Database HW3 邓鹏宇 A10515003 二资工三

1.

**CREATE** **TABLE** student**(**

NAME **VARCHAR(**255**)** **NOT** **NULL,**

Student\_number **INT** **NOT** **NULL,**

**Class** **INT** **NOT** **NULL,**

Major **VARCHAR(**255**)** **NOT** **NULL,**

**PRIMARY** **KEY(**Student\_number**)**

**);**

**INSERT**

**INTO**

Student

**VALUES(**'Smith'**,** 17**,** 1**,** 'CS'**);**

**INSERT**

**INTO**

Student

**VALUES(**'Brown'**,** 8**,** 2**,** 'CS'**);**

**CREATE** **TABLE** course**(**

Course\_name **VARCHAR(**255**)** **NOT** **NULL,**

Course\_number **VARCHAR(**255**)** **NOT** **NULL,**

Credit\_hours **INT** **NOT** **NULL,**

Department **VARCHAR(**255**)** **NOT** **NULL**

**);**

**INSERT**

**INTO**

course

**VALUES(**

'Intro to Computer Science'**,**

'CS1310'**,**

4**,**

'CS'

**);**

**INSERT**

**INTO**

course

**VALUES(**'Data Structures'**,** 'CS3320'**,** 4**,** 'CS'**);**

**INSERT**

**INTO**

course

**VALUES(**

'Discrete Mathematics'**,**

'MATH2410'**,**

3**,**

'MATH'

**);**

**INSERT**

**INTO**

course

**VALUES(**'Database'**,** 'CS3380'**,** 3**,** 'CS'**);**

**CREATE** **TABLE** **section(**

Section\_identifier **INT** **NOT** **NULL,**

Course\_number **VARCHAR(**255**)** **NOT** **NULL,**

Semester **VARCHAR(**255**)** **NOT** **NULL,**

**YEAR** **VARCHAR(**255**)** **NOT** **NULL,**

Instructor **VARCHAR(**255**)** **NOT** **NULL,**

**PRIMARY** **KEY(**Section\_identifier**)**

**);**

**INSERT**

**INTO**

**section**

**VALUES(**85**,** 'MATH2410'**,** 'Fall'**,** '07'**,** 'King'**);**

**INSERT**

**INTO**

**section**

**VALUES(**92**,** 'CS1310'**,** 'Fall'**,** '07'**,** 'Anderson'**);**

**INSERT**

**INTO**

**section**

**VALUES(**102**,** 'CS3320'**,** 'Spring'**,** '08'**,** 'Knuth'**);**

**INSERT**

**INTO**

**section**

**VALUES(**112**,** 'MATH2410'**,** 'Fall'**,** '08'**,** 'Chang'**);**

**INSERT**

**INTO**

**section**

**VALUES(**119**,** 'CS1310'**,** 'Fall'**,** '08'**,** 'Anderson'**);**

**INSERT**

**INTO**

**section**

**VALUES(**135**,** 'CS3380'**,** 'Fall'**,** '08'**,** 'Stone'**);**

**CREATE** **TABLE** grade\_report**(**

Student\_number **INT** **NOT** **NULL,**

Section\_identifier **INT** **NOT** **NULL,**

Grade **VARCHAR(**10**)** **NOT** **NULL**

**);**

**INSERT**

**INTO**

grade\_report

**VALUES(**17**,** 112**,** 'B'**);**

**INSERT**

**INTO**

grade\_report

**VALUES(**17**,** 119**,** 'C'**);**

**INSERT**

**INTO**

grade\_report

**VALUES(**8**,** 85**,** 'A'**);**

**INSERT**

**INTO**

grade\_report

**VALUES(**8**,** 92**,** 'A'**);**

**INSERT**

**INTO**

grade\_report

**VALUES(**8**,** 102**,** 'B'**);**

**INSERT**

**INTO**

grade\_report

**VALUES(**8**,** 135**,** 'A'**);**

**CREATE** **TABLE** prerequisite**(**

Course\_number **VARCHAR(**255**)** **NOT** **NULL,**

Prerequisite\_number **VARCHAR(**255**)** **NOT** **NULL**

**);**

**INSERT**

**INTO**

prerequisite

**VALUES(**'CS3380'**,** 'CS3320'**);**

**INSERT**

**INTO**

prerequisite

**VALUES(**'CS3380'**,** 'MATH2410'**);**

**INSERT**

**INTO**

prerequisite

**VALUES(**'CS3320'**,** 'CS1310'**);**

2.

