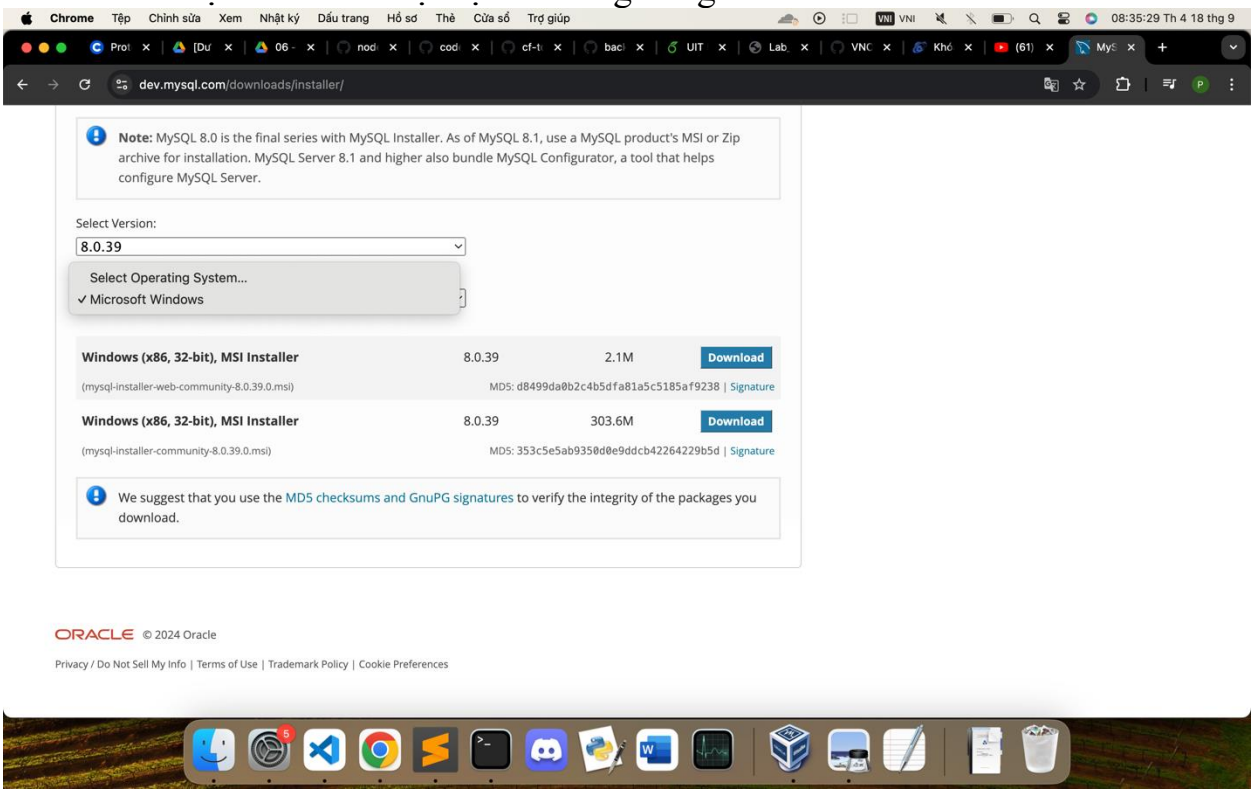
Báo cáo thực hành Lab1
Môn: IT004 - Cơ sở dữ liệu

