Part 1.1

```
CREATE TABLE CUSTOMER
        (CustomerID NUMBER(11) NOT NULL,
        CustomerName VARCHAR2(25) NOT NULL,
        CustomerAddr VARCHAR2(30) NOT NULL,
        CONSTRAINT Customer_PK PRIMARY KEY (CustomerID)
        );

CREATE TABLE ORDERS
        (OrderID NUMBER(11) NOT NULL,
        CustomerID NUMBER(11) NOT NULL,
        OrderDate DATE DEFAULT SYSDATE NOT NULL,
        CONSTRAINT Order_PK PRIMARY KEY (OrderID),
        CONSTRAINT Order_FK FOREIGN KEY (CustomerID) REFERENCES CUSTOMER(CustomerID) ON DELETE SET NULL);

CREATE TABLE PRODUCT
        (ProductID  NUMBER(11) NOT NULL,
        ProductType NUMBER(11) CHECK (ProductType IN ('Books','Electronics',
        'Home', 'Clothing')) NOT NULL,
        CONSTRAINT Product_PK PRIMARY KEY (ProductID));

CREATE TABLE ORDERLINE
       (OrderID NUMBER(11) NOT NULL,
        ProductID NUMBER(11) NOT NULL,
        OrderQuanity NUMBER(11) CHECK (OrderQuanity > 0) NOT NULL,
        CONSTRAINT OrderLine_PK1 PRIMARY KEY (OrderID, ProductID),
        CONSTRAINT OrderLine_FK1 FOREIGN KEY (OrderID) REFERENCES ORDERS(OrderID) ON DELETE CASCADE,
        CONSTRAINT OrderLine_FK2 FOREIGN KEY (ProductID) REFERENCES PRODUCT(ProductID));
```

Script Output x

Task completed in 0.1 seconds

```
table CUSTOMER created.
table ORDERS created.
table PRODUCT created.
table ORDERLINE created.
```

1.2

```
INSERT INTO CUSTOMER VALUES(1, 'James Park', '1355 S Hines Blvd');
INSERT INTO CUSTOMER VALUES(2, 'Tom Hoffer', '15145 S.W. 17th St.');

INSERT INTO PRODUCT VALUES(711, 'Electronics');
INSERT INTO PRODUCT VALUES(721, 'Books');
INSERT INTO PRODUCT VALUES(722, 'Books');

INSERT INTO ORDERS VALUES (1001, 1, TO_DATE('10/28/2016 18:00', 'mm/dd/yyyy hh24:mi'));
INSERT INTO ORDERS VALUES (1002, 2, TO_DATE('01/01/0001 00:00', 'mm/dd/yyyy hh24:mi'));

INSERT INTO ORDERLINE VALUES (1001, 711, 1);
INSERT INTO ORDERLINE VALUES (1001, 721, 1);
INSERT INTO ORDERLINE VALUES (1002, 722, 3);
```


```
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
```

1.3

```
SELECT * FROM ORDERS;
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.054 seconds

	ORDERID	CUSTOMERID	ORDERDATE
1	1001	1	28-OCT-16
2	1002	2	01-JAN-01

```
SELECT OrderDate FROM ORDERS WHERE OrderId = 1002;
```

Script Output | Query Result

SQL | All Rows Fetched: 1 in 0 seconds

	ORDERDATE
1	01-JAN-01

1.4.1

```
UPDATE ORDERLINE SET OrderQuanity = 0 WHERE OrderID =1001 and ProductID=711;
```

Script Output | Query Result

Task completed in 0.007 seconds

```
Error starting at line : 55 in command -
UPDATE ORDERLINE SET OrderQuanity = 0 WHERE OrderID =1001 and ProductID=711
Error report -
SQL Error: ORA-02290: check constraint (SYSTEM.SYS_C007059) violated
02290. 00000 -  "check constraint (%s.%s) violated"
*Cause:    The values being inserted do not satisfy the named check

*Action:   do not insert values that violate the constraint.
```

Error because OrderQuanity must be greater than 0.

1.4.2

```
ALTER TABLE ORDERLINE DROP CONSTRAINT OrderQuanity_CHK1;
```

Script Output | Query Result | Query Result 1 | Query Result 2

Task completed in 0.089 seconds

