Name : Basil Abdulmajeed Khan ID : 441009192

DB project

The problems

General problem : horse owners have a hard time finding stables and knowing what services they provide.

Detailed problems :-

1- not all stable owners have the capability to advertise their stables.

2- Horse owners who have mares(adult female horses) and wants to breed them. Find it difficult to know the stallions(adult male horses) available in the same city.

3- Horse owners don't know if a certain stable has an empty stall(room for a horse).

Suggested solutions

1- make a data base to ease the retrieval of the data. like searching for stables in a specific city by a click of a button.

2- Using a data base people can see the services a stable provides easily and stable owners can advertise their stable simply by adding unique or good services.

3- Provide the data and mechanisms to know the availability of stallion and the price of their semen and which stable are they in.

4- Provide a query to display the number of free(empty) stalls and their rent price.

Other useful queries :-

1- Search for horses by their sire(father's name) or by their dam(mother's name).

2- Search for horses by their breed , line or/and type.

3- Search for stables that provide a certain service.

4- Search for horses by their name and which stable are they in.

Entitys

Owners : name – ID – gender – phone number – Email.

Workers : ID – Name – Salary – Stable_ID – Phone number.

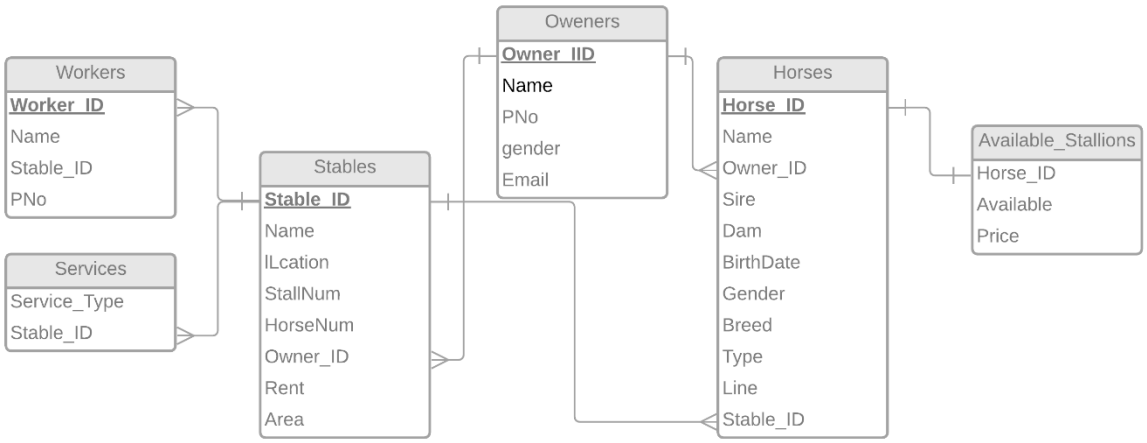
Horses : name – ID – sire(father's name) – dam(mother's name) – gender – birthdate – type – breed – line – owner_ID – stable_ID.

Stables : name – ID – location – number of stalls – number of horses – owner_ID – rent - area.

Services : service type – stable_ID.

Available_Stallions : horse_ID – available – price.

ER-Diagram



Relational schema

Horses									
Horse_ID	Name	Stable_ID	Sire	Dam	BirthDate	Gender	Breed	Type	Line

Stables							
Stable_ID	Name	Owner_ID	Location	StallNum	HorseNum	Rent	Area

Owners				
Owner_ID	Name	Gender	PNo	Email

Workers			
Worker_ID	Name	PNo	Stable_ID

Available_Stallions		
Horse_ID	Available	Price

Services	
Service_Type	Stable_ID

Creating the stable in mysql

Horses table:

```
mysql> CREATE TABLE HORSES(
    -> Horse_ID INT PRIMARY KEY,
    -> Owner_ID INT,
    -> Stable_ID INT,
    -> Name VARCHAR(20),
    -> Sire VARCHAR(20),
    -> DAM VARCHAR(20),
    -> BirthDate DATE,
    -> Gender CHAR DEFAULT "F",
    -> BREED VARCHAR(20),
    -> TYPE VARCHAR(20),
    -> Line VARCHAR(20),
    -> FOREIGN KEY(Owner_ID) REFERENCES Owners(Owner_ID) ON DELETE CASCADE ON UPDATE CASCADE,
    -> FOREIGN KEY(Stable_ID) REFERENCES STABLES(Stable_ID) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.10 sec)
```