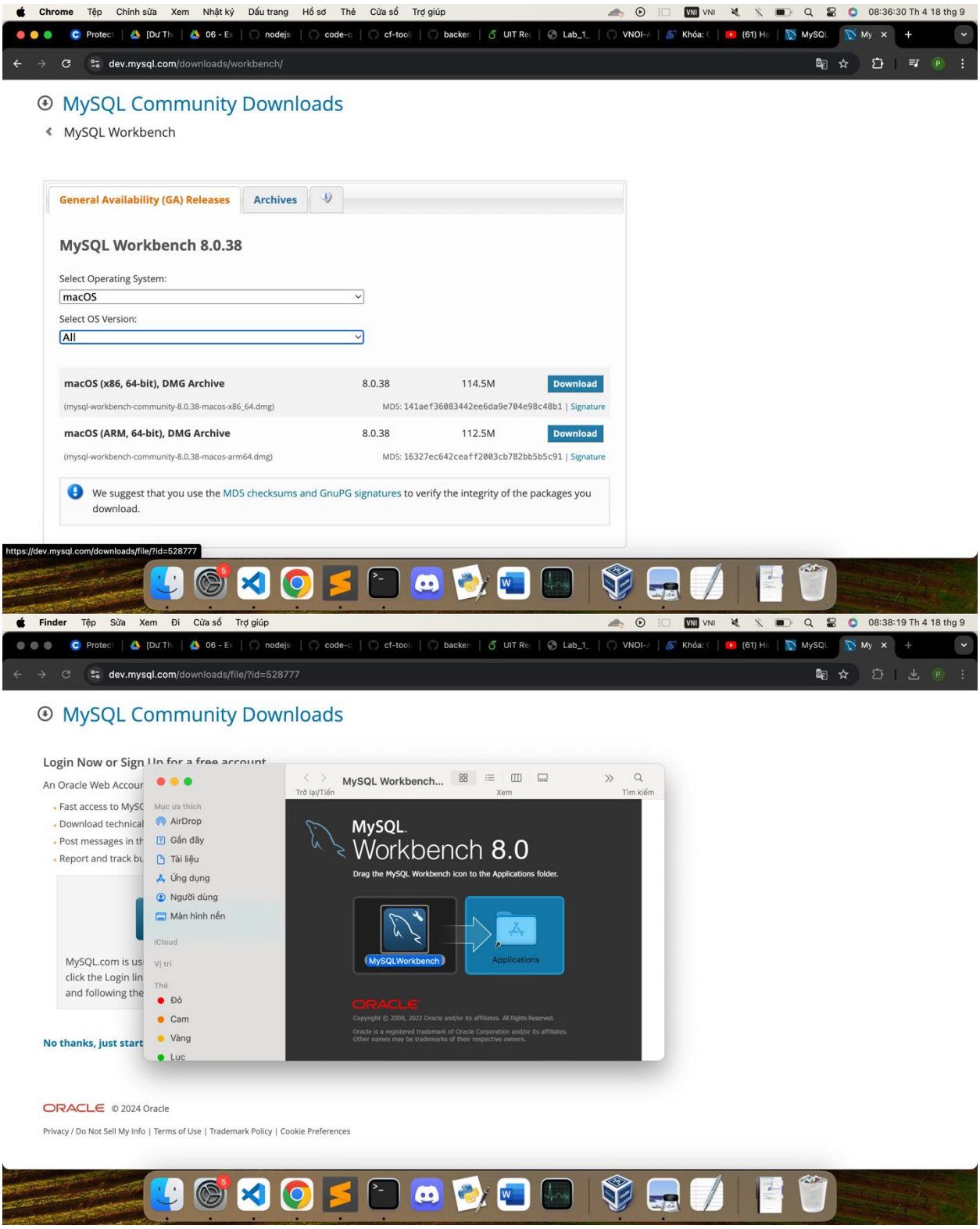
Họ và tên: Đỗ Phương Duy
MSSV: 23520362

Bài 1: Cài đặt MySQL:

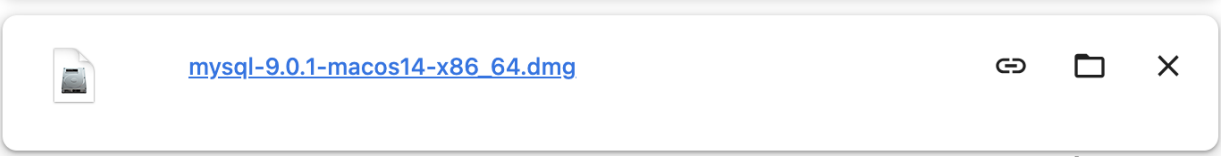
- MySQL Installer: em không tải được vì MySQL Installer chỉ hỗ trợ cho Window và hệ điều hành hiện tại em đang dùng là MacOS



- MySQL Workbench:



- MySQL Server:



*Em đã cài đặt MySQL Server nhưng trong quá trình cài đặt xảy ra sự cố nên em quên chụp hình lại.