```
table ORDERLINE altered.
```

1.4.3

```
UPDATE ORDERLINE SET OrderQuanity = 0 WHERE OrderID =1001 and ProductID=711;
```

Script Output | Query Result | Query Result 1 | Query Result 2

Task completed in 0.001 seconds

```
1 rows updated.
```

1.5.1

```
SELECT * FROM ORDERS;
```

Script Output | Query Result | Query Result 1

SQL | All Rows Fetched: 2 in 0.002 seconds

	ORDERID	CUSTOMERID	ORDERDATE
1	1001	1	28-OCT-16
2	1002	2	01-JAN-01

1.5.2

```
SELECT * FROM ORDERLINE;
```

Script Output | Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 3 in 0.002 seconds

	ORDERID	PRODUCTID	ORDERQUANITY
1	1001	711	0
2	1001	721	1
3	1002	722	3

1.5.3

```
UPDATE ORDERLINE SET OrderId = 7772 WHERE OrderId = 1002;
```

Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

Task completed in 0.007 seconds

```
Error starting at line : 66 in command -
UPDATE ORDERLINE SET OrderId = 7772 WHERE OrderId = 1002
Error report -
SQL Error: ORA-02291: integrity constraint (SYSTEM.ORDERLINE_FK1) violated - parent key not found
02291. 00000 - "integrity constraint (%s.%s) violated - parent key not found"
*Cause:    A foreign key value has no matching primary key value.
*Action:   Delete the foreign key or add a matching primary key.
```

1.5.4

```
SELECT * FROM ORDERS;
```

Script Output | Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 2 in 0.001 seconds

	ORDERID	CUSTOMERID	ORDERDATE
1	1001	1	28-OCT-16
2	1002	2	01-JAN-01

```
SELECT * FROM ORDERLINE;
```

Script Output | Query Result | Query Result 1 | Query R

SQL | All Rows Fetched: 3 in 0.001 seconds

	ORDERID	PRODUCTID	ORDERQUANITY
1	1001	711	0
2	1001	721	1
3	1002	722	3

1.5.5

There is no difference. Since there is no update cascade constraint part three errors out and the tables do not update.

1.6.1

```
SELECT * FROM ORDERS;
```

Script Output x | Query Result x | Query Result 1 x | Query Result 2 x | Q

SQL | All Rows Fetched: 2 in 0.001 seconds

	ORDERID	CUSTOMERID	ORDERDATE
1	1001	1	28-OCT-16
2	1002	2	01-JAN-01

1.6.2

```
SELECT * FROM ORDERLINE;
```

Script Output | Query Result | Query Result 1 | Query R

SQL | All Rows Fetched: 3 in 0.001 seconds

	ORDERID	PRODUCTID	ORDERQUANITY
1	1001	711	0
2	1001	721	1
3	1002	722	3

1.6.3

```
DELETE ORDERS WHERE OrderID =1001;
```

Script Output | Query Result | Query Result 1 | Query Result 2

Task completed in 0.001 seconds

```
1 rows deleted.
```

1.6.4

```
SELECT * FROM ORDERS;
```

Script Output | Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 1 in 0.001 seconds

	ORDERID	CUSTOMERID	ORDERDATE
1	1002	2	01-JAN-01

```
SELECT * FROM ORDERLINE;
```

Script Output | Query Result | Query Result 1 | Query

SQL | All Rows Fetched: 1 in 0 seconds

	ORDERID	PRODUCTID	ORDERQUANITY
1	1002	722	3

1.6.5

A record with id 1001 is present in part 1. Two records with id 1001 are present in part 2. No records with id 1001 are present in either table in part 4.

1.7.1

```
ALTER TABLE CUSTOMER MODIFY CustomerAddr VARCHAR2(50);
```

Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

Task completed in 0.003 seconds

