## 資料庫作業四

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## 甲0(table query)

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| **create table A(**  **i int NOT NULL,**  **j int NOT NULL,**  **v int NOT NULL,**  **primary key(i, j),**  **check(i > 0 and j > 0)**  **);** | | **create table B(**  **j int NOT NULL,**  **k int NOT NULL,**  **v int NOT NULL,**  **primary key(j, k),**  **check(j > 0 and k > 0)**  **);** |
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| **Select \* from A;** | **Select \* from B;** | |

## 甲1.

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| **select A.i, B.k, Sum(A.v\*B.v) as v**  **from A, B**  **where A.j = B.j**  **Group by A.i, B.k**  **Order by A.i, B.k;** |
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## 甲2

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| **select result.i, result.j as k, sum(result.v) as v**  **from(select A.i, A.j,**  **(IF(A.v, A.v, 0) + IF(tmp.v, tmp.v, 0)) as v**  **from A NATURAL LEFT OUTER JOIN**  **(select j as i, k as j, v from B) tmp**  **UNION**  **select tmp.i, tmp.j,**  **(IF(A.v, A.v, 0) + IF(tmp.v, tmp.v, 0)) as v**  **from A NATURAL RIGHT OUTER JOIN**  **(select j as i, k as j, v from B) tmp**  **) as result**  **GROUP by result.i, result.j**  **Order by result.i, result.j;** |
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## 乙0(table query)

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| **CREATE TABLE Papper(**  **pid int NOT NULL PRIMARY KEY,**  **title varchar(25)**  **);** |
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| **CREATE TABLE Reviewer(**  **rid int NOT NULL PRIMARY KEY,**  **name varchar(25)**  **);** |
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| **CREATE TABLE Reviews(**  **rid int NOT NULL,**  **pid int NOT NULL,**  **PRIMARY KEY(rid, pid),**  **FOREIGN KEY(rid) REFERENCES Reviewer(rid),**  **FOREIGN KEY(pid) REFERENCES Papper(pid)**  **);** |
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| **Select \* from Paper;** |
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| **Select \* from Reviewer;** |
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| **Select \* from Reviews;** |
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## 乙1

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| **select p.title**  **from Paper p**  **where p.pid not in ( select p.pid**  **from Paper p, Reviews re**  **where p.pid = re.pid**  **group by p.pid**  **having count(\*) >= 3);** |
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## 乙2

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| --- |
| **select r.name**  **from Reviews re, Reviewer r**  **where re.rid = r.rid**  **group by r.rid**  **having count(\*) >= ALL(select COUNT(\*)**  **from Reviews re, Reviewer r**  **where re.rid = r.rid**  **group by r.rid);** |
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## 丙0(table query)

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| **create table Occurs(**  **url varchar(50) NOT NULL,**  **word varchar(50) NOT NULL,**  **PRIMARY KEY(url, word)**  **);** | |
|  | |
| **create table Dictionary(**  **language varchar(30) NOT NULL,**  **word varchar(50) NOT NULL,**  **PRIMARY KEY(language, word)**  **);** | |
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| **select \* from Occurs;** | **select \* from dictionary**  **order by language;** |
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## 丙1.

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| **select d.language**  **from Dictionary d, Occurs oc**  **where d.word = oc.word**  **group by d.language**  **having COUNT(distinct oc.url) > 3;** |
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## 丙2.

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| **select tmp.url, Max(tmp.cnt)**  **from (select oc.url, d.language, COUNT(d.language) as cnt**  **from Dictionary d, Occurs oc**  **where d.word = oc.word**  **group by oc.url, d.language) as tmp**  **group by tmp.url;** |
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## 丙3

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| **select tot.url, lan\_cnt.language**  **from (select oc.url, count(oc.word) as total\_word**  **from Occurs oc**  **group by oc.url) as tot,**  **(select oc.url, d.language, COUNT(d.language) as cnt**  **from Dictionary d, Occurs oc**  **where d.word = oc.word**  **group by oc.url, d.language) as lan\_cnt**  **where tot.url = lan\_cnt.url and tot.total\_word = lan\_cnt.cnt;** |
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## 丁0

