مشروع ٢ - دورة SQL2

اسم المتدرب: مريم الردادي

اسم المشرف: غادة المطيري

جدول الطلاب:

| student_id | student_name | birth_date | gender | enrollment_date | student_email | student_level | track | GPA |
|---|---|---|---|---|---|---|---|---|
| 1 | Nora | 2005-12-31 00:00:00 | F | 2014-09-11 00:00:00 | nora@gmail.com | 1 | science | 76 |
| 2 | Maryam | 2006-12-31 00:00:00 | F | 2009-09-11 00:00:00 | maryam@gmail.com | 3 | science | 66 |
| 3 | Shahad | 2001-12-31 00:00:00 | F | 2011-09-11 00:00:00 | shahad@gmail.com | 2 | science | 89 |
| 4 | Mohammed | 1999-02-01 00:00:00 | M | 2009-09-11 00:00:00 | mohammed@gmail.com | 4 | humanities | 87 |
| 5 | Abdulaziz | 2007-12-31 00:00:00 | M | 2006-09-11 00:00:00 | abdulaziz@gmail.com | 5 | science | 90 |
| 6 | Rashed | 2010-12-31 00:00:00 | M | 2006-09-11 00:00:00 | rashed@gmail.com | 1 | science | 92 |
| 7 | Saud | 2005-12-31 00:00:00 | M | 2011-09-11 00:00:00 | nora@gmail.com | 3 | humanities | 62 |
| 8 | Nora | 2010-12-31 00:00:00 | F | 2009-09-11 00:00:00 | nora@gmail.com | 4 | science | 58 |
| 9 | Sama | 2006-12-31 00:00:00 | F | 2014-09-11 00:00:00 | sama@gmail.com | 1 | humanities | 97 |
| 10 | Afnan | 2010-12-31 00:00:00 | F | 2014-09-11 00:00:00 | afnan@gmail.com | 6 | science | 100 |
| 11 | Fatimah | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | fatimah@gmail.com | 1 | science | 76 |
| 12 | Samar | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | samar@gmail.com | 1 | humanities | 63 |
| 13 | Raghad | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | raghad@gmail.com | 1 | science | 76 |
| 14 | Rana | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | rana@gmail.com | 1 | science | 53 |
| 15 | Asmaa | 2012-12-31 00:00:00 | F | 2009-09-11 00:00:00 | asmaa@gmail.com | 4 | humanities | 62 |
| 16 | Abrar | 2011-12-31 00:00:00 | F | 2014-09-11 00:00:00 | abrar@gmail.com | 6 | science | 100 |
| 17 | Sara | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | sara@gmail.com | 1 | humanities | 98 |
| 18 | Majid | 2010-12-31 00:00:00 | M | 2014-09-11 00:00:00 | majid@gmail.com | 1 | science | 76 |
| 19 | Saeed | 2005-12-31 00:00:00 | M | 2011-09-11 00:00:00 | saeed@gmail.com | 6 | humanities | 99 |
| 20 | Aziz | 2004-12-31 00:00:00 | M | 2014-09-11 00:00:00 | aziz@gmail.com | 1 | science | 95 |
| 21 | Abdullah | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | abdullah@gmail.com | 1 | science | 76 |
| 22 | Khalid | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | khalid@gmail.com | 1 | humanities | 95 |
| 23 | Rashed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | rashed@gmail.com | 1 | science | 57 |
| 24 | Amal | 2008-12-31 00:00:00 | F | 2008-09-11 00:00:00 | amal@gmail.com | 5 | science | 78 |
| 25 | saud | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | saud@gmail.com | 1 | humanities | 99 |
| 26 | Mohammed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | mohammed@gmail.com | 6 | science | 100 |
| 27 | Maryam | 2008-12-31 00:00:00 | F | 2006-09-11 00:00:00 | maryam@gmail.com | 3 | humanities | 89 |
| 28 | Dania | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | dania@gmail.com | 1 | science | 86 |
| 29 | Shahad | 2011-12-31 00:00:00 | F | 2014-09-11 00:00:00 | shahad@gmail.com | 1 | science | 73 |
| 30 | Ahmed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | ahmed@gmail.com | 1 | science | 93 |
| NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