```
table CUSTOMER altered.
```

1.7.2

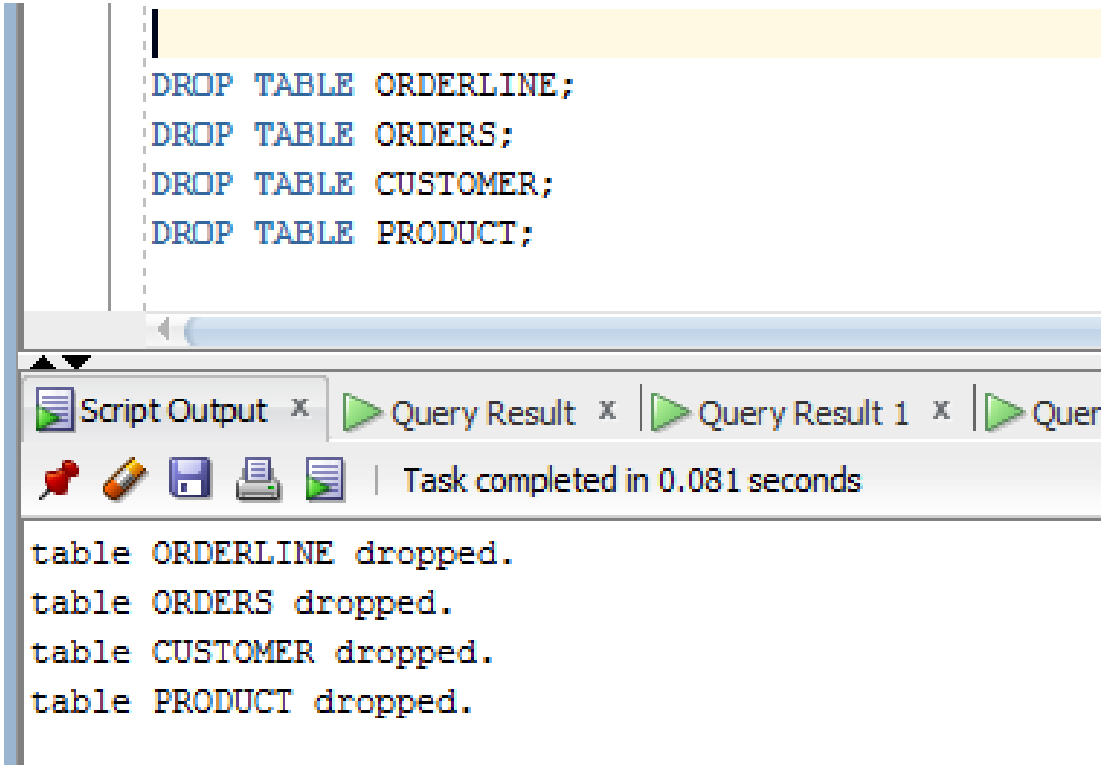
```
ALTER TABLE PRODUCT ADD ProductPrice NUMBER(11);
```

Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

Task completed in 0.095 seconds

```
table PRODUCT altered.
```

1.8.1


DROP TABLE ORDERLINE;
DROP TABLE ORDERS;
DROP TABLE CUSTOMER;
DROP TABLE PRODUCT;
Script Output
Query Result
Query Result 1
Task completed in 0.081 seconds
table ORDERLINE dropped.
table ORDERS dropped.
table CUSTOMER dropped.
table PRODUCT dropped.

Part 2.1

```
SELECT CustomerID, CustomerName FROM CUSTOMER_T WHERE CustomerName LIKE 'C%';
```

Query Result

SQL | All Rows Fetched: 2 in 0 seconds

	CUSTOMERID	CUSTOMERNAME
1	1	Contemporary Casuals
2	8	California Classics

2.2

```
SELECT * FROM EMPLOYEE_T;
SELECT SUBSTR(EmployeeName,0,INSTR(EmployeeName, ' ')) AS "First Name" FROM EMPLOYEE_T;
```

Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 2 in 0.001 seconds

	First Name
1	Jim
2	Robert

2.3

```
SELECT CustomerId, CustomerName FROM CUSTOMER_T
WHERE CustomerState LIKE 'CA' OR CustomerState LIKE 'WA'
ORDER BY CustomerPostalCode DESC;
```

ery Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 3 in 0.003 seconds

	CUSTOMERID	CUSTOMERNAME
1	7	Period Furniture
2	8	California Classics
3	5	Impressions

2.4

```
SELECT EmployeeName, TO_CHAR(EmployeeDateHired, 'Mon dd, YYYY') AS "Employee Hired Date" FROM EMPLOYEE_T
WHERE EmployeeDateHired BETWEEN '01-JAN-99' AND '31-DEC-99';
```

Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 2 in 0.004 seconds

	EMPLOYEENAME	Employee Hired Date
1	Jim Jason	Jun 12, 1999
2	Robert Lewis	Jan 01, 1999

2.5

```
SELECT CustomerId,COUNT(CustomerId) AS "Total Number Of Orders"
FROM Order_T GROUP BY CustomerId ORDER BY CustomerId;
```

Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 9 in 0 seconds

	CUSTOMERID	Total Number Of Orders
1	1	2
2	2	1
3	3	1
4	4	1
5	5	1
6	8	1
7	11	1
8	12	1
9	15	1

2.6

```
23  SELECT ProductId,COUNT(ProductId) AS "Total Ordered Quanity"
24  FROM ORDERLINE_T GROUP BY ProductId ORDER BY "Total Ordered Quanity" DESC;
```

Script Output | Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 8 in 0.004 seconds

	PRODUCTID	Total Ordered Quanity
1	4	4
2	8	3
3	3	3
4	2	2
5	7	2
6	1	2
7	6	1
8	5	1

2.7

```
27  SELECT ProductId,SUM(ProductId) AS "Total Ordered Quanity",
28        CASE
29            WHEN SUM(ProductId) > 10   THEN 'Best'
30            WHEN SUM(ProductId) > 4    THEN 'Good'
31            ELSE 'Bad'
32         END
33         AS "Popularity"
34  FROM ORDERLINE_T GROUP BY ProductId ORDER BY("Total Ordered Quanity") DESC;
35
```

Script Output x | Query Result x

SQL | All Rows Fetched: 8 in 0.001 seconds

	PRODUCTID	Total Ordered Quanity	Popularity
1	8	24	Best
2	4	16	Best
3	7	14	Best
4	3	9	Good
5	6	6	Good
6	5	5	Good
7	2	4	Bad
8	1	2	Bad

2.8

```
36
37  SELECT OrderId, SUM(OrderedQuantity) AS "Number of Products"
38  FROM ORDERLINE_T
39  WHERE OrderedQuantity > 1 group by OrderId;
```

Query Result | Query Result 1 | Query Result 2 | Script Output | Quer

SQL | All Rows Fetched: 10 in 0 seconds

	ORDERID	Number of Products
1	1001	4
2	1002	5
3	1003	3
4	1004	4
5	1005	3
6	1006	4
7	1007	5
8	1008	6
9	1009	5
10	1010	10

2.9

```
42  SELECT c.CustomerId, c.CustomerName, o.OrderId
43  FROM CUSTOMER_T c JOIN ORDER_T o
44  ON o.CustomerId= c.CustomerId;
45
```

Query Result | Query Result 1 | Query Result 2 | Script Output

SQL | All Rows Fetched: 10 in 0.002 seconds

	CUSTOMERID	CUSTOMERNAME	ORDERID
1	1	Contemporary Casuals	1010
2	1	Contemporary Casuals	1001
3	2	Value Furniture	1006
4	3	Home Furnishings	1005
5	4	Eastern Furniture	1009
6	5	Impressions	1004
7	8	California Classics	1002
8	11	American Euro Lifestyles	1007
9	12	Battle Creek Furniture	1008
10	15	Mountain Scenes	1003

2.10

```
46  SELECT o.OrderId, c.CustomerId, o.OrderDate, ol.ProductId, p.ProductDescription, ol.OrderedQuantity
47  FROM CUSTOMER_T c JOIN ORDER_T o
48  ON o.CustomerId= c.CustomerId
49  JOIN ORDERLINE_T ol ON ol.OrderId = o.OrderId
50  JOIN PRODUCT_T p ON p.ProductId = ol.ProductId;
51
52
```

Query Result | Query Result 1 | Query Result 2 | Script Output | Query Result 3

SQL | All Rows Fetched: 18 in 0.003 seconds

	ORDERID	CUSTOMERID	ORDERDATE	PRODUCTID	PRODUCTDESCRIPTION	ORDEREDQUANTITY
1	1001	1	21-OCT-10	4	Entertainment Center	1
2	1001	1	21-OCT-10	2	Coffee Table	2
3	1001	1	21-OCT-10	1	End Table	2
4	1002	8	21-OCT-10	3	Computer Desk	5
5	1003	15	22-OCT-10	3	Computer Desk	3
6	1004	5	22-OCT-10	8	Computer Desk	2
7	1004	5	22-OCT-10	6	8-Drawer Desk	2
8	1005	3	24-OCT-10	4	Entertainment Center	3
9	1006	2	24-OCT-10	7	Dining Table	2
10	1006	2	24-OCT-10	5	Writers Desk	2
11	1006	2	24-OCT-10	4	Entertainment Center	1
12	1007	11	27-OCT-10	2	Coffee Table	2
13	1007	11	27-OCT-10	1	End Table	3
14	1008	12	30-OCT-10	8	Computer Desk	3
15	1008	12	30-OCT-10	3	Computer Desk	3
16	1009	4	05-NOV-10	7	Dining Table	3
17	1009	4	05-NOV-10	4	Entertainment Center	2
18	1010	1	05-NOV-10	8	Computer Desk	10

2.11

```
53  SELECT c.CustomerId, c.CustomerName, o.OrderId
54  FROM CUSTOMER_T c LEFT OUTER JOIN ORDER_T o
55  ON o.CustomerId = c.CustomerId
56  ORDER BY c.CustomerId;
57
58
59
60
61
```

Query Result | Query Result 1 | Query Result 2 | Script Output

SQL | All Rows Fetched: 16 in 0.002 seconds

	CUSTOMERID	CUSTOMERNAME	ORDERID
1	1	Contemporary Casuals	1001
2	1	Contemporary Casuals	1010
3	2	Value Furniture	1006
4	3	Home Furnishings	1005
5	4	Eastern Furniture	1009
6	5	Impressions	1004
7	6	Furniture Gallery	(null)
8	7	Period Furniture	(null)
9	8	California Classics	1002
10	9	M and H Casual Furniture	(null)
11	10	Seminole Interiors	(null)
12	11	American Euro Lifestyles	1007
13	12	Battle Creek Furniture	1008
14	13	Heritage Furnishings	(null)
15	14	Kaneohe Homes	(null)
16	15	Mountain Scenes	1003

2.12

```
59  SELECT e.EmployeeName, s.EmployeeName AS "Supervisor"
60  FROM EMPLOYEE_T e
61  JOIN EMPLOYEE_T s ON s.EmployeeSupervisor = e.EmployeeId ;
62
```

Query Result | Query Result 1 | Query Result 2 | Script Output

SQL | All Rows Fetched: 1 in 0.002 seconds

	EMPLOYEENAME	Supervisor
1	Robert Lewis	Jim Jason

2.13

```
63  SELECT c.CustomerName, c.CustomerId
64  FROM CUSTOMER_T c
65  WHERE (
66    SELECT COUNT(o.CustomerId)
67    FROM ORDER_T o
68    WHERE c.CUSTOMERID = o.CUSTOMERID
69    )
70  = 0;
```

Query Result

SQL | All Rows Fetched: 6 in 0 seconds

	CUSTOMERNAME	CUSTOMERID
1	Furniture Gallery	6
2	Period Furniture	7
3	M and H Casual Furniture	9
4	Seminole Interiors	10
5	Heritage Furnishings	13
6	Kaneohe Homes	14

2.14

```
/* 14. (5 points) Customer names of customers who have ordered (on same or different orders) BOTH
products 3 (ProductID=3) and 4 (ProductID=4). (HINT: A set operator is needed.)*/
SELECT CustomerName FROM CUSTOMER_T c JOIN (
  SELECT CustomerId FROM CUSTOMER_T
  INTERSECT
  SELECT CustomerId FROM Order_T
  INTERSECT
  SELECT ProductId FROM ORDERLINE_T
  INTERSECT
  SELECT ProductId FROM PRODUCT_T WHERE ProductId =  3 OR ProductId = 4
  ) nq
ON c.CustomerId = nq.CustomerId ;
```

Script Output | Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 2 in 0.002 seconds

	CUSTOMERNAME
1	Home Furnishings
2	Eastern Furniture