Stables table:

```
mysql> CREATE TABLE STABLES(
    -> Stable_ID INT PRIMARY KEY,
    -> Owner_ID INT,
    -> Name VARCHAR(30),
    -> Location VARCHAR(25),
    -> StallNum INT,
    -> HorseNum INT,
    -> Rent INT,
    -> Area DECIMAL,
    -> FOREIGN KEY(Owner_ID) REFERENCES OWNERS(Owner_ID) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.07 sec)
```

Owners table:

```
mysql> CREATE TABLE OWNERS(
    -> Owner_ID INT PRIMARY KEY,
    -> Name VARCHAR(20),
    -> PNO VARCHAR(10),
    -> Gender CHAR DEFAULT "M",
    -> EMAIL VARCHAR(30));
Query OK, 0 rows affected (0.08 sec)
```

Workers, Available_Stallions, Services table:

```
mysql> CREATE TABLE AVAILABLE_STALLIONS(
    -> Horse_ID INT UNIQUE,
    -> Available BOOLEAN DEFAULT FALSE,
    -> PRICE INT,
    -> FOREIGN KEY(Horse_ID) REFERENCES HORSES(Horse_ID) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.08 sec)

mysql> CREATE TABLE WORKERS(
    -> Worker_ID INT PRIMARY KEY,
    -> Name VARCHAR(20),
    -> Stable_ID INT,
    -> PNO VARCHAR(20),
    -> FOREIGN KEY(Stable_ID) REFERENCES STABLES(Stable_ID) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.09 sec)

mysql> CREATE TABLE SERVICES(
    -> Service_Type VARCHAR(30),
    -> Stable_ID INT,
    -> FOREIGN KEY(Stable_ID) REFERENCES STABLES(Stable_ID) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> DESC OWNERS;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| Owner_ID | int         | NO   | PRI | NULL    |       |
| Name     | varchar(20) | YES  |     | NULL    |       |
| PNO      | varchar(10) | YES  |     | NULL    |       |
| Gender   | char(1)     | YES  |     | M       |       |
| EMAIL    | varchar(30) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
5 rows in set (0.01 sec)

mysql> DESC STABLES;
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| Stable_ID | int           | NO   | PRI | NULL    |       |
| Owner_ID  | int           | YES  | MUL | NULL    |       |
| Name      | varchar(30)   | YES  |     | NULL    |       |
| Location  | varchar(25)   | YES  |     | NULL    |       |
| StallNum  | int           | YES  |     | NULL    |       |
| HorseNum  | int           | YES  |     | NULL    |       |
| Rent      | int           | YES  |     | NULL    |       |
| Area      | decimal(10,0) | YES  |     | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

```
mysql> DESC HORSES;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| Horse_ID  | int         | NO   | PRI | NULL    |       |
| Owner_ID  | int         | YES  | MUL | NULL    |       |
| Stable_ID | int         | YES  | MUL | NULL    |       |
| Name      | varchar(20) | YES  |     | NULL    |       |
| Sire      | varchar(20) | YES  |     | NULL    |       |
| DAM       | varchar(20) | YES  |     | NULL    |       |
| BirthDate | date        | YES  |     | NULL    |       |
| Gender    | char(1)     | YES  |     | F       |       |
| BREED     | varchar(20) | YES  |     | NULL    |       |
| TYPE      | varchar(20) | YES  |     | NULL    |       |
| Line      | varchar(20) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
11 rows in set (0.01 sec)

mysql> DESC AVAILABLE_STALLIONS;
+-----------+------------+------+-----+---------+-------+
| Field     | Type       | Null | Key | Default | Extra |
+-----------+------------+------+-----+---------+-------+
| Horse_ID  | int        | YES  | UNI | NULL    |       |
| Available | tinyint(1) | YES  |     | 0       |       |
| PRICE     | int        | YES  |     | NULL    |       |
+-----------+------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESC WORKERS
    -> ;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| Worker_ID | int         | NO   | PRI | NULL    |       |
| Name      | varchar(20) | YES  |     | NULL    |       |
| Stable_ID | int         | YES  | MUL | NULL    |       |
| PNO       | varchar(20) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> DESC SERVICES;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| Service_Type | varchar(30) | YES  |     | NULL    |       |
| Stable_ID    | int         | YES  | MUL | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

