# CIS 452 Homework 4

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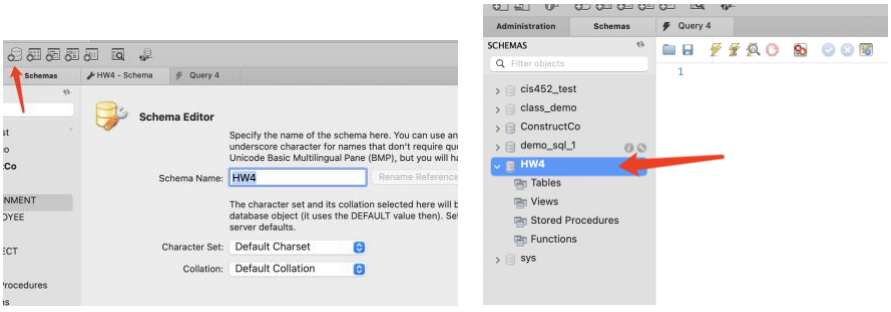
In this homework assignment, you need to use SQL to create and modify the database below. Before starting the assignment, please complete the following steps:

- Download the hw4db.sql posted together with this assignment. Run all SQL scripts in this document to create the database in your DBMS.
- **Note**: if you already have tables with the same names in your database, please delete them before running my SQL scripts.
- Review and run the Case Study posted in the Canvas Module Unit-6-Introduction to SQL. Tasks in this assignment will be similar to those in our case studies. Make sure you understand the tasks in the case study.
- Do not submit the screenshots of your SQL scripts for each task, because we need to copy and run your SQL scripts. You can complete your query in your SQL client and then copy it to the homework assignment document.
    - If we are not able to copy your SQL scripts, then the corresponding tasks will be graded as 0.

We highly recommend you create a new database schema for each assignment by clicking the "Create a new schema" icon in MySQL Workbench as shown below. By doing so, your tables from different practices/assignments will not mess up with each other.

- Make sure you have the correct database selected before executing your SQL scripts.



**Task 1 (10 pts):** Executing all SQL scripts in "hw4db.sql" to create four tables and have the corresponding data inserted.

**What to submit**:

- Four screenshots of executing the following SQL scripts. You need to execute them one by one, and the results of each execution should be the content of the table as an example shown below. Make sure all rows of each table are displayed in your screenshots.

  SELECT * FROM JOB;

  SELECT * FROM EMPLOYEE;

  SELECT * FROM PROJECT;

  SELECT * FROM ASSIGNMENT;

| JOB_CODE | JOB_DESCRIPTION | JOB_CHG_HOUR | JOB_LAST_UPDATE |
|---|---|---|---|
| 500 | Programmer | 35.75 | 2017-11-20 |
| 501 | Systems Analyst | 96.75 | 2017-11-20 |
| 502 | Database Designer | 125.00 | 2018-03-24 |
| 503 | Electrical Engineer | 84.50 | 2017-11-20 |
| 504 | Mechanical Engineer | 67.90 | 2017-11-20 |
| 505 | Civil Engineer | 55.78 | 2017-11-20 |
| 506 | Clerical Support | 26.87 | 2017-11-20 |
| 507 | DSS Analyst | 45.95 | 2017-11-20 |
| 508 | Applications Designer | 48.10 | 2018-03-24 |
| 509 | Bio Technician | 34.55 | 2017-11-20 |
| 510 | General Support | 18.36 | 2017-11-20 |
| NULL | NULL | NULL | NULL |

| EMP_NUM | EMP_LNAME | EMP_FNAME | EMP_INITIAL | EMP_HIREDATE | JOB_CODE | EMP_YEARS |
|---|---|---|---|---|---|---|
| 101 | News | John | G | 2000-11-08 | 502 | 14 |
| 102 | Senior | David | H | 1989-07-12 | 501 | 25 |
| 103 | Arbough | June | E | 1996-12-01 | 500 | 18 |
| 104 | Ramoras | Anne | K | 1987-11-15 | 501 | 27 |
| 105 | Johnson | Alice | K | 1993-02-01 | 502 | 22 |
| 106 | Smithfield | William | | 2004-06-22 | 500 | 10 |
| 107 | Alonzo | Maria | D | 1993-10-10 | 500 | 21 |
| 108 | Washington | Ralph | B | 1991-08-22 | 501 | 23 |
| 109 | Smith | Larry | W | 1997-07-18 | 501 | 17 |
| 110 | Olenko | Gerald | A | 1995-12-11 | 505 | 19 |
| 111 | Wabash | Geoff | B | 1991-04-04 | 506 | 24 |
| 112 | Smithson | Darlene | M | 1994-10-23 | 507 | 20 |
| 113 | Joenbrood | Delbert | K | 1996-11-15 | 508 | 18 |
| 114 | Jones | Annelise | | 1993-08-20 | 508 | 21 |
| 115 | Bawangi | Travis | B | 1992-01-25 | 501 | 23 |
| 116 | Pratt | Gerald | L | 1997-03-05 | 510 | 18 |
| 117 | Williamson | Angie | H | 1996-06-19 | 509 | 18 |
| 118 | Frommer | James | J | 2005-01-04 | 510 | 10 |
| NULL | NULL | NULL | NULL | NULL | NULL | NULL |

