

SQL Practice

SQL Summary: Create/Modify Databases

1. `create database university;`
2. `use university;`
3. `create table students (rollno integer, name char(30), bday date);`
4. `insert into students (rollno, name) values (200301001, 'Ram');`
5. `alter table students add column btime time;`
6. `update students set bday=19831002, btime=213000 where rollno=200301001;`
7. `delete from students where rollno>200301001;`
8. `drop table students;`

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SQL Summary: Query Databases

1. `show tables;`
2. `show columns from students;`
3. `select * from students;`
4. `select rollno, name from students where bday >= 19831001;`
5. `select courses.name from students, courses, studies where students.name = 'Ram' and students.rollno = studies.rollno and studies.courseid = courses.courseid;`
6. `select avg(bday) from students;`
also: sum, max, min, count, count(distinct)
7. `select avg(bday) from students group by rollno % 3;`
8. `select * from students order by rollno;`
9. `select avg(bday) from students group by rollno % 3 having count(rollno % 3) > 10;`

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Problems

students (rollno, name, email, bday)
courses (id, name)
studies (rollno, courseid, marks)
faculty (id, name, dept)
teaches (facultyid, courseid)

1. Display rollnos and emails of all students.
2. Display rollnos and emails of students born between 1st Aug 1980 and 21st Jan 1983.
3. Display rollnos and emails of all students sorted by their names.
4. Display rollnos of students who study "maths".
5. Display rollnos of students who study some subject under "Dr.Shankar".
6. Display average marks of students for each subject.
7. Display average marks of students for each subject which has atleast 30 students studying it.

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Python DB API

1. `conn = db.connect('user=x dbname=y')`
2. `curs = conn.cursor()` # get cursor object
3. `conn.commit()`
4. `conn.close()`
5. `curs.execute('sql string')`
6. `curs.fetchone()` # returns sequence (e.g. tuple)
7. `curs.fetchall()` # returns seq of seqs
8. `curs.dictfetchone()`
9. `curs.dictfetchall()`

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Example

```
>>> import MySQLdb
>>> conn=MySQLdb.connect('user=x dbname=y')
>>> curs = conn.cursor()
>>> curs.execute('select * from messages')
>>> curs.fetchall()
[ ]
```

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