Kiểm tra đã cài thành công MySQL

```
(base) nguyenloan@MacBook-Pro-cua-Loan Scripts % mysql -u root -p <InitializeSam
pleDB.sql
Enter password:
(base) nguyenloan@MacBook-Pro-cua-Loan Scripts % mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 19
Server version: 9.0.1 MySQL Community Server - GPL

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

Bài 2: Khởi đầu:
2.1:

```
(base) nguyenloan@MacBook-Pro-cua-Loan Scripts % mysql -u root -p <InitializeSam
pleDB.sql
Enter password:
(base) nguyenloan@MacBook-Pro-cua-Loan Scripts % mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 19
Server version: 9.0.1 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| banhang            |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

mysql>
```

```
mysql> USE banhang;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SHOW TABLES;
+------------------+
| Tables_in_banhang |
+------------------+
| hanghoa          |
| hoadon           |
| khach            |
+------------------+
3 rows in set (0.00 sec)

mysql>
mysql> DESCRIBE hanghoa;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| mahh   | char(8)     | NO   | PRI | NULL    |       |
| tenhh  | varchar(50) | NO   |     | NULL    |       |
| hangsx | varchar(10) | YES  |     | NULL    |       |
| TGBH   | char(10)    | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
```

2.2:

Tìm hiểu về tạo/xóa database và table:

```
mysql> USE banhang;
Database changed
mysql> SHOW tables;
+------------------+
| Tables_in_banhang |
+------------------+
| hanghoa          |
| hoadon           |
| khach            |
+------------------+
3 rows in set (0.00 sec)

mysql> Create table pet (name VARCHAR(20), owner VARCHAR(20),
    -> species VARCHAR(20), sex CHAR(1), birth DATE, death DATE);
Query OK, 0 rows affected (0.02 sec)

mysql> SHOW TABLES;
+------------------+
| Tables_in_banhang |
+------------------+
| hanghoa          |
| hoadon           |
| khach            |
| pet              |
+------------------+
4 rows in set (0.00 sec)

mysql> DESCRIBE pet
    -> ;
+---------+------------+------+-----+---------+-------+
| Field   | Type       | Null | Key | Default | Extra |
+---------+------------+------+-----+---------+-------+
| name    | varchar(20) | YES  |     | NULL    |       |
| owner   | varchar(20) | YES  |     | NULL    |       |
| species | varchar(20) | YES  |     | NULL    |       |
| sex     | char(1)    | YES  |     | NULL    |       |
| birth   | date       | YES  |     | NULL    |       |
| death   | date       | YES  |     | NULL    |       |
+---------+------------+------+-----+---------+-------+
6 rows in set (0.01 sec)

mysql>
```

```
mysql> Drop table pet;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW TABLES;
+------------------+
| Tables_in_banhang |
+------------------+
| hanghoa          |
| hoadon           |
| khach            |
+------------------+
3 rows in set (0.00 sec)
```

```
mysql> CREATE DATABASE EMP
    -> ;
Query OK, 1 row affected (0.13 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| banhang            |
| EMP                |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.07 sec)

mysql> USE EMP;
Database changed
mysql> CREATE TABLE Employee
    -> (ID CHAR(9), Name varchar(50), Address varchar(200));
Query OK, 0 rows affected (0.09 sec)

mysql> SHOW TABLES;
+--------------+
| Tables_in_emp |
+--------------+
| Employee     |
+--------------+
1 row in set (0.01 sec)

mysql> DESCRIBE Employee;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| ID      | char(9)     | YES  |     | NULL    |       |
| Name    | varchar(50) | YES  |     | NULL    |       |
| Address | varchar(200)| YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
3 rows in set (0.03 sec)
```

2.3: Xem dữ liệu của table:

```
mysql> SELECT TENKH from KHACH
    -> ;
+-------+
| TENKH |
+-------+
| Nam   |
| Nga   |
| Duy   |
+-------+
3 rows in set (0.01 sec)

mysql> Select DCHI from KHACH
    -> ;
+-----------------------------------+
| DCHI                              |
+-----------------------------------+
| 123 Nguyen Dinh Chieu, Q.3, TpHCM |
| NULL                              |
| 50 Nguyen Tri Phuong Q.10 TpHCM   |
+-----------------------------------+
3 rows in set (0.00 sec)
```