- إنشاء جدول للطلاب المتفوقين من جدول الطلاب، بحيث يحتوي هذا الجدول على بيانات الطلاب الذي يكون معدلهم التراكمي أعلى من ٩٠.

```
3  ⊖  /* create a new table containing student records
4  │    with GPA > 90 */
5
6  ●  CREATE TABLE Excellent_Students
7     SELECT * FROM Student
8     WHERE GPA > 90;
9
10 ●  SELECT * FROM Excellent_Students;
```

| student_id | student_name | birth_date | gender | enrollment_date | student_email | student_level | track | GPA |
|---|---|---|---|---|---|---|---|---|
| ▶ 6 | Rashed | 2010-12-31 00:00:00 | M | 2006-09-11 00:00:00 | rashed@gmail.com | 1 | science | 92 |
| 9 | Sama | 2006-12-31 00:00:00 | F | 2014-09-11 00:00:00 | sama@gmail.com | 1 | humanities | 97 |
| 10 | Afnan | 2010-12-31 00:00:00 | F | 2014-09-11 00:00:00 | afnan@gmail.com | 6 | science | 100 |
| 16 | Abrar | 2011-12-31 00:00:00 | F | 2014-09-11 00:00:00 | abrar@gmail.com | 6 | science | 100 |
| 17 | Sara | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | sara@gmail.com | 1 | humanities | 98 |
| 19 | Saeed | 2005-12-31 00:00:00 | M | 2011-09-11 00:00:00 | saeed@gmail.com | 6 | humanities | 99 |
| 20 | Aziz | 2004-12-31 00:00:00 | M | 2014-09-11 00:00:00 | aziz@gmail.com | 1 | science | 95 |
| 22 | Khalid | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | khalid@gmail.com | 1 | humanities | 95 |
| 25 | saud | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | saud@gmail.com | 1 | humanities | 99 |
| 26 | Mohammed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | mohammed@gmail.com | 6 | science | 100 |
| 30 | Ahmed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | ahmed@gmail.com | 1 | science | 93 |

- إنشاء جدول للطلاب الغير مجتازين من جدول الطلاب، بحيث يحتوي هذا الجدول على بيانات الطلاب الذي يكون معدلهم التراكمي أقل من ٦٠.

```
15 •    CREATE TABLE Failed_Students
16      SELECT * FROM Student
17      WHERE GPA < 60;
18
19 •    SELECT * FROM Failed_Students;
```

| student_id | student_name | birth_date | gender | enrollment_date | student_email | student_level | track | GPA |
|---|---|---|---|---|---|---|---|---|
| 8 | Nora | 2010-12-31 00:00:00 | F | 2009-09-11 00:00:00 | nora@gmail.com | 4 | science | 55 |
| 12 | Samar | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | samar@gmail.com | 1 | humanities | 48 |
| 14 | Rana | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | rana@gmail.com | 1 | science | 55 |
| 23 | Rashed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | rashed@gmail.com | 1 | science | 42 |

- عرض أسماء الطلاب التي تبدأ بحرف A.

```
22    /* Display student names starting with A */
23
24 •  SELECT student_name FROM Student
25    WHERE student_name LIKE 'A%';
26
27
```

100% ⇕   1:31

**Result Grid** 🔲 ↻ Filter Rows: 🔍 Search    Export: 🖫

| student_name |
| --- |
| ▶ Abdulaziz |
| Afnan |
| Asmaa |
| Abrar |
| Aziz |
| Abdullah |
| Amal |
| Ahmed |

- عرض أسماء الطلاب التي تحتوي أسمائهم على أربع خانات.

```
28  ⊖ /* Display student names that
29       are 4 letters long */
30
31 •    SELECT student_name FROM Student
32      WHERE student_name LIKE '____';
33
```

100%    ⇕    1:34

**Result Grid**    🔲    �    Filter Rows:    🔍 Search    Export: 🗄

| student_name |
|---|
| ▶ Nora |
| Saud |
| Nora |
| Sama |
| Rana |
| Sara |
| Aziz |
| Amal |
| saud |