Inserting Data into the tables

Inserting into Stables, Owners, Services:

```
mysql> INSERT INTO OWNERS VALUES(111,"Mohamad Jaber","0503346728","M","mohj@outlook.com");
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO OWNERS VALUES(112,"Abdulrahman Alotaibi","0563545778","M","abo_abd@outlook.com"),
    -> (113,"Abdulrahman Alharbi","0563544901","M","abdulrahman_harbi@outlook.com"),
    -> (114,"Jameel Alnahdi","0535497011","M","J_nahdi@outlook.com"),
    -> (115,"Hamad Gazi","0535678011","M","HGazi@outlook.com");
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> INSERT INTO OWNERS VALUES(116,"Sameer Althemami","0563152738","M","ST_Stud@outlook.com"),
    -> (117,"Saber Ghaleb","0563512838","M","Ghaleb_horses@outlook.com"),
    -> (118,"Reham Aljehani","0544512928","F","R_Jehani@outlook.com");
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> INSERT INTO STABLES VALUES(11,112,"AL-Otaibiah Stud","Riyadh",25,19,1500,1370),
    -> (12,113,"Aof Stud","Jeddah",20,20,1000,900),
    -> (13,115,"AL-Hamdiah Stud","Jeddah",15,10,750,730),
    -> (14,111,"AL-Nasiat Stud","Riyadh",35,27,2500,1940),
    -> (15,116,"ST Stud","Riyadh",30,28,3000,2150),
    -> (16,116,"AL-Themamiah Stud","RiyadH",15,10,NULL,1050);
Query OK, 6 rows affected (0.05 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql> INSERT INTO SERVICES VALUES("Swimming Pool",14),
    -> ("16*20 Paddock",14),
    -> ("10*12 Paddock",14),
    -> ("Circular Paddock",14),
    -> ("Training",14),
    -> ("13*16 Paddock",15),
    -> ("20*25 Paddock",15),
    -> ("Walker",15),
    -> ("Contest Training",15),
    -> ("12*15 Paddock",11),
    -> ("15*15 Paddock",16);
Query OK, 11 rows affected (0.05 sec)
Records: 11  Duplicates: 0  Warnings: 0
```

Inserting into Workers:

```
mysql> INSERT INTO WORKERS VALUES(201,"Abbas",11,"0504210486"),
    -> (202,"Jamal",11,"0504862521"),
    -> (203,"Saeed",12,"0534662121"),
    -> (204,"Ibrahim",13,"05346254521"),
    -> (205,"Fareed",14,"05635634510"),
    -> (206,"Mohamad",14,"05624523401"),
    -> (207,"Sadeeq",15,"05313412312"),
    -> (208,"Sameer",15,"0537452671"),
    -> (209,"Abdallah",16,"0536341560");
Query OK, 9 rows affected (0.04 sec)
Records: 9  Duplicates: 0  Warnings: 0
```

Inserting into Horses:

```
mysql> INSERT INTO HORSES VALUES(1001,111,14,"Badi AL-Hawajer","MigladIII","Faten AL-Hawajer","2016-3-6","M","Arabian","Beuty","Mix");
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO HORSES VALUES(1002,111,14,"Jameelat Athbah","ES Harir","AJ Rabiah","2019-4-8","F","Arabian","Beuty","Mix"),
    -> (1003,112,11,"Jumanah AL-Otaibiah","Alexxander","Sabhah AL-Otaibiah","2020-5-9","F","Arabian","Beuty","Mix"),
    -> (1004,112,11,"Somuo AL-Otaibiah","Ashhal AL-Ryan","Sabhah AL-Otaibiah","2020-1-3","F","Arabian","Beuty","Eygptian"),
    -> (1005,112,11,"Sabhah AL-Otaibiah","Ansata Hejazi","Ansata Shahrazad","2015-6-7","F","Arabian","Beuty","Eygptian"),
    -> (1006,116,15,"ST Raad","Fadi AL-Shaqab","Violeta","2017-5-2","M","Arabian","Beuty","Mix"),
    -> (1007,116,16,"Rasheeq","Farazan",NULL,"2017-11-2","M","English","Jumping",NULL),
    -> (1008,117,13,"Sengar Enaya","AJ Dinar","Ammona","2016-12-4","M","Arabian","Beuty","Mix"),
    -> (1009,115,13,"Senan AL-Hamdiah","Sengar Enaya","Senaa AL-Hamdiah","2021-1-3","M","Arabian","Beuty","Mix"),
    -> (1010,113,12,"Malekat Aof","Ajman ALMazen","Sebhah Aof","2020-11-12","F","Arabian","Beuty","Mix");
Query OK, 9 rows affected (0.01 sec)
Records: 9  Duplicates: 0  Warnings: 0
```