```
mysql> SELECT TENHH from HANGHOA
    -> ;
+----------------------+
| TENHH                |
+----------------------+
| Mouse Quang          |
| Removable Disk 256MB |
| HDD 80GB Baracuda    |
| Camera SL_36         |
| Ban phim ViewStar    |
+----------------------+
5 rows in set (0.00 sec)

mysql> SELECT HANGSX from HANGHOA
    -> ;
+-----------+
| HANGSX    |
+-----------+
| Logitech  |
| Transcend |
| Seagate   |
| SlimPre.  |
| Logitech  |
+-----------+
5 rows in set (0.00 sec)

mysql> Select SOHD, SL, DG, Thanhtien from HOADON
    -> ;
+-------+----+-----------+-----------+
| SOHD  | SL | DG        | Thanhtien |
+-------+----+-----------+-----------+
| HD005 |  5 |  50000.00 | 100000.00 |
| HD006 |  1 |  55000.00 |  55000.00 |
| HD006 |  2 | 900000.00 | 180000.00 |
| HD007 |  3 |  75000.00 | 225000.00 |
+-------+----+-----------+-----------+
4 rows in set (0.00 sec)
```

2.4: Cập nhật dữ liệu:

```
mysql> select * from khach
    -> ;
+-------+-------+-----------------------------------+
| makh  | tenkh | dchi                              |
+-------+-------+-----------------------------------+
| KH001 | Nam   | 123 Nguyen Dinh Chieu, Q.3, TpHCM |
| KH002 | Nga   | NULL                              |
| KH003 | Duy   | 50 Nguyen Tri Phuong Q.10 TpHCM   |
+-------+-------+-----------------------------------+
3 rows in set (0.00 sec)

mysql> INSERT INTO khach VALUES ('KH004', 'An', '94 Hoa Binh, P5, Q.11');
Query OK, 1 row affected (0.04 sec)

mysql> select *from khach
    -> ;
+-------+-------+-----------------------------------+
| makh  | tenkh | dchi                              |
+-------+-------+-----------------------------------+
| KH001 | Nam   | 123 Nguyen Dinh Chieu, Q.3, TpHCM |
| KH002 | Nga   | NULL                              |
| KH003 | Duy   | 50 Nguyen Tri Phuong Q.10 TpHCM   |
| KH004 | An    | 94 Hoa Binh, P5, Q.11             |
+-------+-------+-----------------------------------+
4 rows in set (0.00 sec)
mysql> select * from hoadon
    -> ;
+-------+-------+---------------------+-------+----+-----------+-----------+
| sohd  | makh  | ngayhd              | mahh  | sl | dg        | thanhtien |
+-------+-------+---------------------+-------+----+-----------+-----------+
| HD005 | KH003 | 2008-05-14 00:00:00 | HH001 |  5 |  50000.00 | 100000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH001 |  1 |  55000.00 |  55000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH003 |  2 | 900000.00 | 180000.00 |
| HD007 | KH003 | 2008-05-16 00:00:00 | HH005 |  3 |  75000.00 | 225000.00 |
+-------+-------+---------------------+-------+----+-----------+-----------+
4 rows in set (0.00 sec)

mysql> INSERT INTO hoadon VALUES ('HD008', 'KH002', '2008-05-16', 'HH005', 4, 75000,
275000);
Query OK, 1 row affected (0.01 sec)

mysql> select *from hoadon
    -> ;
+-------+-------+---------------------+-------+----+-----------+-----------+
| sohd  | makh  | ngayhd              | mahh  | sl | dg        | thanhtien |
+-------+-------+---------------------+-------+----+-----------+-----------+
| HD005 | KH003 | 2008-05-14 00:00:00 | HH001 |  5 |  50000.00 | 100000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH001 |  1 |  55000.00 |  55000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH003 |  2 | 900000.00 | 180000.00 |
| HD007 | KH003 | 2008-05-16 00:00:00 | HH005 |  3 |  75000.00 | 225000.00 |
| HD008 | KH002 | 2008-05-16 00:00:00 | HH005 |  4 |  75000.00 | 275000.00 |
+-------+-------+---------------------+-------+----+-----------+-----------+
5 rows in set (0.00 sec)
```

