Command Prompt - sqlplus

```
SQL> SET LINESIZE 200;
SQL> SET PAGESIZE 20;
SQL>
SQL> -- Question 1
SQL>
SQL> CREATE TABLE Course_Taken(student_name varchar2(10), course varchar2(25));

Table created.

SQL> CREATE TABLE Course_Required(course varchar2(25));

Table created.

SQL> INSERT ALL
  2      INTO Course_Taken(student_name, course) VALUES ('Robert', 'Databases')
  3      INTO Course_Taken(student_name, course) VALUES ('Robert', 'Programming Languages')
  4      INTO Course_Taken(student_name, course) VALUES ('David', 'Databases')
  5      INTO Course_Taken(student_name, course) VALUES ('Hannah', 'Programming Languages')
  6      INTO Course_Taken(student_name, course) VALUES ('Hannah', 'Programming Languages')
  7      INTO Course_Taken(student_name, course) VALUES ('Tom', 'Operating Systems')
  8      INTO Course_Taken(student_name, course) VALUES ('David', 'Operating Systems')
  9  SELECT * FROM dual;

7 rows created.

SQL> INSERT ALL
  2      INTO Course_Required(course) VALUES ('Databases')
  3      INTO Course_Required(course) VALUES ('Programming Languages')
  4  SELECT * FROM dual;

2 rows created.

SQL>
SQL> SELECT * FROM Course_Taken;

STUDENT_NA COURSE
---------- -------------------------
Robert     Databases
Robert     Programming Languages
David      Databases
Hannah     Programming Languages
Hannah     Programming Languages
Tom        Operating Systems
David      Operating Systems

7 rows selected.

SQL> SELECT * FROM Course_Required;
```

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```
SQL> SELECT * FROM Course_Required;

COURSE
------------------------
Databases
Programming Languages

SQL>
SQL> CREATE TABLE T1 AS (SELECT DISTINCT(student_name) FROM Course_Taken);

Table created.

SQL> SELECT * FROM T1;

STUDENT_NA
----------
Robert
Tom
David
Hannah

SQL>
SQL> CREATE TABLE ST1 AS
  2  (SELECT * FROM T1, Course_Required);

Table created.

SQL> SELECT * FROM ST1;

STUDENT_NA COURSE
---------- ------------------------
Robert     Databases
Tom        Databases
David      Databases
Hannah     Databases
Robert     Programming Languages
Tom        Programming Languages
David      Programming Languages
Hannah     Programming Languages

8 rows selected.

SQL>
SQL> CREATE TABLE T2_0 AS
  2  (SELECT * FROM ST1
  3  MINUS
  4  SELECT * FROM Course_Taken);

Table created.
```

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```
Table created.

SQL> SELECT * FROM T2_0;

STUDENT_NA COURSE
---------- ------------------------
David      Programming Languages
Hannah     Databases
Tom        Databases
Tom        Programming Languages

SQL>
SQL> CREATE TABLE T2 AS (SELECT DISTINCT(student_name) FROM T2_0);

Table created.

SQL> SELECT * FROM T2;

STUDENT_NA
----------
Tom
David
Hannah

SQL>
SQL> SELECT * FROM T1
  2  MINUS
  3  SELECT * FROM T2;

STUDENT_NA
----------
Robert

SQL>
SQL>
SQL>
SQL> -- Question 2
SQL>
SQL> SELECT DISTINCT(student_name) FROM (SELECT * FROM
  2  (SELECT DISTINCT(student_name) FROM Course_Taken),
  3  (SELECT course FROM Course_Required)
  4  MINUS
  5  SELECT student_name, course FROM Course_Taken);

STUDENT_NA
----------
Tom
David
Hannah
```

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```
SQL> CREATE TABLE Dummy AS (SELECT * FROM Course_Taken WHERE course = ANY(SELECT course FROM Course_Required));

Table created.

SQL> CREATE TABLE Non_Graduate AS SELECT DISTINCT(student_name) FROM (SELECT * FROM ST1 MINUS SELECT * FROM Dummy);

Table created.

SQL> SELECT * FROM Non_Graduate;

STUDENT_NA
----------
Tom
David
Hannah

SQL>
SQL> SELECT * FROM T1 INTERSECT SELECT DISTINCT(student_name) FROM T2_0;

STUDENT_NA
----------
David
Hannah
Tom

SQL>
SQL> DROP TABLE T1;

Table dropped.

SQL> DROP TABLE ST1;

Table dropped.

SQL> DROP TABLE T2_0;

Table dropped.

SQL> DROP TABLE T2;

Table dropped.

SQL> DROP TABLE Dummy;

Table dropped.

SQL> DROP TABLE Non_Graduate;

Table dropped.
```

Command Prompt - sqlplus

```
SQL>
SQL> CREATE TABLE Bank(Bank_name varchar2(5), State varchar2(15));

Table created.

SQL> CREATE TABLE Account_Holder(Account_Name varchar2(10), Bank_name varchar2(5), State varchar2(15));

Table created.

