Shubham Mittal
Homework #3
Prin Info Databases
10/31/19

1.**Create Table** students(sid int,), age int, name varchar(50), gpa float, **Primary Key** (sid));

Create Table courses(cid enum('198:11',' '198:112',' 640:151',...), deptid enum('math', 'music','CS',...), name varchar(50), **Primary Key** (cid));

Create Table professors(ssn int, phone varchar(50), address varchar(50), name varchar(50),deptid enum('math', 'music','CS',...), **Primary Key** (ssn));

Create Table enrollm(sid int, cid enum('198:11',' '198:112',' 640:151',...), sections int, grades enum('A','B','C','D','F'), **Primary Key** (sid, cid), **Foreign Key**(sid) **References** students(sid), **Foreign Key** (cid) **References** courses(cid), **Foreign Key** (cid, sections) **References** teaches(cid, sections));

Create Table teaches(cid enum('198:11',' '198:112',' 640:151',...), section int, ssn int, **Primary Key** (cid, sections), **Foreign Key**(cid) **References** courses(cid), **Foreign Key** (ssn) **References** professors(ssn));

2. **Select** p.names **From** p.professors
Where p.deptid = 'CS';

3. **Select** s.sid
From enrollm e, courses c, students s
Where s.sid = e.sid **And** e.cid = c.cid **And** c.deptid = 'CS';

4. **Select** p.ssn, p.name
From professors p
Where p.deptid = 'CS' **And** p.ssn **Not In**
(Select p.ssn, **From** professors p, teaches t, courses c, **Where** p.ssn = t.ssn **And** t.cid = c.cid **And** c.deptid = 'CS');

5. **Select Count**(*), **From** courses c, **Group by** c.deptid;

6. **Select** c.deptid, **Count**(*) Courses, **From** courses c, **Group By** c.deptid, **Having** Courses > 10;

7. **Select Distinct** s.name, **From** students s
   Inner Join teaches t **On** e.cid=t.cid
   Inner Join enrollm e **On** s.sid=e.sid
   Inner Join professors p **On** p.ssn=t.ssn
   Where p.name **Like** 'M%'

8. **Select** c.deptid, **Count**(e.sid)<30 **AS** small, **Count**(e.sid)>=30 **And Count**(e.sid)<80 **As** medium, **Count**(e.sid)>=80 AS large
   From enroll e, courses c, **Where** e.cid = c.cid, **Group By** e.sections, c.cid;

9. **Create Temporary Table** Depts
   Select c.deptid, **Count**(e.sid)<30 small, **Count**(e.sid)>=30
   And Count(e.sid)<80 medium, **Count**
   (e.sid)>=80 large
   From enroll e, courses c, **Where** e.cid = c.cid, **Group By** e.sections, c.cid;

   Select Distinct p.name
   From professors p
   Where p.deptid IN (
   Select p.deptid
   From professors p
   Group By p.deptid
   Having Count(p.ssn) > 20)
   And p.deptid IN (
   Select d.deptid
   From Depts d
   Where d.large > (d.small + d.medium));
10. **Create Temporary Table** Fails
    Select sid, **From** enroll e, students s **Where** s.sid = e.sid and e.grades **I** ('D', 'F');

    Create Temporary Table AllEnrolledStudents
    Select sid, **From** enroll e, students s, **Where** s.sid = e.sid;
    Select c.cid, **Count**(Fails.sid) / **Count**(AllEnrolledStudents.sid)
    * 100 FailedPercent **From** enroll e, courses c, Fails, AllEnrolledStudent, **Where** c.cid = e.cid, **Group By** c.cid;
11. **Select Max(**FailedStudentPercentage)
    From (**Select** p.name, **Count**(e.sid)
    StudentCount, (**Count**(**Distinct** sid) **From** e **Where**

    e.grades = 'F' OR e.grades = 'D') TotalFailedStudent,

    (TotalFailedStudent/StudentCount)*100 **As**
    FailedStudentPercentage

From enroll e **Inner Join** courses c **On** e.cid = c.cid
Inner Join professors p on p.deptid = c.deptid
Where e.grades **In** (‘D’, ‘F’)
Group By c.deptid);

12. **Select** e.cid, (**Count**(e.sid)/(**Count**(**Distinct** sid) **From** enrollment)) * 100 AS Average

From enroll e, **Where** e.grades **In** (‘D’, ‘F’), **Group By** e.cid;

13. **Select** e.sections
From enroll e, courses c
Where e.grades IN('D','F')
Group By e.sections
Having Count(e.grades) > (
Select Avg(sections)
From enrollm);

14. **Create Temporary Table** T1
Select Distinct e.sid, c.dept,
e.sections, **If**(e.grades IN
(‘A’), 1, 0) NumA,
If(e.grades IN (‘B’), 1, 0) NumB,
If(e.grades IN (‘C’), 1, 0) NumC,
If(e.grades IN (‘D’), 1, 0) NumD,
If(e.grades IN (‘F’), 1, 0) NumF
From enrollment e, courses c;
Select c.deptid,
(SUM(T1.NumA)/(**Select Count**(s.sid)) as A%,
(SUM(T1.NumB)/(**Select Count(**s.sid)) as B%,
(SUM(T1.NumC)/(**Select Count**(s.sid)) as C%,
(SUM(T1.NumD)/(**Select Count**(s.sid)) as D%,
(SUM(T1.NumF)/(**Select Count**(s.sid)) as F%
From T1 inner join courses c **On** c.cid = e.cid, students s;