```
mysql> select *from hoadon
    -> ;
+-------+-------+---------------------+-------+----+-----------+-----------+
| sohd  | makh  | ngayhd              | mahh  | sl | dg        | thanhtien |
+-------+-------+---------------------+-------+----+-----------+-----------+
| HD005 | KH003 | 2008-05-14 00:00:00 | HH001 |  5 |  50000.00 | 100000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH001 |  1 |  55000.00 |  55000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH003 |  2 | 900000.00 | 180000.00 |
| HD007 | KH003 | 2008-05-16 00:00:00 | HH005 |  3 |  75000.00 | 225000.00 |
| HD008 | KH002 | 2008-05-16 00:00:00 | HH005 |  4 |  75000.00 | 275000.00 |
+-------+-------+---------------------+-------+----+-----------+-----------+
5 rows in set (0.00 sec)

mysql> UPDATE hoadon SET thanhtien = 300000 where makh = 'KH002'
    -> ;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT *from hoadon
    -> ;
+-------+-------+---------------------+-------+----+-----------+-----------+
| sohd  | makh  | ngayhd              | mahh  | sl | dg        | thanhtien |
+-------+-------+---------------------+-------+----+-----------+-----------+
| HD005 | KH003 | 2008-05-14 00:00:00 | HH001 |  5 |  50000.00 | 100000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH001 |  1 |  55000.00 |  55000.00 |
| HD006 | KH001 | 2008-05-15 00:00:00 | HH003 |  2 | 900000.00 | 180000.00 |
| HD007 | KH003 | 2008-05-16 00:00:00 | HH005 |  3 |  75000.00 | 225000.00 |
| HD008 | KH002 | 2008-05-16 00:00:00 | HH005 |  4 |  75000.00 | 300000.00 |
+-------+-------+---------------------+-------+----+-----------+-----------+
mysql> DELETE from khach where tenkh = 'An';
Query OK, 1 row affected (0.00 sec)

mysql> DELETE FROM hoadon WHERE makh = 'KH002';
Query OK, 1 row affected (0.01 sec)
```

2.5 Primary Key & Foreign Key:

```
mysql> CREATE DATABASE EMP;
Query OK, 1 row affected (0.03 sec)

mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| banhang            |
| EMP                |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.02 sec)

mysql> CREATE TABLE Department (DeptNo char(2), DeptName varchar(50), primary key(DeptNo))
    -> ;
Query OK, 0 rows affected (0.06 sec)

mysql> SHOW TABLES;
+---------------+
| Tables_in_emp |
+---------------+
| Department    |
+---------------+
1 row in set (0.00 sec)

mysql> DESCRIBE Department
    -> ;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| DeptNo   | char(2)     | NO   | PRI | NULL    |       |
| DeptName | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

Bài 3: Truy vấn CSDL với SQL

```
(base) nguyenloan@MacBook-Pro-cua-Loan Scripts % mysql -u root -p <congty.sql
Enter password:
```

3.1:

```
mysql> SELECT HONV, TENLOT, TENNV FROM nhanvien where PHG = 5
    -> ;
+--------+--------+-------+
| HONV   | TENLOT | TENNV |
+--------+--------+-------+
| Dinh   | Ba     | Thu   |
| Nguyen | Thanh  | Trung |
| Tran   | Thanh  | Tam   |
| Nguyen | Manh   | Hung  |
+--------+--------+-------+

mysql> SELECT trphg, tenphg from phongban where maphg = 5
    -> ;
+-----------+------------+
| trphg     | tenphg     |
+-----------+------------+
| 333445555 | Nghien cuu |
+-----------+------------+
1 row in set (0.01 sec)

mysql> SELECT tenda, mada, DIADIEM_DA from dean where PHONG = 4;
+-------------+------+------------+
| tenda       | mada | DIADIEM_DA |
+-------------+------+------------+
| Tin hoc hoa |   10 | Ha noi     |
| Dao tao     |   30 | Ha noi     |
+-------------+------+------------+
2 rows in set (0.01 sec)

mysql> SELECT TENTN, YEAR(NOW()) - YEAR(NGAYSINH) as TUOI from thannhan where MA_NVIEN = 333445555 ORDER by TUOI ASC;
+-------+------+
| TENTN | TUOI |
+-------+------+
| Khang |   19 |
| Thanh |   22 |
| Duong |   44 |
+-------+------+
3 rows in set (0.02 sec)
```

