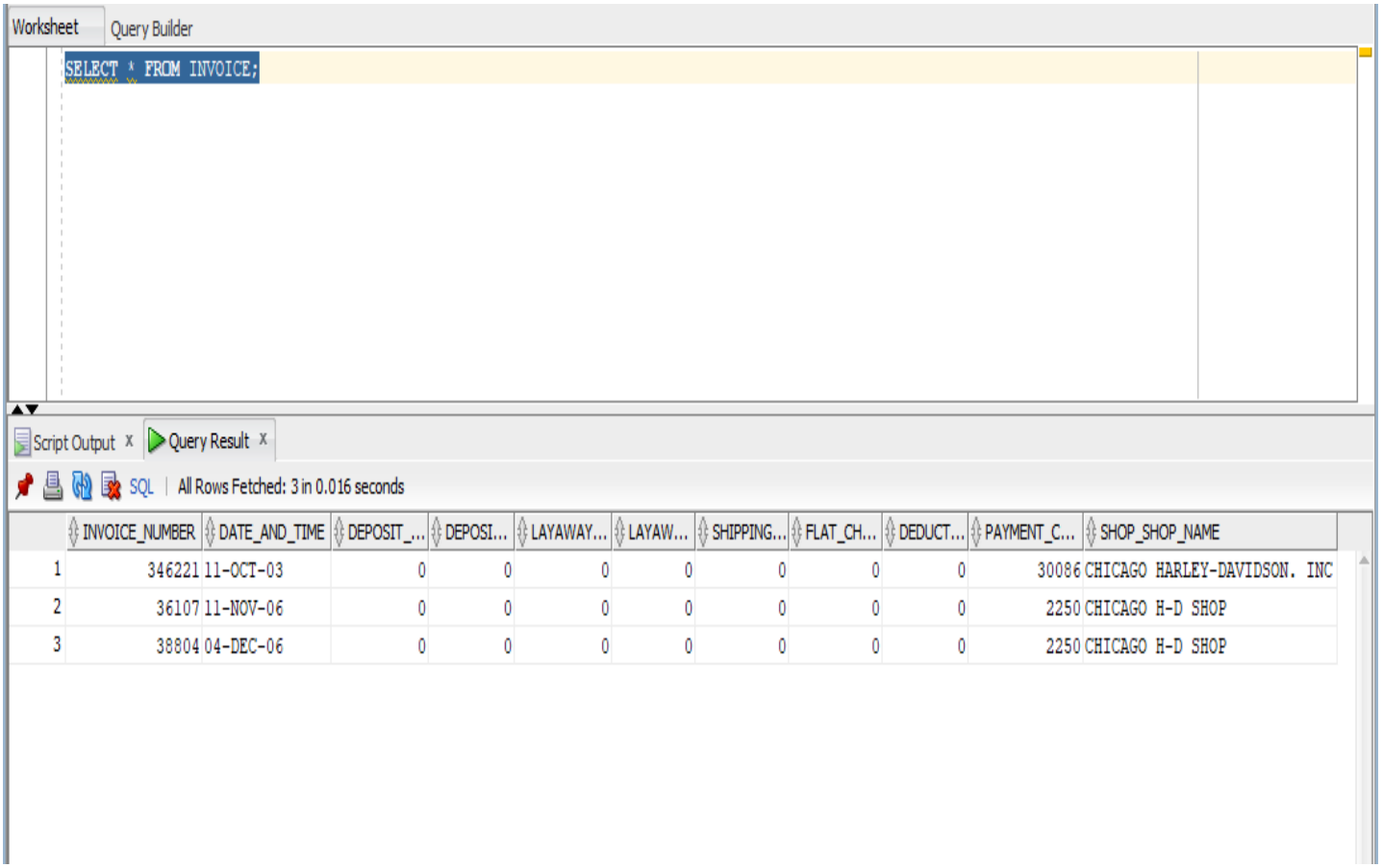
CREATE:

```
CREATE TABLE invoice (
   invoice_number              NUMBER(10) NOT NULL,
   date_and_time               DATE,
   deposit_down_pmt            NUMBER(3,2),
   deposit_pmts_applied        NUMBER(3,2),
   layaway_pmt_made            NUMBER(3,2),
   layaway_pmt_applied         NUMBER(3,2),
   shipping_charges            NUMBER(3,2),
   flat_charge                 NUMBER(3,2),
   deductibles                 NUMBER(3,2),
   payment_customer_customer_no   NUMBER(8) NOT NULL,
   shop_shop_name              VARCHAR2(30) NOT NULL
);

ALTER TABLE invoice ADD CONSTRAINT invoice_pk PRIMARY KEY ( invoice_number );


ALTER TABLE invoice
   ADD CONSTRAINT invoice_payment_fk FOREIGN KEY
(payment_customer_customer_no)
      REFERENCES payment ( customer_customer_no );


ALTER TABLE invoice
   ADD CONSTRAINT invoice_shop_fk FOREIGN KEY ( shop_shop_name )
      REFERENCES shop ( shop_name );
```

INSERT:

```
INSERT INTO INVOICE VALUES(346221,TO_DATE('10/11/2003
12:31:00PM','MM/DD/YYYY
HH:MI:SSPM'),0.00,0.00,0.00,0.00,0.00,0.00,0.00,30086,'CHICAGO HARLEY-DAVIDSON.
INC');

INSERT INTO INVOICE VALUES(36107,TO_DATE('11/11/2006
03:16:00PM','MM/DD/YYYY
HH:MI:SSPM'),0.00,0.00,0.00,0.00,0.00,0.00,0.00,2250,'CHICAGO H-D SHOP');
```

INSERT INTO INVOICE VALUES(38804,TO_DATE('12/04/2006
06:45:00PM','MM/DD/YYYY
HH:MI:SSPM'),0.00,0.00,0.00,0.00,0.00,0.00,0.00,2250,'CHICAGO H-D SHOP');



	INVOICE_NUMBER	DATE_AND_TIME	DEPOSIT_...	DEPOSI...	LAYAWAY...	LAYAW...	SHIPPING...	FLAT_CH...	DEDUCT...	PAYMENT_C...	SHOP_SHOP_NAME
1	346221	11-OCT-03	0	0	0	0	0	0	0	30086	CHICAGO HARLEY-DAVIDSON. INC
2	36107	11-NOV-06	0	0	0	0	0	0	0	2250	CHICAGO H-D SHOP
3	38804	04-DEC-06	0	0	0	0	0	0	0	2250	CHICAGO H-D SHOP

ITEM_INVOICE TABLE:

CREATE:

```
CREATE TABLE invoice_item (
   invoice_invoice_number   NUMBER(10) NOT NULL,
   item_item_number         VARCHAR2(20) NOT NULL,
   del_qty                  NUMBER(10,5),
   so_qty                   NUMBER(10,5)
);

ALTER TABLE invoice_item ADD CONSTRAINT invoice_item_pk PRIMARY KEY (
invoice_invoice_number, item_item_number );

ALTER TABLE invoice_item
   ADD CONSTRAINT invoice_item_invoice_fk FOREIGN KEY ( invoice_invoice_number )
      REFERENCES invoice ( invoice_number );

ALTER TABLE invoice_item
   ADD CONSTRAINT invoice_item_item_fk FOREIGN KEY ( item_item_number )
      REFERENCES item ( item_number );
```

INSERT:

```
INSERT INTO INVOICE_ITEM VALUES( 346221,'69112-95B',1.00,NULL);

INSERT INTO INVOICE_ITEM VALUES( 36107,'16554-92A',2.00,NULL);

INSERT INTO INVOICE_ITEM VALUES( 36107,'22698-01',1.00,NULL);

INSERT INTO INVOICE_ITEM VALUES( 36107,'59263-79',NULL,5);

INSERT INTO INVOICE_ITEM VALUES( 36107,'59988-72A',NULL,2);

INSERT INTO INVOICE_ITEM VALUES( 36107,'70404-99Y',NULL,1);

INSERT INTO INVOICE_ITEM VALUES( 36107,'M0737.M',NULL,2);

INSERT INTO INVOICE_ITEM VALUES( 38804,'17048-98',1.00,NULL);

INSERT INTO INVOICE_ITEM VALUES( 38804,'17056-01',1.00,NULL);
```

Worksheet | Query Builder

```
SELECT * FROM INVOICE_ITEM;
```

Script Output x | Query Result x

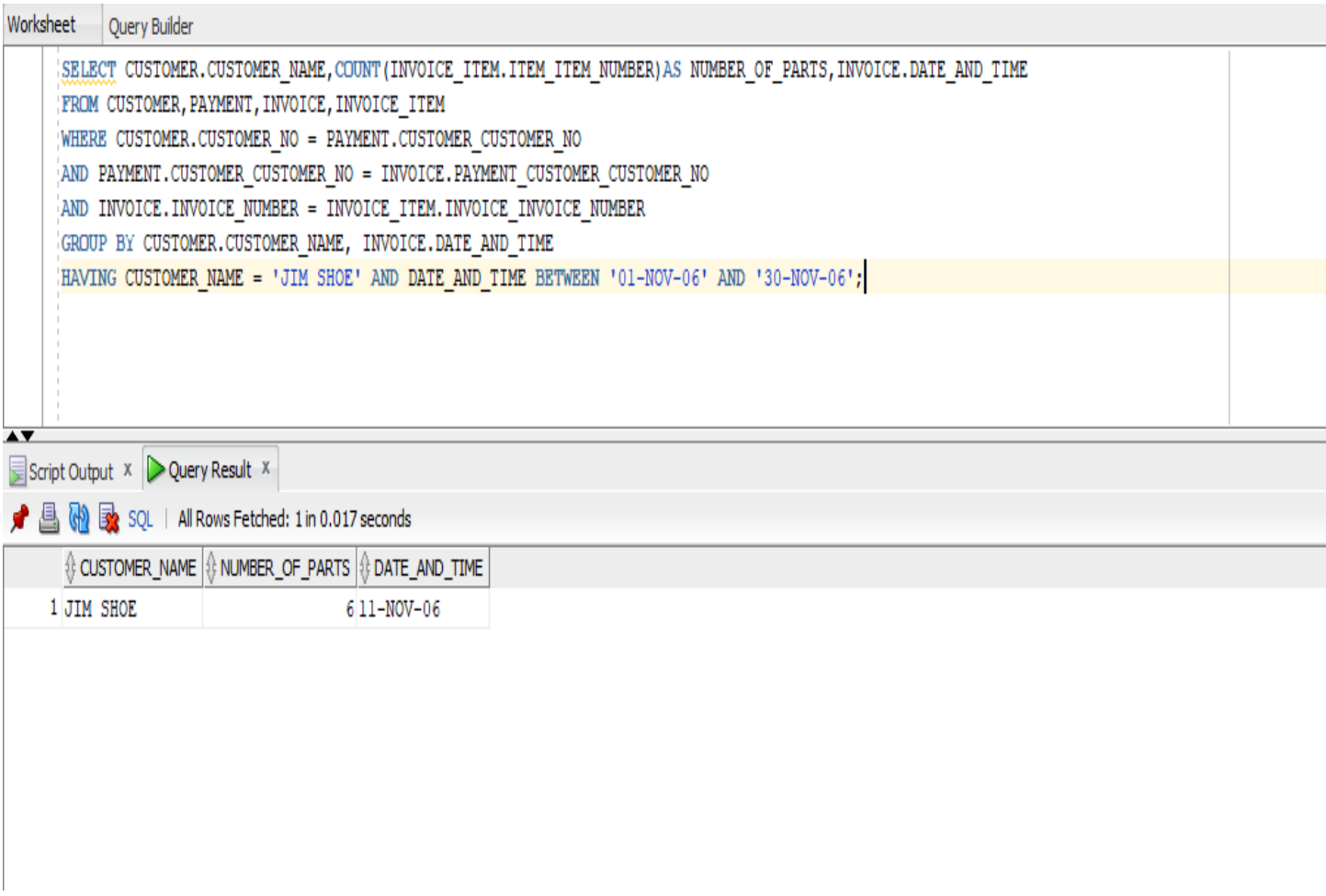
SQL | All Rows Fetched: 9 in 0.028 seconds

	INVOICE_INVOICE_NUMBER	ITEM_ITEM_NUMBER	DEL_QTY	SO_QTY
1	346221	69112-95B	1	(null)
2	36107	16554-92A	2	(null)
3	36107	22698-01	1	(null)
4	36107	59263-79	(null)	5
5	36107	59988-72A	(null)	2
6	36107	70404-99Y	(null)	1
7	36107	M0737.M	(null)	2
8	38804	17048-98	1	(null)
9	38804	17056-01	1	(null)

QUERIES

1) How many parts did Jim Shoe purchase in November 2006?

```
SELECT CUSTOMER.CUSTOMER_NAME,
COUNT(INVOICE_ITEM.ITEM_ITEM_NUMBER) AS NUMBER_OF_PARTS,
INVOICE.DATE_AND_TIME
FROM CUSTOMER, PAYMENT, INVOICE, INVOICE_ITEM
WHERE CUSTOMER.CUSTOMER_NO =
PAYMENT.CUSTOMER_CUSTOMER_NO
AND PAYMENT.CUSTOMER_CUSTOMER_NO =
INVOICE.PAYMENT_CUSTOMER_CUSTOMER_NO
AND INVOICE.INVOICE_NUMBER =
INVOICE_ITEM.INVOICE_INVOICE_NUMBER
GROUP BY CUSTOMER.CUSTOMER_NAME, INVOICE.DATE_AND_TIME
HAVING CUSTOMER_NAME = 'JIM SHOE' AND DATE_AND_TIME BETWEEN
'01-NOV-06' AND '30-NOV-06';
```



2) What was the total amount of all purchases by Speed Racer?

```
SELECT CUSTOMER.CUSTOMER_NAME, SUM (((INVOICE_ITEM.DEL_QTY *
ITEM.RETAIL_PRICE)-ITEM.DISCOUNT) + ((INVOICE_ITEM.DEL_QTY *
ITEM.RETAIL_PRICE)-ITEM.DISCOUNT) *SHOP.RATE) AS TOTAL_AMOUNT
FROM INVOICE_ITEM, ITEM, CUSTOMER, SHOP, PAYMENT, INVOICE
WHERE CUSTOMER.CUSTOMER_NO =
PAYMENT.CUSTOMER_CUSTOMER_NO
AND PAYMENT.CUSTOMER_CUSTOMER_NO =
INVOICE.PAYMENT_CUSTOMER_CUSTOMER_NO
AND INVOICE.INVOICE_NUMBER =
INVOICE_ITEM.INVOICE_INVOICE_NUMBER
AND INVOICE_ITEM.ITEM_ITEM_NUMBER = ITEM.ITEM_NUMBER
AND ITEM.SHOP_SHOP_NAME = SHOP.SHOP_NAME
GROUP BY CUSTOMER.CUSTOMER_NAME
HAVING CUSTOMER_NAME = 'SPEED RACER';
```