DAV Public School, Pune

Informatics Practices

Record file

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This is to certify that

Master Divij Verma of XII A has successfully completed the Information Practices Record File using Python and MySQL under my supervision and guidance

IP Teacher | External Examiner | Principal

```
from SqlQueryWrapper import SqlQueryWrapper
query = SqlQueryWrapper("record-file.db")
```

```
# creating table
query("drop table if exists employee", is_updation=True)
query("""create table employee(
        empno int,
        ename text not null,
        job text not null,
        manager int,
        hiredate date,
        sal real,
        comm real,
        dept  int
      )""", is_updation=True)

query("insert into employee values(7369, 'Sunita Sharma', 'Clerk', 7902, '1980-12-17', 2800.00, null, 20)", is_updation=True)
query("insert into employee values(7499, 'Ashok Singhal', 'Salesman', 7698, '1981-02-20', 3600.00, 300.00, 30)", is_updation=True)
query("insert into employee values(7521, 'Rana Mehta', 'Salesman', 7698, '1981-02-22', 5250.00, 500.00, 30)", is_updation=True)
query("insert into employee values(7400, 'Kavita Lamba', 'Manager', 7839, '1981-04-02', 4975.00, null, 20)", is_updation=True)
```

```
query("select * from employee")
```

```
empno  ename          job       manager  hiredate    sal     comm   dept
7369   Sunita Sharma  Clerk     7902     1980-12-17  2800.0  None   20
7499   Ashok Singhal  Salesman  7698     1981-02-20  3600.0  300.0  30
7521   Rana Mehta     Salesman  7698     1981-02-22  5250.0  500.0  30
7400   Kavita Lamba   Manager   7839     1981-04-02  4975.0  None   20
```

Write a query to convert the Job into lower-case

```
# 1. Write a query to convert the Job into lower case.
query("select lower(job), ename from employee")
```

```
lower(job)  ename
clerk       Sunita Sharma
salesman    Ashok Singhal
salesman    Rana Mehta
manager     Kavita Lamba
```

Write a query to list the name of employees in upper-case

```
# 2. Write a query to list the name of employees in upper case.
query("select upper(ename) from employee")
```

```
upper(ename)
SUNITA SHARMA
ASHOK SINGHAL
RANA MEHTA
KAVITA LAMBA
```

Write a query to list the position of char 'a' in the name of employees.

```
# 3. Write a query to list the position of char 'a' in the ename of the employee.
query("select instr(ename, 'a') from employee")
```

```
instr(ename, 'a')
6
12
2
2
```

Write a query to display the first 3 characters of the field job

```
# here the n in substr(feild, m, n) refers to the index not number of characters
query("select substr(job, 0, 4) from employee")
```

```
substr(job, 0, 4)
Cle
Sal
Sal
Man
```

What is the output for the Following

1. Select Dept, count(*) "No of employees" from employee group by dept
2. Select substr(ename, 1,5) from employee
3. Select concat(ename, job) from employee

```
query("select dept, count(*) as 'No of employees' from employee group by dept",
table_heading="Part 1")
print()
query("select substr(ename, 1,5) from employee", table_heading="Part 2")
print()
query("select concat(ename, job) from employee", table_heading="Part 3")
```

```
        Part 1
dept  No of employees
20    2
30    2

        Part 2
substr(ename, 1,5)
Sunit
Ashok
Rana
Kavit

         Part 3
concat(ename, job)
Sunita SharmaClerk
Ashok SinghalSalesman
Rana MehtaSalesman
Kavita LambaManager
```

```
query("pragma table_info(employee)")
# or 'describe employee' in MySQL
```

```
cid  name      type  notnull  dflt_value  pk
0    empno     INT   0        None        0
1    ename     TEXT  1        None        0
2    job       TEXT  1        None        0
3    manager   INT   0        None        0
4    hiredate  date  0        None        0
5    sal       REAL  0        None        0
6    comm      REAL  0        None        0
7    dept      INT   0        None        0
```

Write a query to insert a new row into the table

Row → *(7654,'Martin S.','Salesman',7698 ,'1981-09-28',6250,1400,30)*.

```
query("insert into employee values(7654,'Martin S.','Salesman',7698 ,'1981-09-
28',6250,1400,30)", is_updation=True)
```

Write a query to count the employees with Salary greater than 3000

```
query("select count(*) from employee where sal>3000")
```

```
count(*)
4
```

Write a query to list all employees with HireDate in decreasning order

```
query("select ename from employee order by hiredate desc")
```

```
ename
Martin S.
Kavita Lamba
Rana Mehta
Ashok Singhal
Sunita Sharma
```