3.2:

```
mysql> SELECT nv.MANV, nv.HONV, nv.TENLOT, nv.TENNV, tn.tentn FROM nhanvien nv, thannhan tn where nv.MANV = tn.MA_NVIEN;
+-----------+--------+--------+-------+--------+
| MANV      | HONV   | TENLOT | TENNV | tentn  |
+-----------+--------+--------+-------+--------+
| 123456789 | Dinh   | Ba     | Thu   | Chau   |
| 123456789 | Dinh   | Ba     | Thu   | Duy    |
| 123456789 | Dinh   | Ba     | Thu   | Phuong |
| 333445555 | Nguyen | Thanh  | Trung | Duong  |
| 333445555 | Nguyen | Thanh  | Trung | Khang  |
| 333445555 | Nguyen | Thanh  | Trung | Thanh  |
| 987654321 | Le     | Thi    | Hoang | Dang   |
+-----------+--------+--------+-------+--------+
7 rows in set (0.01 sec)

mysql> SELECT nv.MANV, nv.HONV, nv.TENLOT, nv.TENNV, tn.tentn FROM nhanvien nv, thannhan tn where nv.MANV = tn.MA_NVIEN and (tn.QUANHE
 = 'Con trai' or tn.QUANHE = 'Con gai');
+-----------+--------+--------+-------+-------+
| MANV      | HONV   | TENLOT | TENNV | tentn |
+-----------+--------+--------+-------+-------+
| 123456789 | Dinh   | Ba     | Thu   | Chau  |
| 123456789 | Dinh   | Ba     | Thu   | Duy   |
| 333445555 | Nguyen | Thanh  | Trung | Khang |
| 333445555 | Nguyen | Thanh  | Trung | Thanh |
+-----------+--------+--------+-------+-------+
4 rows in set (0.00 sec)

mysql> SELECT pb.TENPHG, pb.MAPHG, da.TENDA
    -> from phongban pb, dean da
    -> where da.PHONG = pb.maphg and da.DIADIEM_DA = 'TPHCM';
+------------+-------+------------+
| TENPHG     | MAPHG | TENDA      |
+------------+-------+------------+
| Nghien cuu |     5 | San pham Z |
| Quan ly    |     1 | Cap quang  |
+------------+-------+------------+
2 rows in set (0.01 sec)
```

```
mysql> SELECT da.MADA, CONCAT_WS(" ", nv.honv, nv.tenlot, nv.tennv) as HOTEN
    -> FROM nhanvien nv, dean da, phancong pc
    -> WHERE pc.MA_NVIEN = nv.MANV and THOIGIAN > 20;
+------+------------------+
| MADA | HOTEN            |
+------+------------------+
|   20 | Bui Thuy Vu      |
|   20 | Tran Hong Quang  |
|   20 | Nguyen Manh Hung |
|   20 | Dinh Ba Thu      |
|   10 | Bui Thuy Vu      |
|   10 | Tran Hong Quang  |
|   10 | Nguyen Manh Hung |
|   10 | Dinh Ba Thu      |
|   30 | Bui Thuy Vu      |
|   30 | Tran Hong Quang  |
|   30 | Nguyen Manh Hung |
|   30 | Dinh Ba Thu      |
|    1 | Bui Thuy Vu      |
|    1 | Tran Hong Quang  |
|    1 | Nguyen Manh Hung |
|    1 | Dinh Ba Thu      |
|    2 | Bui Thuy Vu      |
|    2 | Tran Hong Quang  |
|    2 | Nguyen Manh Hung |
|    2 | Dinh Ba Thu      |
|    3 | Bui Thuy Vu      |
|    3 | Tran Hong Quang  |
|    3 | Nguyen Manh Hung |
|    3 | Dinh Ba Thu      |
+------+------------------+
24 rows in set (0.01 sec)

mysql> SELECT tp.manv as MaTP, CONCAT_WS(" ", tp.honv, tp.tenlot, tp.tennv) as HOTENTRUONGPHONG,
    -> CONCAT_WS(" ", nv.honv, nv.tenlot, nv.tennv) as HOTENNHANVIEN
    -> FROM nhanvien tp, nhanvien nv, phongban pb
    -> WHERE tp.manv = pb.TRPHG and nv.ma_NQL = tp.manv;
+-----------+--------------------+--------------------+
| MaTP      | HOTENTRUONGPHONG   | HOTENNHANVIEN      |
+-----------+--------------------+--------------------+
| 333445555 | Nguyen Thanh Trung | Dinh Ba Thu        |
| 333445555 | Nguyen Thanh Trung | Tran Thanh Tam     |
| 333445555 | Nguyen Thanh Trung | Nguyen Manh Hung   |
| 888665555 | Vuong Ngoc Quyen   | Nguyen Thanh Trung |
| 888665555 | Vuong Ngoc Quyen   | Le Thi Hoang       |
+-----------+--------------------+--------------------+
5 rows in set (0.01 sec)
```