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| --- |
| **create table Engineer(**  **engineerID int PRIMARY KEY NOT NULL,**  **lname varchar(15) NOT NULL,**  **fname varchar(15) NOT NULL,**  **jobtitle varchar(25) NOT NULL,**  **email varchar(30) NOT NULL,**  **proEngineerExamTitle varchar(30),**  **proEngineerExamPassDate date,**  **salary int NOT NULL,**  **vacationDaysAccumulated int NOT NULL**  **);** |
|  |
| **create table Customer(**  **customerID int not null primary key,**  **name varchar(30) not null,**  **address varchar(50) not null,**  **phone varchar(10) not null,**  **contactName varchar(30) not null,**  **contactPhone varchar(10) not null**  **);** |
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| --- |
| **create table Project(**  **projectID int NOT NULL PRIMARY KEY,**  **name varchar(30) NOT NULL,**  **startDate date NOT NULL,**  **endDate date NOT NULL,**  **customerID int NOT NULL,**  **monthlyBudget int NOT NULL,**  **totalBidget int NOT NULL,**  **managerID int NOT NULL,**  **Foreign key(customerID) References customer(customerID),**  **Foreign key(managerID) References Engineer(EngineerID)**  **);** |
|  |
| **create table ProjectEngineers(**  **projectID int not null,**  **engineerID int not null,**  **hoursPerWeek int not null,**  **foreign key(projectID) references project(projectID),**  **foreign key(engineerID) references engineer(engineerID),**  **primary key(projectID, EngineerID)**  **);** |
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| **create table WorkingGroup(**  **workgroupID int not null primary key,**  **workGroupTitle varchar(30) not null,**  **workingOnStandard int not null,**  **sponsorOrgName varchar(30) not null,**  **startDate date not null,**  **endDate date,**  **annualBudget int not null**  **);** |
|  |
| **create table WorkingGroupMembers(**  **workgroupID int not null,**  **engineerID int not null,**  **startDate date not null,**  **endDate date,**  **role varchar(30) not null,**  **foreign key(engineerID) references Engineer(engineerID),**  **primary key(workgroupID, engineerID)**  **);** |
|  |
| **create table Standards(**  **standardsID int not null primary key,**  **standardTitle varchar(50) not null,**  **status varchar(30) not null,**  **approvalDate date,**  **replacesOldStandard int,**  **price int not null**  **);** |
|  |
| **Select \* from engineer;** |
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| **Select \* from project;** |
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| **Select \* from ProjectEngineers;** |
|  |
| **Select \* from Customer;** |
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| **Select \* from WorkingGroup;** |
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| **Select \* from WorkingGroupMembers;** |
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| **Select \* from Standards;** |
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## 丁1

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| --- |
| **select AVG(wg.annualBudget) as average**  **from WorkingGroup wg;** |
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## 丁2

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| --- |
| **select e.lname, e.fname, wgm.startdate**  **from Engineer e, WorkingGroupMembers wgm**  **where wgm.role = "Treasurer" and e.engineerID = wgm.engineerID;** |
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## 丁3

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| **select st.standardTitle, st.status**  **from Standards st**  **where st.approvalDate < '1960-1-1';** |
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## 丁4

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| --- |
| **select st.standardTitle, st.standardsID, st.price**  **from Standards st**  **where st.standardTitle like "%802.11a%"**  **or st.standardTitle like "ANSI\_%";** |
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## 丁5

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| **select c.name, c.address**  **from customer c, project p**  **where p.monthlyBudget > 50000 and c.customerID = p.customerID;** |
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## 丁6

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| **select sponsorOrgName, COUNT(workGroupID) as number\_of\_sponsor**  **from workingGroup**  **group by sponsorOrgName;** |
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## 丁7

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| **select st.standardTitle, st.standardsID, st.price**  **from Standards st**  **where st.price >= ALL(select st.price**  **from Standards st);** |
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## 丁8

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| --- |
| **select e.engineerID, e.lname, wg.workgroupID, wg.workGroupTitle**  **from Engineer e, WorkingGroup wg, WorkingGroupMembers wgm**  **where e.EngineerID = wgm.EngineerId**  **and wg.workgroupID = wgm.workgroupID**  **and e.proEngineerExamTitle = "PE Mechanical"**  **Order by wg.workgroupTitle;** |
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## 丁9

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| --- |
| **select wgm1.engineerID, wgm1.workgroupID as group1,**  **wgm2.workgroupID as group2**  **from WorkingGroupMembers wgm1, WorkingGroupMembers wgm2**  **where wgm1.workgroupID <= wgm2.workgroupID**  **and wgm1.engineerID = wgm2.engineerID**  **and wgm1.role != wgm2.role;** |
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## 丁10

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| --- |
| **select p.projectID, p.name,**  **count(pe.engineerID), avg(pe.hoursPerWeek)**  **from Project p NATURAL LEFT OUTER JOIN ProjectEngineers pe**  **group by p.projectID;** |
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## 丁11

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| --- |
| **select wg.workgroupID, wg.workgroupTitle,**  **count(\*) as number\_of\_engineer,**  **max(wgm.startDate) as last\_member\_join\_time**  **from workingGroup wg, WorkingGroupMembers wgm**  **where wg.workGroupID = wgm.workGroupID**  **group by wg.workgroupID**  **having count(\*) > 5;** |
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## 丁12

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| --- |
| **select e.lname, e.fname, wg.workGroupID, wg.workGroupTitle,**  **st.standardsID, st.standardTitle**  **from Engineer e, WorkingGroup wg,**  **WorkingGroupMembers wgm, Standards st**  **where e.engineerID = wgm.engineerID and wg.workgroupID = wgm.workgroupID**  **and wg.sponsorOrgName = "IEEE" and st.standardsID = wg.workingOnStandard**  **order by st.standardTitle;** |
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