Write a query to list the name and salary of all employees who earn commision

```
query("select ename, sal from employee where comm is not null")
```

```
ename          sal
Ashok Singhal  3600.0
Rana Mehta     5250.0
Martin S.      6250.0
```

Write a query to list the name of employees who have joined in the year 1981

```
query("select ename from employee where hiredate like '1981-%'")
# or in MySQL 'select ename from employee where year(hiredate) = 1981;'
```

```
ename
Ashok Singhal
Rana Mehta
Kavita Lamba
Martin S.
```

Write a query to increase the salary by 10% for empno 7902

```
query("""
    update employee
    set sal = sal + (sal * 10 / 100)
    where empno = 7902
""", is_updation=True)
```

```
query("select ename from employee where year(hiredate) = 1981")
```

```
query("""
    alter table employee
    add column address varchar(30)
    default null
""",is_updation=True)
query("select * from employee")
```

empno	ename	job	manager	hiredate	sal	comm	dept	address
7369	Sunita Sharma	Clerk	7902	1980-12-17	2800.0	None	20	None
7499	Ashok Singhal	Salesman	7698	1981-02-20	3600.0	300.0	30	None
7521	Rana Mehta	Salesman	7698	1981-02-22	5250.0	500.0	30	None
7400	Kavita Lamba	Manager	7839	1981-04-02	4975.0	None	20	None
7654	Martin S.	Salesman	7698	1981-09-28	6250.0	1400.0	30	None

Write a query to display the sum of salaries for each department.

```
query("select dept, sum(sal) from employee group by dept")
```

dept	sum(sal)
20	7775.0
30	15100.0

Write a query to sort the employee table on job column in ascending order and next on mgr in descending order.

```
query("""
    select * from employee
    order by job asc, manager desc
""")
```

empno	ename	job	manager	hiredate	sal	comm	dept	address
7369	Sunita Sharma	Clerk	7902	1980-12-17	2800.0	None	20	None
7400	Kavita Lamba	Manager	7839	1981-04-02	4975.0	None	20	None
7499	Ashok Singhal	Salesman	7698	1981-02-20	3600.0	300.0	30	None

```
7521   Rana Mehta     Salesman  7698     1981-02-22  5250.0  500.0   30    None
7654   Martin S.      Salesman  7698     1981-09-28  6250.0  1400.0  30    None
```

Write a query to display the number of employees for job Clerk and Salesman.

```
query("""
    select job, count(*) from employee
    where job = 'Clerk' or job = 'Salesman'
    group by job
""")
# OR
print()
query("""
    select job, count(*) from employee
    group by job
    having job = 'Clerk' or job = 'Salesman'
""")
# Turns out sqlite has case sensitive column entries
```

```
job       count(*)
Clerk     1
Salesman  3

job       count(*)
Clerk     1
Salesman  3
```

Write a query to display the employee table sorted in descending order of hiredate.

```
query("select * from employee order by hiredate desc")
```

```
empno  ename          job       manager  hiredate    sal     comm    dept  address
7654   Martin S.      Salesman  7698     1981-09-28  6250.0  1400.0  30    None
7400   Kavita Lamba   Manager   7839     1981-04-02  4975.0  None    20    None
7521   Rana Mehta     Salesman  7698     1981-02-22  5250.0  500.0   30    None
7499   Ashok Singhal  Salesman  7698     1981-02-20  3600.0  300.0   30    None
7369   Sunita Sharma  Clerk     7902     1980-12-17  2800.0  None    20    None
```

Write a query to add a Primary key on Empno of the employee table.

```
%%script false --no-raise-error
query("""
```

```
    alter table employee
    add constraint pk primary key(empno)
""",is_updation=True)
```

Write a query to delete the column manager from the table employee

```
query("alter table employee drop column manager",is_updation=True)
query("select * from employee")
```

empno	ename	job	hiredate	sal	comm	dept	address
7369	Sunita Sharma	Clerk	1980-12-17	2800.0	None	20	None
7499	Ashok Singhal	Salesman	1981-02-20	3600.0	300.0	30	None
7521	Rana Mehta	Salesman	1981-02-22	5250.0	500.0	30	None
7400	Kavita Lamba	Manager	1981-04-02	4975.0	None	20	None
7654	Martin S.	Salesman	1981-09-28	6250.0	1400.0	30	None

Write the sql command to delete the table

```
query("drop table employee", is_updation=True)
```