3.3:

```
mysql> SELECT CONCAT_WS(" ", nv.honv, nv.tenlot,nv.tennv) as HOTEN, nv.manv, count(tn.tentn)
    -> FROM nhanvien nv, thannhan tn
    -> WHERE nv.MANV = tn.MA_NVIEN and tn.QUANHE = 'Con trai' or tn.QUANHE = 'Con gai'
    -> GROUP BY nv.manv;
+-------------------+-----------+-----------------+
| HOTEN             | manv      | count(tn.tentn) |
+-------------------+-----------+-----------------+
| Dinh Ba Thu       | 123456789 |               3 |
| Nguyen Thanh Trung | 333445555 |               3 |
| Tran Thanh Tam    | 453453453 |               2 |
| Nguyen Manh Hung  | 666884444 |               2 |
| Vuong Ngoc Quyen  | 888665555 |               2 |
| Le Thi Hoang      | 987654321 |               2 |
| Tran Hong Quang   | 987987987 |               2 |
| Bui Thuy Vu       | 999887777 |               2 |
+-------------------+-----------+-----------------+
8 rows in set (0.07 sec)
```

```
mysql> SELECT pb.maphg, pb.tenphg, count(da.mada) as SOLUONGDEAN
    -> FROM phongban pb, dean da
    -> WHERE pb.maphg = da.PHONG
    -> GROUP BY da.PHONG;
+-------+------------+-------------+
| maphg | tenphg     | SOLUONGDEAN |
+-------+------------+-------------+
|     1 | Quan ly    |           1 |
|     4 | Dieu hanh  |           2 |
|     5 | Nghien cuu |           3 |
+-------+------------+-------------+
3 rows in set (0.03 sec)
```

```
mysql> SELECT pb.maphg, pb.tenphg, sum(pc.thoigian)
    -> FROM phongban pb, phancong pc, nhanvien nv
    -> where nv.phg = pb.maphg and nv.manv = pc.ma_nvien
    -> GROUP BY pb.maphg;
+-------+------------+------------------+
| maphg | tenphg     | sum(pc.thoigian) |
+-------+------------+------------------+
|     1 | Quan ly    |            10.00 |
|     4 | Dieu hanh  |           115.00 |
|     5 | Nghien cuu |           150.00 |
+-------+------------+------------------+
3 rows in set (0.03 sec)
```

```
mysql> SELECT da.mada, da.tenda, count(nv.manv)
    -> FROM dean da, nhanvien nv
    -> WHERE da.PHONG = nv.phg
    -> GROUP by da.mada;
+------+------------+---------------+
| mada | tenda      | count(nv.manv) |
+------+------------+---------------+
|    1 | San pham X |             4 |
|    2 | San pham Y |             4 |
|    3 | San pham Z |             4 |
|   10 | Tin hoc hoa |            3 |
|   20 | Cap quang  |             1 |
|   30 | Dao tao    |             3 |
+------+------------+---------------+
6 rows in set (0.02 sec)
```

```
mysql> SELECT da.mada, da.tenda, count(nv.manv)
    -> FROM dean da, nhanvien nv
    -> WHERE da.PHONG = nv.phg
    -> GROUP BY da.mada
    -> HAVING count(nv.manv) >= 2;
+------+------------+---------------+
| mada | tenda      | count(nv.manv) |
+------+------------+---------------+
|    1 | San pham X |             4 |
|    2 | San pham Y |             4 |
|    3 | San pham Z |             4 |
|   10 | Tin hoc hoa |            3 |
|   30 | Dao tao    |             3 |
+------+------------+---------------+
5 rows in set (0.02 sec)
```

3.4:

3.5: