

Kosta Nikopoulos

Database Assignment 2

Part 1:

--Creating the 10 tables and all the relationships

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows the 'xe-kosta2' connection selected, with a tree view of database objects including Tables (Filtered), Views, Indexes, Packages, Procedures, Functions, Operators, Queues, Queues Tables, Triggers, Types, Sequences, Materialized Views, Materialized View Logs, Synonyms, Public Synonyms, Database Links, Public Database Links, Directories, Editions, Java, XML Schemas, XML DB Repository, and OLAP Option. The 'Tables (Filtered)' folder is expanded, showing the following tables: CAR, CUSTOMER, MECHANIC, PARTS, PARTSUSED, SALES_INVOICE, SALESPERSON, SERVICE, SERVICEMECHANIC, and SERVICE_TICKET. The 'Worksheet' pane on the right shows the SQL script for creating these tables and their relationships. The script includes foreign key constraints for the SALES_INVOICE table and the creation of the MECHANIC, SERVICE, PARTS, and SERVICE_TICKET tables. The 'Script Output' pane at the bottom shows the execution results, confirming the creation of each table.

```
create_schema.sql | Drop_schema.sql | Populate_schema.sql | Test_constraints.sql | Main.sql
SQL Worksheet History
0.25 seconds

Worksheet | Query Builder

CONSTRAINT fk_sales_invoice_Car
FOREIGN KEY(car_id) REFERENCES Car(car_id),
CONSTRAINT fk_sales_invoice_customer
FOREIGN KEY(customer_id) REFERENCES customer(customer_id),
CONSTRAINT fk_sales_invoice_salesperson
FOREIGN KEY(salesperson_id) REFERENCES salesperson(salesperson_id)
);

CREATE TABLE Mechanic(
  Mechanic_id NUMBER NOT NULL PRIMARY KEY,
  last_name VARCHAR2(20) NOT NULL,
  first_name VARCHAR(20) NOT NULL
);

CREATE TABLE Service(
  Service_id NUMBER NOT NULL PRIMARY KEY,
  Service_Name VARCHAR2(20) NOT NULL,
  Hourly_Rate NUMBER NOT NULL
);

CREATE TABLE parts(
  Parts_id NUMBER NOT NULL PRIMARY KEY,
  Part_number NUMBER NOT NULL,
  Description VARCHAR2(30) NOT NULL,
  Purchase_Price NUMBER NOT NULL,
  Retail_Price NUMBER NOT NULL
);

CREATE TABLE serviceticket(
  ServiceTicket_id NUMBER NOT NULL
  CONSTRAINT PK_serviceticket PRIMARY KEY,
  ServiceTicket_Number NUMBER NOT NULL,

```

Script Output x

Task completed in 0.25 seconds

Table SALESPERSON created.

Table CAR created.

Table CUSTOMER created.

Table SALES_INVOICE created.

Table MECHANIC created.

Table SERVICE created.

Table PARTS created.

Table SERVICE_TICKET created.

Table SERVICEMECHANIC created.

Table PARTSUSED created.

--Adding all the domain constraints through the alter table command

The screenshot displays the Oracle SQL Developer interface. The left pane shows the 'Connections' tree with 'xe-kosta2' selected. The main pane shows a 'Script Output' window with the following messages:

- Table SALESPERSON created.
- Table CAR created.
- Table CUSTOMER created.
- Table SALES_INVOICE created.
- Table MECHANIC created.
- Table SERVICE created.
- Table PARTS created.
- Table SERVICETICKET created.
- Table SERVICEMECHANIC created.
- Table PARTSUSED created.
- Table CAR altered.
- Table CAR altered.
- Table SERVICE altered.
- Table PARTS altered.
- Table PARTS altered.

The top pane shows the SQL script being executed:

```
ALTER TABLE Car ADD CONSTRAINT uk_Car_model UNIQUE(c_model, serial_number);  
ALTER TABLE Car ADD CONSTRAINT ck_Car_carforsale_y_n CHECK(carforsale_y_n IN ('Y','N'));  
ALTER TABLE Service ADD CONSTRAINT ck_Hourly_Rate CHECK(Hourly_Rate < 60);  
ALTER TABLE parts ADD CONSTRAINT uk_Part_number UNIQUE(Part_number);  
ALTER TABLE parts ADD CONSTRAINT ck_Retail_Price CHECK(Retail_Price > Purchase_Price);
```

Part 2:

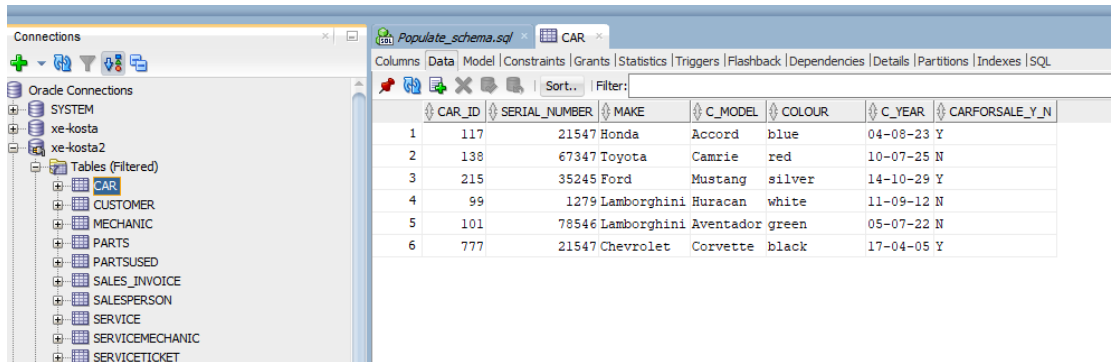
1) – Populating the tables with values

--Salesperson table

The screenshot displays the Oracle SQL Developer interface. The left pane shows the 'Connections' tree with 'xe-kosta2' selected. The main pane shows the 'Data' tab for the 'SALESPERSON' table, which is populated with the following data:

SALESPERSON_ID	LAST_NAME	FIRST_NAME
1	Newman	Frank
2	Oxeman	Jeff
3	Flank	Roger
4	Thompson	Jerry
5	Tomas	Craig
6	Pegasus	Markus

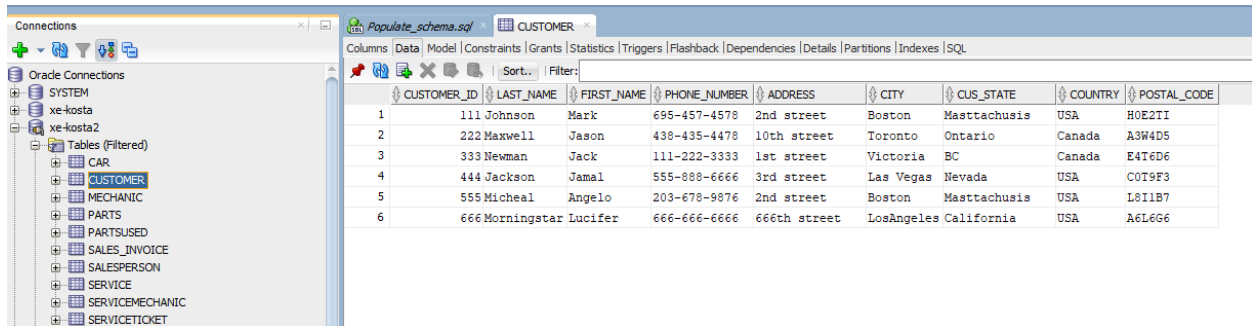
--Car table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists 'xe-kosta2' as the active connection. The 'Tables (Filtered)' list includes CAR, CUSTOMER, MECHANIC, PARTS, PARTSUSED, SALES_INVOICE, SALESPERSON, SERVICE, SERVICEMECHANIC, and SERVICETICKET. The main window displays the 'Populate_schema.sql' script with the 'CAR' table selected. The table data is shown in a grid with columns: CAR_ID, SERIAL_NUMBER, MAKE, C_MODEL, COLOUR, C_YEAR, and CARFORSALE_Y_N.