| PROJ_NUM | PROJ_NAME | PROJ_VALUE | PROJ_BALANCE | EMP_NUM |
|---|---|---|---|---|
| 15 | Evergreen | 1453500.00 | 1002350.00 | 103 |
| 18 | Amber Wave | 3500500.00 | 2110350.00 | 108 |
| 22 | Rolling Tide | 805000.00 | 500345.00 | 102 |
| 25 | Starflight | 2650500.00 | 2309880.00 | 107 |
| NULL | NULL | NULL | NULL | NULL |

| ASSIGN_NUM | ASSIGN_DATE | PROJ_NUM | EMP_NUM | ASSIGN_JOB | ASSIGN_CHG_HR | ASSIGN_HOURS | ASSIGN_CHARGE |
|---|---|---|---|---|---|---|---|
| 1001 | 2018-03-22 | 18 | 103 | 503 | 84.50 | 3.50 | 295.75 |
| 1002 | 2018-03-22 | 22 | 117 | 509 | 34.55 | 4.20 | 145.11 |
| 1003 | 2018-03-22 | 18 | 117 | 509 | 34.55 | 2.00 | 69.10 |
| 1004 | 2018-03-22 | 18 | 103 | 503 | 84.50 | 5.90 | 498.55 |
| 1005 | 2018-03-22 | 25 | 108 | 501 | 96.75 | 2.20 | 212.85 |
| 1006 | 2018-03-22 | 22 | 104 | 501 | 96.75 | 4.20 | 406.35 |
| 1007 | 2018-03-22 | 25 | 113 | 508 | 50.75 | 3.80 | 192.85 |
| 1008 | 2018-03-22 | 18 | 103 | 503 | 84.50 | 0.90 | 76.05 |
| 1009 | 2018-03-23 | 15 | 115 | 501 | 96.75 | 5.60 | 541.80 |
| 1010 | 2018-03-23 | 15 | 117 | 509 | 34.55 | 2.40 | 82.92 |
| 1011 | 2018-03-23 | 25 | 105 | 502 | 105.00 | 4.30 | 451.50 |
| 1012 | 2018-03-23 | 18 | 108 | 501 | 96.75 | 3.40 | 328.95 |
| 1013 | 2018-03-23 | 25 | 115 | 501 | 96.75 | 2.00 | 193.50 |
| 1014 | 2018-03-23 | 22 | 104 | 501 | 96.75 | 2.80 | 270.90 |
| 1015 | 2018-03-23 | 15 | 103 | 503 | 84.50 | 6.10 | 515.45 |
| 1016 | 2018-03-23 | 22 | 105 | 502 | 105.00 | 4.70 | 493.50 |
| 1017 | 2018-03-23 | 18 | 117 | 509 | 34.55 | 3.80 | 131.29 |
| 1018 | 2018-03-23 | 25 | 117 | 509 | 34.55 | 2.20 | 76.01 |
| 1019 | 2018-03-24 | 25 | 104 | 501 | 110.50 | 4.90 | 541.45 |
| 1020 | 2018-03-24 | 15 | 101 | 502 | 125.00 | 3.10 | 387.50 |
| 1021 | 2018-03-24 | 22 | 108 | 501 | 110.50 | 2.70 | 298.35 |
| 1022 | 2018-03-24 | 22 | 115 | 501 | 110.50 | 4.90 | 541.45 |
| 1023 | 2018-03-24 | 22 | 105 | 502 | 125.00 | 3.50 | 437.50 |
| 1024 | 2018-03-24 | 15 | 103 | 503 | 84.50 | 3.30 | 278.85 |
| 1025 | 2018-03-24 | 18 | 117 | 509 | 34.55 | 4.20 | 145.11 |
| NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

**Task 2 to Task 9 - What to submit:**

- Your SQL statements for each task. Please make sure that we can copy and paste your SQL statements. Do not submit the screenshots of your SQL statements.
- The screenshots of your execution of SQL statements are not required for these tasks, however, you can still add them to help explain your SQL statements better if you prefer.

**Before working on Task 2, please run the statement below to disable the safe update mode by executing the SQL statement below in your SQL client.**

**SET SQL_SAFE_UPDATES = 0;**

**Task 2 (10 pts):** Write the SQL code to change the job code to 501 for the person whose employee number (EMP_NUM) is 107.

```
UPDATE EMPLOYEE
SET JOB_CODE = 501
WHERE EMP_NUM = 107;
```

**Task-3 (10 pts):** Write the SQL code to delete the row for William Smithfield, who was hired on June 22, 2004.

```
DELETE FROM EMPLOYEE
WHERE EMP_FNAME = 'William'
AND EMP_LNAME = 'Smithfield'
AND EMP_HIREDATE = '2004-06-22';
```

**Task-4 (10 pts):** Write the SQL code that will add the attributes EMP_PCT and PROJ_NUM to the EMPLOYEE table. The EMP_PCT is the bonus percentage to be paid to each employee. The new attribute characteristics are

| | |
|---|---|
| EMP_PCT | DECIMAL(4,2) |
| PROJ_NUM | CHAR(3) |

ALTER TABLE EMPLOYEE
ADD EMP_PCT DECIMAL(4, 2),
ADD PROJ_NUM CHAR(3);

**Task-5 (10 pts):** Using the EMPLOYEE table, **write a single SQL statement** to change the EMP_PCT value to 10.00 for all employees.

UPDATE EMPLOYEE
SET EMP_PCT = 10.00;

**Task-6 (10 pts):** Write the SQL code that will change the PROJ_NUM to 14 for employees who were hired after January 1, 1995, and whose job code is greater than 501.

UPDATE EMPLOYEE

SET PROJ_NUM = 14

WHERE EMP_HIREDATE > '1995-01-01' AND JOB_CODE > 501;

**Task-7 (10 pts):** Write the SQL code that will delete the column of “JOB_LAST_UPDATE” from the JOB table.

ALTER TABLE JOB DROP COLUMN JOB_LAST_UPDATE;

**Task-8 (10 pts):** Write the SQL code that will add a constraint to the PROJ_BALANCE of the PROJECT table, which will make sure the value of PROJ_BALANCE is not negative.

```
ALTER TABLE PROJECT

ADD CONSTRAINT chk_proj_balance

CHECK (PROJ_BALANCE >= 0);
```

**Task-9 (10 pts):** Write the SQL code that creates a new table named DEPENDENT, which is used to store the dependent information of employees. The DEPENDENT has the following information,

- DEP_NUM
- DEP_LNAME
- DEP_FNAME
- RELATIONSHIP
- DOB
- EMP_NUM

The DEP_NUM should be an auto-increment field and used as the primary key of the table. EMP_NUM is used as the foreign key of the table that links to the EMPLOYEE table. The value of EMP_NUM in the DEPENDENT will be set to NULL if the corresponding employee is removed from the EMPLOYEE table.

```
CREATE TABLE DEPENDENT (

 DEP_NUM INT AUTO_INCREMENT PRIMARY KEY,

 DEP_LNAME varchar(255),

 DEP_FNAME varchar(255),

 RELATIONSHIP varchar(255),

 DOB date,

 EMP_NUM INT,

 FOREIGN KEY (EMP_NUM) REFERENCES EMPLOYEE(EMP_NUM) ON DELETE SET NULL

);
```

**Task-10 (10 pts):** Write the SQL code to insert the following two dependents into the DEPENDENT table you created in Task-9.

| Dependent 1 | Dependent 2 |
|---|---|
| • Last name: Jordan<br>• First name: Tom<br>• RELATIONSHIP: child<br>• DOB: 2002-08-08<br>• EMP_NUM: 101 | • Last name: Jordan<br>• First name: Alex<br>• RELATIONSHIP: spouse<br>• DOB: 1977-01-03<br>• EMP_NUM: 101 |

```
INSERT INTO DEPENDENT (DEP_LNAME, DEP_FNAME, RELATIONSHIP, DOB, EMP_NUM)
VALUES
 ('Jordan', 'Tom', 'child', '2002-08-08', 101),
 ('Jordan', 'Alex', 'spouse', '1977-01-03', 101);
```