Inserting into Available_Stallions:

```
mysql> INSERT INTO AVAILABLE_STALLIONS VALUES(1001,TRUE,3000),
    -> (1006,TRUE,0),
    -> (1007,FALSE,0),
    -> (1008,TRUE,0);
```

Querys

1- Showing stables and the number of free stalls.

```
mysql> SELECT *,StallNum-HorseNum AS FreeStalls FROM STABLES ;
+-----------+----------+-------------------+----------+----------+----------+------+------+------------+
| Stable_ID | Owner_ID | Name              | Location | StallNum | HorseNum | Rent | Area | FreeStalls |
+-----------+----------+-------------------+----------+----------+----------+------+------+------------+
|        11 |      112 | AL-Otaibiah Stud  | Riyadh   |       25 |       19 | 1500 | 1370 |          6 |
|        12 |      113 | Aof Stud          | Jeddah   |       20 |       20 | 1000 |  900 |          0 |
|        13 |      115 | AL-Hamdiah Stud   | Jeddah   |       15 |       10 |  750 |  730 |          5 |
|        14 |      111 | AL-Nasiat Stud    | Riyadh   |       35 |       27 | 2500 | 1940 |          8 |
|        15 |      116 | ST Stud           | Riyadh   |       30 |       28 | 3000 | 2150 |          2 |
|        16 |      116 | AL-Themamiah Stud | RiyadH   |       15 |       10 | NULL | 1050 |          5 |
+-----------+----------+-------------------+----------+----------+----------+------+------+------------+
6 rows in set (0.00 sec)
```

2- Showing horses who's their sire is AJ Dinar.

```
mysql> SELECT * FROM HORSES WHERE Sire = "AJ Dinar";
+----------+----------+-----------+--------------+----------+--------+------------+--------+---------+-------+------+
| Horse_ID | Owner_ID | Stable_ID | Name         | Sire     | DAM    | BirthDate  | Gender | BREED   | TYPE  | Line |
+----------+----------+-----------+--------------+----------+--------+------------+--------+---------+-------+------+
|     1008 |      117 |        13 | Sengar Enaya | AJ Dinar | Ammona | 2016-12-04 | M      | Arabian | Beuty | Mix  |
+----------+----------+-----------+--------------+----------+--------+------------+--------+---------+-------+------+
1 row in set (0.00 sec)
```

3- Showing stables that provide pool service.

```
mysql> SELECT * FROM STABLES WHERE Stable_ID = (SELECT Stable_ID FROM SERVICES WHERE Service_Type LIKE "%Pool%");
+-----------+----------+----------------+----------+----------+----------+------+------+
| Stable_ID | Owner_ID | Name           | Location | StallNum | HorseNum | Rent | Area |
+-----------+----------+----------------+----------+----------+----------+------+------+
|        14 |      111 | AL-Nasiat Stud | Riyadh   |       35 |       27 | 2500 | 1940 |
+-----------+----------+----------------+----------+----------+----------+------+------+
1 row in set (0.01 sec)
```