CAR_ID	SERIAL_NUMBER	MAKE	C_MODEL	COLOUR	C_YEAR	CARFORSALE_Y_N
1	117	21547 Honda	Accord	blue	04-08-23	Y
2	138	67347 Toyota	Camrie	red	10-07-25	N
3	215	35245 Ford	Mustang	silver	14-10-29	Y
4	99	1279 Lamborghini	Huracan	white	11-09-12	N
5	101	78546 Lamborghini	Aventador	green	05-07-22	N
6	777	21547 Chevrolet	Corvette	black	17-04-05	Y

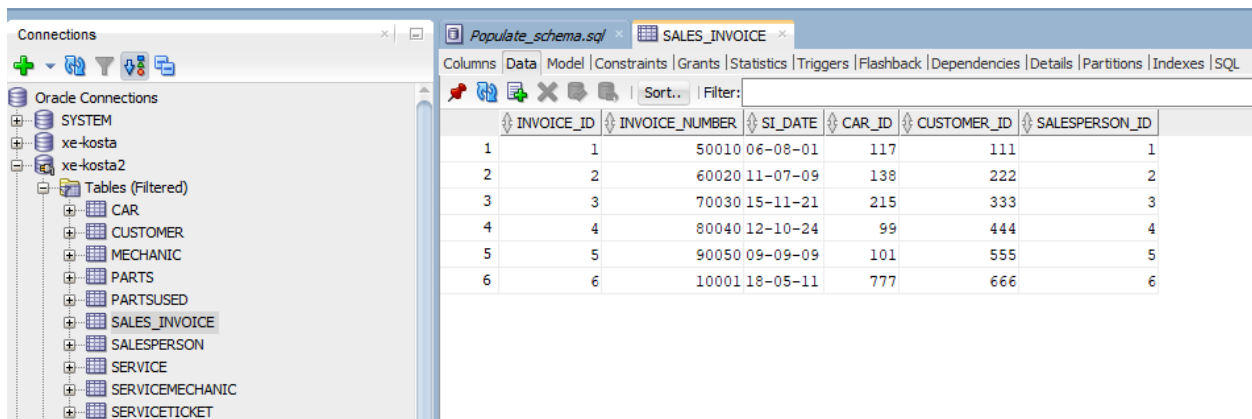
--Customer table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists 'xe-kosta2' as the active connection. The 'Tables (Filtered)' list includes CAR, CUSTOMER, MECHANIC, PARTS, PARTSUSED, SALES_INVOICE, SALESPERSON, SERVICE, SERVICEMECHANIC, and SERVICETICKET. The main window displays the 'Populate_schema.sql' script with the 'CUSTOMER' table selected. The table data is shown in a grid with columns: CUSTOMER_ID, LAST_NAME, FIRST_NAME, PHONE_NUMBER, ADDRESS, CITY, CUS_STATE, COUNTRY, and POSTAL_CODE.

CUSTOMER_ID	LAST_NAME	FIRST_NAME	PHONE_NUMBER	ADDRESS	CITY	CUS_STATE	COUNTRY	POSTAL_CODE
1	111 Johnson	Mark	695-457-4578	2nd street	Boston	Masttachusetts	USA	R0E2T1
2	222 Maxwell	Jason	438-435-4478	10th street	Toronto	Ontario	Canada	A3W4D5
3	333 Newman	Jack	111-222-3333	1st street	Victoria	BC	Canada	E4T6D6
4	444 Jackson	Jamal	555-888-6666	3rd street	Las Vegas	Nevada	USA	C0T9F3
5	555 Micheal	Angelo	203-678-9876	2nd street	Boston	Masttachusetts	USA	L8I1B7
6	666 Morningstar	Lucifer	666-666-6666	666th street	LosAngeles	California	USA	A6L6G6

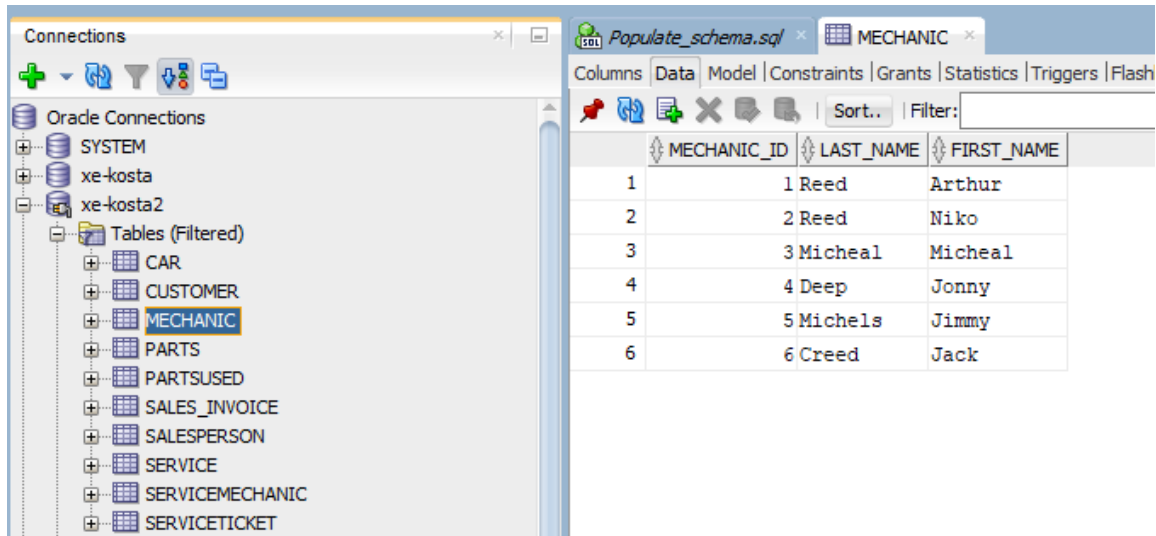
--Sales Invoice table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists 'xe-kosta2' as the active connection. The 'Tables (Filtered)' list includes CAR, CUSTOMER, MECHANIC, PARTS, PARTSUSED, SALES_INVOICE, SALESPERSON, SERVICE, SERVICEMECHANIC, and SERVICETICKET. The main window displays the 'Populate_schema.sql' script with the 'SALES_INVOICE' table selected. The table data is shown in a grid with columns: INVOICE_ID, INVOICE_NUMBER, SI_DATE, CAR_ID, CUSTOMER_ID, and SALESPERSON_ID.

INVOICE_ID	INVOICE_NUMBER	SI_DATE	CAR_ID	CUSTOMER_ID	SALESPERSON_ID
1	1	50010 06-08-01	117	111	1
2	2	60020 11-07-09	138	222	2
3	3	70030 15-11-21	215	333	3
4	4	80040 12-10-24	99	444	4
5	5	90050 09-09-09	101	555	5
6	6	10001 18-05-11	777	666	6

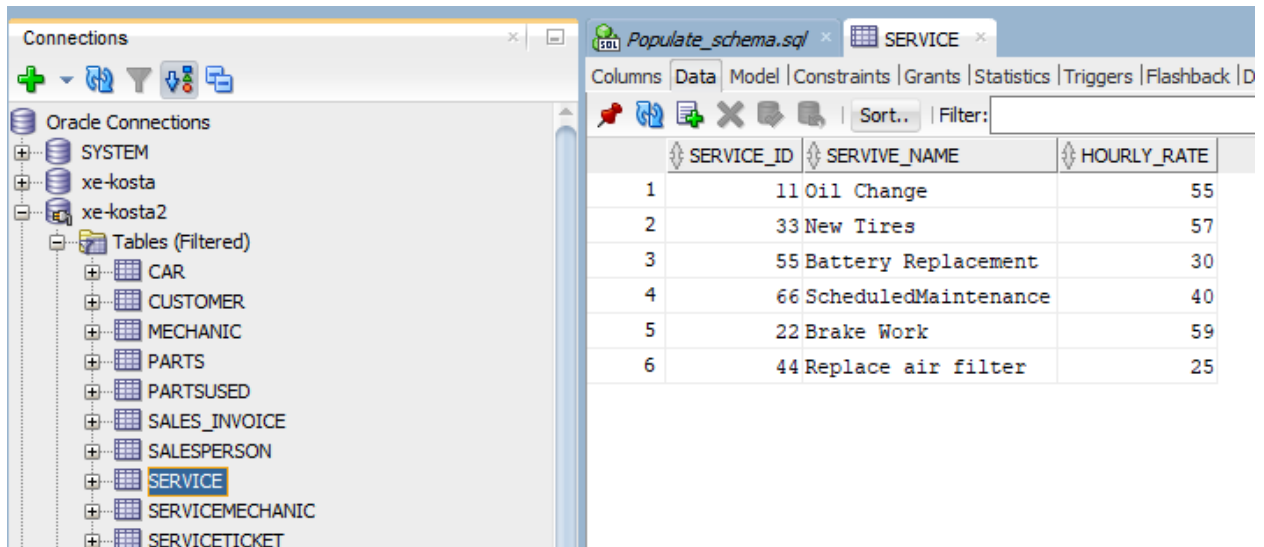
--Mechanic table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane displays a tree view of the database schema, with the 'MECHANIC' table selected under the 'xe-kosta2' connection. The main window shows the 'Populate_schema.sql' script with the 'MECHANIC' table selected. The 'Data' tab is active, displaying the following data:

	MECHANIC_ID	LAST_NAME	FIRST_NAME
1	1	Reed	Arthur
2	2	Reed	Niko
3	3	Micheal	Micheal
4	4	Deep	Jonny
5	5	Michels	Jimmy
6	6	Creed	Jack

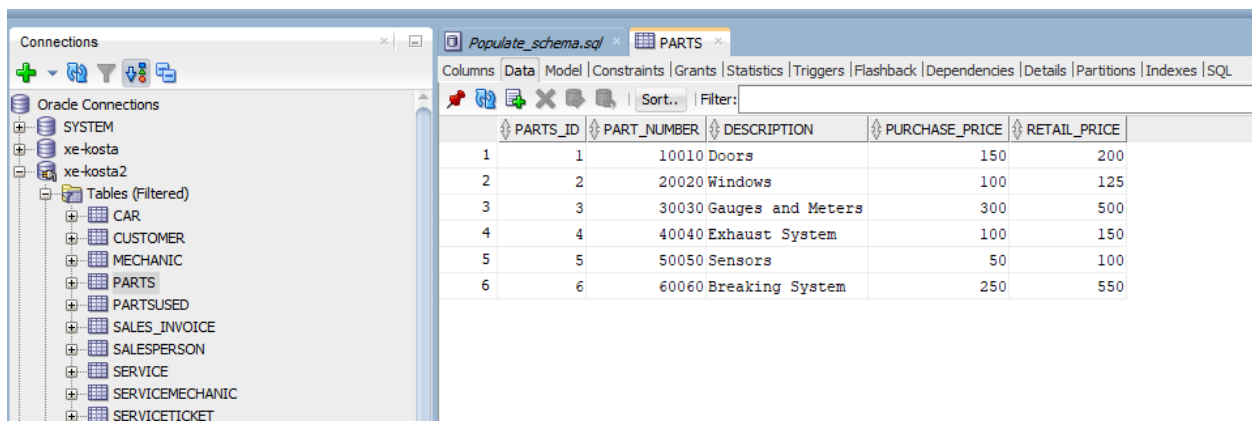
--Service table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane displays a tree view of the database schema, with the 'SERVICE' table selected under the 'xe-kosta2' connection. The main window shows the 'Populate_schema.sql' script with the 'SERVICE' table selected. The 'Data' tab is active, displaying the following data:

	SERVICE_ID	SERVICE_NAME	HOURLY_RATE
1	11	Oil Change	55
2	33	New Tires	57
3	55	Battery Replacement	30
4	66	ScheduledMaintenance	40
5	22	Brake Work	59
6	44	Replace air filter	25