- تطبيق AVG, MAX, Aggregate functions (MIN) على المعدل التراكمي للطالب مع إضافة تسمية واضحة للناتج.

```
35      /* Display the average, min, max GPA of all students */
36
37 •    SELECT AVG(GPA) AS "Average GPA",
38      MIN(GPA) AS "Minimum GPA",
39      MAX(GPA) AS "Maximum GPA"
40      FROM Student;
41
42
```

100%    1:47

**Result Grid** | Filter Rows: Search | Export:

| Average GPA | Minimum GPA | Maximum GPA |
|---|---|---|
| ► 80.93333333333334 | 42 | 100 |

حصر وعرض أسماء الطلاب المتفوقين في المستوى السادس الحاصلين على معدل تراكمي يساوي 100

```
42      /* Display level 6 students with GPA of 100 */
43
44  •   SELECT student_name FROM Student
45      WHERE student_level = 6
46      AND GPA = 100;
47
48
```

100%   ⇕   1:54

**Result Grid**   🔶  �" Filter Rows: 🔍 Search      Export: 💾

| student_name |
|---|
| ▶ Afnan |
| Abrar |
| Mohammed |

- عرض الطلاب اللذين في المستوى الأول وأعمارهم بين ١٥ و١٦ سنة.

```sql
49 • SELECT * FROM Student
50   WHERE student_level = 1
51   AND birth_date BETWEEN "2004-1-1" AND "2005-12-31";
52
53
```

100%    1:55

**Result Grid**   Filter Rows: 🔍 Search    Edit: ✏️    Export/Import: 

| student_id | student_name | birth_date | gender | enrollment_date | student_email | student_level | track | GPA |
|---|---|---|---|---|---|---|---|---|
| 1 | Nora | 2005-12-31 00:00:00 | F | 2014-09-11 00:00:00 | nora@gmail.com | 1 | science | 76 |
| 20 | Aziz | 2004-12-31 00:00:00 | M | 2014-09-11 00:00:00 | aziz@gmail.com | 1 | science | 95 |
| NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

- عرض عدد الطلاب الموجودين بالمستوى ٢.

```
54  •    SELECT COUNT(student_id) AS "Level 2 Students"
55       FROM Student
56       WHERE student_level = 2;
57
58
```

100%    ◇    1:60

**Result Grid** | Filter Rows: Q Search | Export:

| Level 2 Students |
|---|
| 1 |

- استعراض مسارات الطلاب في المدرسة بدون تكرار.

```sql
58 •    SELECT DISTINCT track FROM Student;
59
60
61
```

100%    37:58

Result Grid    Filter Rows: Search    Export:

| track |
|-------|
| ► science |
| humanities |

- عرض أسماء المواد ويتم عرض الكلمات بالأحرف الكبيرة.

```
61 •    SELECT UPPER(course_name) FROM Course;
62
63
```

100%    1:64

**Result Grid** | Filter Rows: Q Search | Export:

| UPPER(course_name) |
| --- |
| ► ART |
| ALGEBRA |
| CALCULUS |
| GEOGRAPHY |
| RELIGION |
| CHEMISTRY |

- عرض المتوسط الحسابي للمعدل التراكمي وقرب الرقم لأقرب أصغر عدد (باستخدام numeric functions).

```
64  ●    SELECT FLOOR(AVG(GPA)) AS "Aerage GPA Rounded"
65       FROM Student;
66
67
```

100%  ⇕  1:68

**Result Grid**    Filter Rows: 🔍 Search        Export: 🖫

| Aerage GPA Rounded |  |
|---|---|
| ▶ 80 |  |

- تبديل جميع الصفوف من جدول الطلاب التي تحتوي على الجنس F إلى Female، و M إلى Male (باستخدام. string functions).

```
68  •    SELECT student_id, student_name,
69       REPLACE(REPLACE(gender,'M','Male'),'F','Female')
70       FROM Student;
71
72
```

100%    ↕    1:72

**Result Grid** | ⬚ ↔ Filter Rows: 🔍 Search | Export: 💾

| student_id | student_name | REPLACE(REPLACE(gender,'M','Male'),'F','Fe… |
|---|---|---|
| 1 | Nora | Female |
| 2 | Maryam | Female |
| 3 | Shahad | Female |
| 4 | Mohammed | Male |
| 5 | Abdulaziz | Male |
| 6 | Rashed | Male |
| 7 | Saud | Male |
| 8 | Nora | Female |
| 9 | Sama | Female |
| 10 | Afnan | Female |
| 11 | Fatimah | Female |
| 12 | Samar | Female |
| 13 | Raghad | Female |
| 14 | Rana | Female |
| 15 | Asmaa | Female |
| 16 | Abrar | Female |
| 17 | Sara | Female |
| 18 | Majid | Male |
| 19 | Saeed | Male |
| 20 | Aziz | Male |
| 21 | Abdullah | Male |
| 22 | Khalid | Male |

- تحديث المعدل التراكمي للطلاب الذي معدلهم التراكمي أقل من ٦٠ وزيادة معدلهم بخمس درجات.

قبل:

| student_id | student_name | birth_date | gender | enrollment_date | student_email | student_level | track | GPA |
|---|---|---|---|---|---|---|---|---|
| 7 | Saud | 2005-12-31 00:00:00 | M | 2011-09-11 00:00:00 | nora@gmail.com | 3 | humanities | 57 |
| 8 | Nora | 2010-12-31 00:00:00 | F | 2009-09-11 00:00:00 | nora@gmail.com | 4 | science | 53 |
| 14 | Rana | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | rana@gmail.com | 1 | science | 48 |
| 23 | Rashed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | rashed@gmail.com | 1 | science | 52 |
| NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

```
81  •   UPDATE Student
82      SET GPA = GPA + 5
83      WHERE GPA < 60;
84
85  •   SELECT * FROM Student WHERE GPA < 60;
86
```

100%   ◇   2:85

Result Grid | Filter Rows: | Search | Edit: | Export/Import:

| student_id | student_name | birth_date | gender | enrollment_date | student_email | student_level | track | GPA |
|---|---|---|---|---|---|---|---|---|
| 8 | Nora | 2010-12-31 00:00:00 | F | 2009-09-11 00:00:00 | nora@gmail.com | 4 | science | 58 |
| 14 | Rana | 2012-12-31 00:00:00 | F | 2014-09-11 00:00:00 | rana@gmail.com | 1 | science | 53 |
| 23 | Rashed | 2012-12-31 00:00:00 | M | 2014-09-11 00:00:00 | rashed@gmail.com | 1 | science | 57 |
| NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

Code:

```sql
USE TamayozHighSchool;


/* create a new table containing student records
with GPA > 90 */


-- CREATE TABLE Excellent_Students
-- SELECT * FROM Student
-- WHERE GPA > 90;


-- SELECT * FROM Excellent_Students;


/* create a new table containing student records
with GPA < 60 */


-- CREATE TABLE Failed_Students
-- SELECT * FROM Student
-- WHERE GPA < 60;
```

```sql
-- SELECT * FROM Failed_Students;


/* Display student names starting with A */

-- SELECT student_name FROM Student
-- WHERE student_name LIKE 'A%';



/* Display student names that
are 4 letters long */

-- SELECT student_name FROM Student
-- WHERE student_name LIKE '____';



/* Display the average, min, max GPA of all students */

-- SELECT AVG(GPA) AS "Average GPA",
-- MIN(GPA) AS "Minimum GPA",
-- MAX(GPA) AS "Maximum GPA"
-- FROM Student;

/* Display level 6 students with GPA of 100 */
```

```sql
-- SELECT student_name FROM Student
-- WHERE student_level = 6
-- AND GPA = 100;




-- SELECT * FROM Student
-- WHERE student_level = 1
-- AND birth_date BETWEEN "2004-1-1" AND "2005-12-31";




-- SELECT COUNT(student_id) AS "Level 2 Students"
-- FROM Student
-- WHERE student_level = 2;


--  SELECT DISTINCT track FROM Student;




-- SELECT UPPER(course_name) FROM Course;




-- SELECT FLOOR(AVG(GPA)) AS "Aerage GPA Rounded"
-- FROM Student;
```

```sql
-- SELECT student_id, student_name,
-- REPLACE(REPLACE(gender,'M','Male'),'F','Female')
-- FROM Student;



-- UPDATE Student
-- SET GPA = GPA + 5
-- WHERE GPA < 60;


--  SELECT * FROM Student WHERE GPA < 60;
```