4- Showing horses by their breed or type or line.

```
mysql> SELECT * FROM HORSES WHERE BREED = "English";
+----------+----------+-----------+---------+---------+------+------------+--------+---------+---------+------+
| Horse_ID | Owner_ID | Stable_ID | Name    | Sire    | DAM  | BirthDate  | Gender | BREED   | TYPE    | Line |
+----------+----------+-----------+---------+---------+------+------------+--------+---------+---------+------+
|     1007 |      116 |        16 | Rasheeq | Farazan | NULL | 2017-11-02 | M      | English | Jumping | NULL |
+----------+----------+-----------+---------+---------+------+------------+--------+---------+---------+------+
1 row in set (0.00 sec)

mysql> SELECT * FROM HORSES WHERE TYPE = "Beuty";
+----------+----------+-----------+--------------------+---------------+--------------------+------------+--------+---------+-------+----------+
| Horse_ID | Owner_ID | Stable_ID | Name               | Sire          | DAM                | BirthDate  | Gender | BREED   | TYPE  | Line     |
+----------+----------+-----------+--------------------+---------------+--------------------+------------+--------+---------+-------+----------+
|     1001 |      111 |        14 | Badi AL-Hawajer    | MigladIII     | Faten AL-Hawajer   | 2016-03-06 | M      | Arabian | Beuty | Mix      |
|     1002 |      111 |        14 | Jameelat Athbah    | ES Harir      | AJ Rabiah          | 2019-04-08 | F      | Arabian | Beuty | Mix      |
|     1003 |      112 |        11 | Jumanah AL-Otaibiah | Alexxander    | Sabhah AL-Otaibiah | 2020-05-09 | F      | Arabian | Beuty | Mix      |
|     1004 |      112 |        11 | Somuo AL-Otaibiah  | Ashhal AL-Ryan | Sabhah AL-Otaibiah | 2020-01-03 | F      | Arabian | Beuty | Eygptian |
|     1005 |      112 |        11 | Sabhah AL-Otaibiah | Ansata Hejazi | Ansata Shahrazad   | 2015-06-07 | F      | Arabian | Beuty | Eygptian |
|     1006 |      116 |        15 | ST Raad            | Fadi AL-Shaqab | Violeta           | 2017-05-02 | M      | Arabian | Beuty | Mix      |
|     1008 |      117 |        13 | Sengar Enaya       | AJ Dinar      | Ammona             | 2016-12-04 | M      | Arabian | Beuty | Mix      |
|     1009 |      115 |        13 | Senan AL-Hamdiah   | Sengar Enaya  | Senaa AL-Hamdiah   | 2021-01-03 | M      | Arabian | Beuty | Mix      |
|     1010 |      113 |        12 | Malekat Aof        | Ajman ALMazen | Sebhah Aof         | 2020-11-12 | F      | Arabian | Beuty | Mix      |
+----------+----------+-----------+--------------------+---------------+--------------------+------------+--------+---------+-------+----------+
9 rows in set (0.00 sec)

mysql> SELECT * FROM HORSES WHERE Line = "Eygptian";
+----------+----------+-----------+--------------------+---------------+--------------------+------------+--------+---------+-------+----------+
| Horse_ID | Owner_ID | Stable_ID | Name               | Sire          | DAM                | BirthDate  | Gender | BREED   | TYPE  | Line     |
+----------+----------+-----------+--------------------+---------------+--------------------+------------+--------+---------+-------+----------+
|     1004 |      112 |        11 | Somuo AL-Otaibiah  | Ashhal AL-Ryan | Sabhah AL-Otaibiah | 2020-01-03 | F      | Arabian | Beuty | Eygptian |
|     1005 |      112 |        11 | Sabhah AL-Otaibiah | Ansata Hejazi | Ansata Shahrazad   | 2015-06-07 | F      | Arabian | Beuty | Eygptian |
+----------+----------+-----------+--------------------+---------------+--------------------+------------+--------+---------+-------+----------+
2 rows in set (0.00 sec)
```

5- Searching for the info of horses called senan and the name of the stable they are in.

```
mysql> SELECT HORSES.*,STABLES.Name FROM HORSES INNER JOIN STABLES ON HORSES.Stable_ID = STABLES.Stable_ID WHERE HORSES.Name LIKE "Senan%";
+----------+----------+-----------+-----------------+-------------+-----------------+------------+--------+---------+-------+------+-----------------+
| Horse_ID | Owner_ID | Stable_ID | Name            | Sire        | DAM             | BirthDate  | Gender | BREED   | TYPE  | Line | Name            |
+----------+----------+-----------+-----------------+-------------+-----------------+------------+--------+---------+-------+------+-----------------+
|     1009 |      115 |        13 | Senan AL-Hamdiah | Sengar Enaya | Senaa AL-Hamdiah | 2021-01-03 | M      | Arabian | Beuty | Mix  | AL-Hamdiah Stud |
+----------+----------+-----------+-----------------+-------------+-----------------+------------+--------+---------+-------+------+-----------------+
1 row in set (0.00 sec)
```

6- Showing the available stallions names and the price of their semen.

```
mysql> SELECT HORSES.Name,AVAILABLE_STALLIONS.PRICE FROM HORSES INNER JOIN AVAILABLE_STALLIONS ON HORSES.Horse_ID = AVAI
LABLE_STALLIONS.Horse_ID WHERE AVAILABLE_STALLIONS.Available = TRUE;
+-----------------+-------+
| Name            | PRICE |
+-----------------+-------+
| Badi AL-Hawajer |  3000 |
| ST Raad         |     0 |
| Sengar Enaya    |     0 |
+-----------------+-------+
3 rows in set (0.00 sec)
```