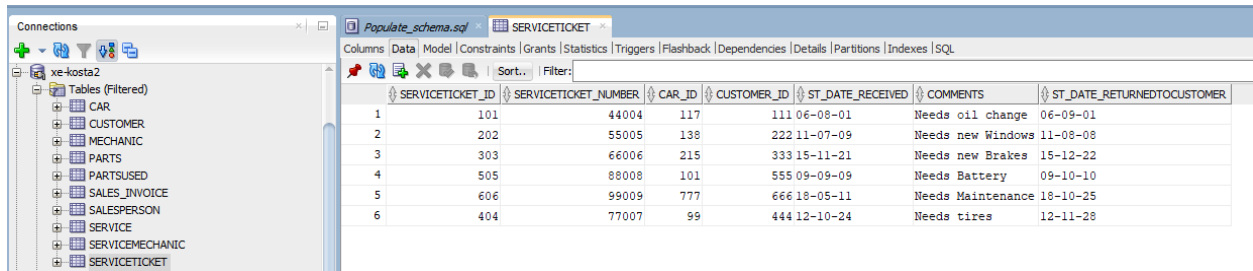
--Parts table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane displays a tree view of the database schema, with the 'PARTS' table selected under the 'xe-kosta2' connection. The main window shows the 'Populate_schema.sql' script with the 'PARTS' table selected. The 'Data' tab is active, displaying the following data:

	PARTS_ID	PART_NUMBER	DESCRIPTION	PURCHASE_PRICE	RETAIL_PRICE
1	1	10010	Doors	150	200
2	2	20020	Windows	100	125
3	3	30030	Gauges and Meters	300	500
4	4	40040	Exhaust System	100	150
5	5	50050	Sensors	50	100
6	6	60060	Breaking System	250	550

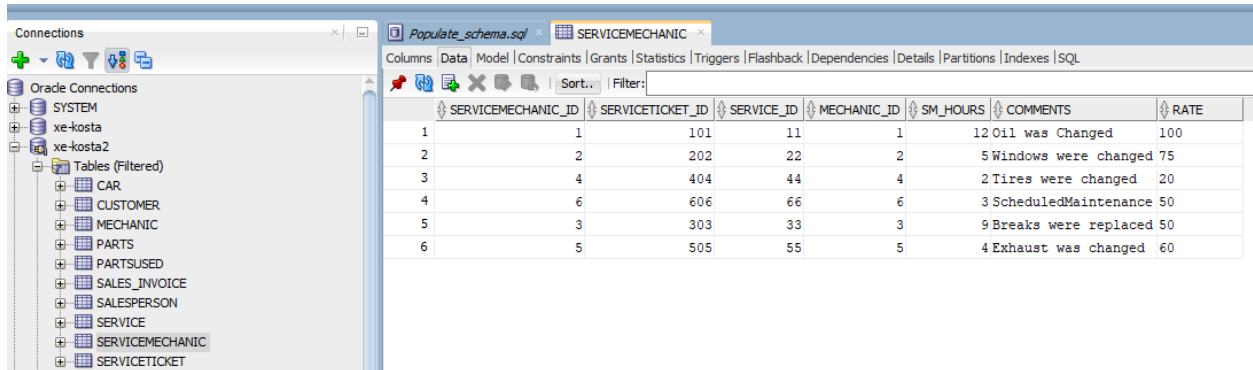
--Service ticket table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows a tree view with 'xe-kosta2' selected. The main pane displays the 'SERVICE_TICKET' table data. The table has columns: SERVICE_TICKET_ID, SERVICE_TICKET_NUMBER, CAR_ID, CUSTOMER_ID, ST_DATE_RECEIVED, COMMENTS, and ST_DATE_RETURNEDTOCUSTOMER. The data is as follows:

SERVICE_TICKET_ID	SERVICE_TICKET_NUMBER	CAR_ID	CUSTOMER_ID	ST_DATE_RECEIVED	COMMENTS	ST_DATE_RETURNEDTOCUSTOMER
1	101	44004	117	11-06-08-01	Needs oil change	06-09-01
2	202	55005	138	22-11-07-09	Needs new Windows	11-08-08
3	303	66006	215	33-15-11-21	Needs new Brakes	15-12-22
4	505	88008	101	55-09-09-09	Needs Battery	09-10-10
5	606	99009	777	66-18-05-11	Needs Maintenance	18-10-25
6	404	77007	99	44-12-10-24	Needs tires	12-11-28

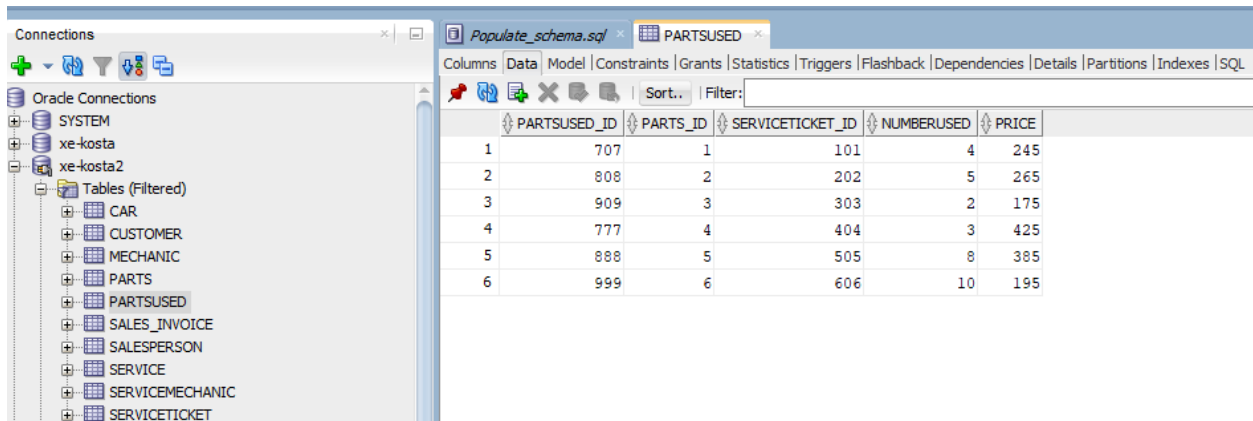
--Service Mechanic table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows a tree view with 'xe-kosta2' selected. The main pane displays the 'SERVICE_MECHANIC' table data. The table has columns: SERVICE_MECHANIC_ID, SERVICE_TICKET_ID, SERVICE_ID, MECHANIC_ID, SM_HOURS, COMMENTS, and RATE. The data is as follows:

SERVICE_MECHANIC_ID	SERVICE_TICKET_ID	SERVICE_ID	MECHANIC_ID	SM_HOURS	COMMENTS	RATE
1	1	101	11	1	12 Oil was Changed	100
2	2	202	22	2	5 Windows were changed	75
3	4	404	44	4	2 Tires were changed	20
4	6	606	66	6	3 Scheduled Maintenance	50
5	3	303	33	3	9 Breaks were replaced	50
6	5	505	55	5	4 Exhaust was changed	60

--Parts Used table



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows a tree view with 'xe-kosta2' selected. The main pane displays the 'PARTS_USED' table data. The table has columns: PARTS_USED_ID, PARTS_ID, SERVICE_TICKET_ID, NUMBER_USED, and PRICE. The data is as follows:

PARTS_USED_ID	PARTS_ID	SERVICE_TICKET_ID	NUMBER_USED	PRICE
1	707	1	4	245
2	808	2	5	265
3	909	3	2	175
4	777	4	3	425
5	888	5	8	385
6	999	6	10	195

2)

--Four Insert Statements to test Unique and Check constraints of the Car table

```

--Assignment 2
--Testing Constraints
--Kosta Nikopoulos

--Car
INSERT INTO Car(car_id,serial_number,make,c_model,colour,c_year,carforsale_y_n)
VALUES (502, 21578, 'Tesla', 'Model S' , 'white', DATE '2004-08-23', 'N');

INSERT INTO Car(car_id,serial_number,make,c_model,colour,c_year,carforsale_y_n)
VALUES (698, 65425, 'Volkswagen', 'Beettle', 'blue', DATE '2010-07-25', 'Y');

INSERT INTO Car(car_id,serial_number,make,c_model,colour,c_year,carforsale_y_n)
VALUES (425, 74259, 'Dodge', 'Viper', 'purple', DATE '2014-10-29', 'N');

INSERT INTO Car(car_id,serial_number,make,c_model,colour,c_year,carforsale_y_n)
VALUES (055, 31205, 'Lamborghini', 'Countach', 'white', DATE '2011-09-12', 'N');
  
```

Script Output

Task completed in 0.041 seconds

1 row inserted.