SQL> INSERT ALL
  2      INTO Bank(Bank_name, State) VALUES ('SBI', 'ANDHRA PRADESH')
  3      INTO Bank(Bank_name, State) VALUES ('SBI', 'TAMILNADU')
  4      INTO Bank(Bank_name, State) VALUES ('SBI', 'KARNATAKA')
  5      INTO Bank(Bank_name, State) VALUES ('ICICI', 'TAMILNADU')
  6      INTO Bank(Bank_name, State) VALUES ('ICICI', 'KARNATAKA')
  7  SELECT * FROM dual;

5 rows created.

SQL> INSERT ALL
  2      INTO Account_Holder(Account_Name, Bank_name, State) VALUES ('RAMESH', 'ICICI', 'TAMILNADU')
  3      INTO Account_Holder(Account_Name, Bank_name, State) VALUES ('DINESH', 'SBI', 'ANDHRA PRADESH')
  4      INTO Account_Holder(Account_Name, Bank_name, State) VALUES ('ROBERT', 'SBI', 'TAMILNADU')
  5      INTO Account_Holder(Account_Name, Bank_name, State) VALUES ('ROBERT', 'ICICI', 'KARNATAKA')
  6      INTO Account_Holder(Account_Name, Bank_name, State) VALUES ('ROBERT', 'SBI', 'ANDHRA PRADESH')
  7      INTO Account_Holder(Account_Name, Bank_name, State) VALUES ('KARTHIK', 'SBI', 'ANDHRA PRADESH')
  8  SELECT * FROM dual;

6 rows created.

SQL>
SQL> SELECT * FROM Bank;

BANK_ STATE
----- ---------------
SBI   ANDHRA PRADESH
SBI   TAMILNADU
SBI   KARNATAKA
ICICI TAMILNADU
ICICI KARNATAKA

SQL> SELECT * FROM Account_Holder;

ACCOUNT_NA BANK_ STATE
---------- ----- ---------------
RAMESH     ICICI TAMILNADU
DINESH     SBI   ANDHRA PRADESH
ROBERT     SBI   TAMILNADU
ROBERT     ICICI KARNATAKA
ROBERT     SBI   ANDHRA PRADESH
```

Command Prompt - sqlplus

```
SQL>
SQL>
SQL> CREATE TABLE T1 AS (SELECT DISTINCT(Account_Name) FROM Account_Holder);

Table created.

SQL> SELECT * FROM T1;

ACCOUNT_NA
----------
ROBERT
KARTHIK
RAMESH
DINESH

SQL> CREATE TABLE ST1 AS
  2  (SELECT * FROM T1, Bank);

Table created.

SQL> CREATE TABLE T2_0 AS
  2  (SELECT * FROM ST1
  3  MINUS
  4  SELECT * FROM Account_Holder);

Table created.

SQL> CREATE TABLE T2 AS (SELECT DISTINCT(Account_Name) FROM T2_0);

Table created.

SQL> SELECT * FROM T1
  2  MINUS
  3  SELECT * FROM T2;

no rows selected

SQL>
SQL> DROP TABLE T1;

Table dropped.

SQL> DROP TABLE ST1;

Table dropped.

SQL> DROP TABLE T2_0;

Table dropped.
```

Command Prompt - sqlplus

```
SQL>
SQL>
SQL> CREATE TABLE States AS (SELECT DISTINCT(State) FROM Bank);

Table created.

SQL>
SQL> CREATE TABLE T1 AS (SELECT DISTINCT(Bank_name) FROM Bank);

Table created.

SQL> SELECT * FROM T1;

BANK_
-----
ICICI
SBI

SQL> CREATE TABLE ST1 AS
  2  (SELECT * FROM T1, States);

Table created.

SQL> CREATE TABLE T2_0 AS
  2  (SELECT * FROM ST1
  3  MINUS
  4  SELECT * FROM Bank);

Table created.

SQL> CREATE TABLE T2 AS (SELECT DISTINCT(Bank_name) FROM T2_0);

Table created.

SQL> SELECT * FROM T1
  2  MINUS
  3  SELECT * FROM T2;

BANK_
-----
SBI

SQL> SELECT * FROM T2;

BANK_
-----
ICICI

SQL>
SQL> DROP TABLE T1;
```

Command Prompt - sqlplus

```
Table dropped.

SQL>
SQL> CREATE TABLE Account_State AS (SELECT Account_Name, State FROM Account_Holder);

Table created.

SQL>
SQL> CREATE TABLE T1 AS (SELECT DISTINCT(Account_Name) FROM Account_State);

Table created.

SQL> SELECT * FROM T1;

ACCOUNT_NA
----------
ROBERT
KARTHIK
RAMESH
DINESH

SQL> CREATE TABLE ST1 AS
  2  (SELECT * FROM T1, States);

Table created.

SQL> CREATE TABLE T2_0 AS
  2  (SELECT * FROM ST1
  3  MINUS
  4  SELECT * FROM Account_State);

Table created.

SQL> CREATE TABLE T2 AS (SELECT DISTINCT(Account_Name) FROM T2_0);

Table created.

SQL> SELECT * FROM T1
  2  MINUS
  3  SELECT * FROM T2;

ACCOUNT_NA
----------
ROBERT

SQL>
SQL> DROP TABLE T1;

Table dropped.
```