1 row inserted.

1 row inserted.

1 row inserted.

--Updated Car table

CAR_ID	SERIAL_NUMBER	MAKE	C_MODEL	COLOUR	C_YEAR	CARFORSALE_Y_N
1	117	21547 Honda	Accord	blue	04-08-23	Y
2	138	67347 Toyota	Camrie	red	10-07-25	N
3	215	35245 Ford	Mustang	silver	14-10-29	Y
4	99	1279 Lamborghini	Huracan	white	11-09-12	N
5	101	78546 Lamborghini	Aventador	green	05-07-22	N
6	777	21547 Chevrolet	Corvette	black	17-04-05	Y
7	502	21578 Tesla	Model S	white	04-08-23	N
8	698	65425 Volkswagen	Beettle	blue	10-07-25	Y
9	425	74259 Dodge	Viper	purple	14-10-29	N
10	55	31205 Lamborghini	Countach	white	11-09-12	N

--Updated Parts table

PARTS_ID	PART_NUMBER	DESCRIPTION	PURCHASE_PRICE	RETAIL_PRICE
1	1	10010 Steel Doors	95	395
2	2	20020 Reinforced Windows	250	275
3	3	30030 Gauges	400	600
4	4	40040 Exhaust	150	200
5	5	50050 Sensors	50	100
6	6	60060 Breaking System	250	550

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane displays a tree view of the database schema. The 'Tables (Filtered)' folder is expanded, showing a list of tables including CAR, CUSTOMER, MECHANIC, PARTS, PARTSUSED, SALES_INVOICE, SALESPERSON, SERVICE, SERVICE_MECHANIC, and SERVICE_TICKET. The 'PARTS' table is selected, and its columns (PARTS_ID, PART_NUMBER, DESCRIPTION, PURCHASE_PRICE, RETAIL_PRICE) are visible in the 'Columns' pane. The main window displays the 'SERVICE' table data, which includes columns SERVICE_ID, SERVICE_NAME, and HOURLY_RATE. The data is as follows:

SERVICE_ID	SERVICE_NAME	HOURLY_RATE
1	Oil Change	25
2	New Tires	55
3	Battery Replacement	30
4	Scheduled Maintenance	40
5	Brake Work	39
6	Replace air filter	15

The screenshot displays the Oracle SQL Developer environment with the following components:

- Connections Panel (Left):** Shows a tree view of database objects under the 'xe-kosta2' connection. The 'Tables (Filtered)' folder is expanded, listing tables such as CAR, CUSTOMER, MECHANIC, PARTS, PARTSUSED, SALES_INVOICE, SALESPERSON, SERVICE, SERVICEMECHANIC, and SERVICE_TICKET.
- Script Editor (Top Right):** Contains a SQL script with the following content:


```
--Where the files are retrieved/found from
show sqlpath -- The path where the data files are stored
--C:\Users\darth\Desktop\Winter2021\Database\Assignment2-Answers

--Loads the drop file
@Drop_schema.sql

--Loads the create file
@create_schema.sql

--Loads the populate file which fills the create file with data
@Populate_schema.sql

--Loads the test file which tests the constraints of the data
@Test_constraints.sql
```
- Script Output Panel (Bottom Right):** Displays the execution results of the script, indicating that all tables were created or altered successfully and that data was inserted into each table.


```
Table SERVICE created.

Table PARTS created.

Table SERVICE_TICKET created.

Table SERVICEMECHANIC created.

Table PARTSUSED created.

Table CAR altered.

Table CAR altered.

Table SERVICE altered.

Table PARTS altered.

Table PARTS altered.

1 row inserted.

1 row inserted.

1 row inserted.

1 row inserted.

1 row inserted.

1 row inserted.
```
- Reports Panel (Bottom Left):** Shows a list of report types under 'All Reports', including Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, and User Defined Reports.