**CREATE** **TABLE** employee**(**

Fname **VARCHAR(**255**)** **NOT** **NULL,**

Minit **VARCHAR(**10**)** **NOT** **NULL,**

Lname **VARCHAR(**255**)** **NOT** **NULL,**

Ssn **INT** **NOT** **NULL,**

Bdate **DATE** **NOT** **NULL,**

Address **VARCHAR(**255**)** **NOT** **NULL,**

Sex **VARCHAR(**10**)** **NOT** **NULL,**

Salary **INT** **NOT** **NULL,**

Super\_ssn **INT,**

Dno **INT** **NOT** **NULL,**

**PRIMARY** **KEY(**Ssn**)**

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'John'**,**

'B'**,**

'Smith'**,**

123456789**,**

'1965-01-09'**,**

'731 Fondren,

Houston, TX'**,**

'M'**,**

30000**,**

333445555**,**

5

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'Franklin'**,**

'T'**,**

'Wong'**,**

333445555**,**

'1955-12-08'**,**

'638 Voss,

Houston, TX'**,**

'M'**,**

40000**,**

888665555**,**

5

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'Alicia'**,**

'J'**,**

'Zelaya'**,**

999887777**,**

'1968-01-19'**,**

'3321 Castle,

Spring, TX'**,**

'F'**,**

25000**,**

987654321**,**

4

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'Jennifer'**,**

'S'**,**

'Wallace'**,**

987654321**,**

'1941-06-20'**,**

'291 Berry,

Bellaire, TX'**,**

'F'**,**

43000**,**

888665555**,**

4

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'Ramesh'**,**

'K'**,**

'Narayan'**,**

666884444**,**

'1962-09-15'**,**

'975 Fire

Oak, Humble, TX'**,**

'M'**,**

38000**,**

333445555**,**

5

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'Joyce'**,**

'A'**,**

'English'**,**

453453453**,**

'1972-07-30'**,**

'5631 Rice,

Houston, TX'**,**

'F'**,**

25000**,**

333445555**,**

5

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'Ahmad'**,**

'V'**,**

'Jabbar'**,**

987987987**,**

'1969-03-29'**,**

'980 Dallas,

Houston, TX'**,**

'M'**,**

25000**,**

987654321**,**

4

**);**

**INSERT**

**INTO**

employee

**VALUES(**

'James'**,**

'E'**,**

'Borg'**,**

888665555**,**

'1937-11-10'**,**

'450 Stone,

Houston, TX'**,**

'M'**,**

55000**,**

**NULL,**

1

**);**

**ALTER** **TABLE**

employee **ADD** **FOREIGN** **KEY(**Super\_ssn**)** **REFERENCES** employee**(**Ssn**);**

**CREATE** **TABLE** department**(**

Dname **VARCHAR(**255**)** **NOT** **NULL,**

Dnumber **INT** **NOT** **NULL,**

Mgr\_ssn **INT** **NOT** **NULL,**

Mgr\_start\_date **DATE** **NOT** **NULL,**

**PRIMARY** **KEY(**Dnumber**)**

**);**

**INSERT**

**INTO**

department

**VALUES(**

'Research'**,**

5**,**

333445555**,**

'1988-05-22'

**);**

**INSERT**

**INTO**

department

**VALUES(**

'Administration'**,**

4**,**

987654321**,**

'1995-01-01'

**);**

**INSERT**

**INTO**

department

**VALUES(**

'Headquarters'**,**

1**,**

888665555**,**

'1981-06-19'

**);**

**CREATE** **TABLE** dept\_locations**(**

Dnumber **INT** **NOT** **NULL,**

Dlocation **VARCHAR(**255**)** **NOT** **NULL,**

**FOREIGN** **KEY(**Dnumber**)** **REFERENCES** department**(**Dnumber**)**

**);**

**INSERT**

**INTO**

dept\_locations

**VALUES(**1**,** 'Houston'**);**

**INSERT**

**INTO**

dept\_locations

**VALUES(**4**,** 'Stafford'**);**

**INSERT**

**INTO**

dept\_locations

**VALUES(**5**,** 'Bellaire'**);**

**INSERT**

**INTO**

dept\_locations

**VALUES(**5**,** 'Sugarland'**);**

**INSERT**

**INTO**

dept\_locations

**VALUES(**5**,** 'Houston'**);**

**CREATE** **TABLE** works\_on**(**

Essn **INT** **NOT** **NULL,**

Pno **INT** **NOT** **NULL,**

Hours **FLOAT** **NULL,**

**FOREIGN** **KEY(**Essn**)** **REFERENCES** employee**(**Ssn**)**

**);**

**INSERT**

**INTO**

works\_on

**VALUES(**123456789**,** 1**,** 32.5**);**

**INSERT**

**INTO**

works\_on

**VALUES(**123456789**,** 2**,** 7.5**);**

**INSERT**

**INTO**

works\_on

**VALUES(**666884444**,** 3**,** 40.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**453453453**,** 1**,** 20.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**453453453**,** 2**,** 20.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**333445555**,** 2**,** 10.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**333445555**,** 3**,** 10.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**333445555**,** 10**,** 10.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**333445555**,** 20**,** 10.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**999887777**,** 30**,** 30.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**999887777**,** 10**,** 10.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**987987987**,** 10**,** 35.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**987987987**,** 30**,** 5.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**987654321**,** 30**,** 20.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**987654321**,** 20**,** 15.0**);**

**INSERT**

**INTO**

works\_on

**VALUES(**888665555**,** 20**,** **NULL);**

**CREATE** **TABLE** dependent**(**

Essn **INT** **NOT** **NULL,**

Dependent\_name **VARCHAR(**255**)** **NOT** **NULL,**

Sex **VARCHAR(**10**)** **NOT** **NULL,**

Bdate **DATE** **NOT** **NULL,**

Relationship **VARCHAR(**255**)** **NOT** **NULL,**

**FOREIGN** **KEY(**Essn**)** **REFERENCES** employee**(**Ssn**)**

**);**

**INSERT**

**INTO**

dependent

**VALUES(**

333445555**,**

'Alice'**,**

'F'**,**

'1986-04-05'**,**

'Daughter'

**);**

**INSERT**

**INTO**

dependent

**VALUES(**

333445555**,**

'Theodore'**,**

'M'**,**

'1983-10-25'**,**

'Son'

**);**

**INSERT**

**INTO**

dependent

**VALUES(**

333445555**,**

'Joy'**,**

'F'**,**

'1958-05-03'**,**

'Spouse'

**);**

**INSERT**

**INTO**

dependent

**VALUES(**

987654321**,**

'Abner'**,**

'M'**,**

'1942-02-28'**,**

'Spouse'

**);**

**INSERT**

**INTO**

dependent

**VALUES(**

123456789**,**

'Michael'**,**

'M'**,**

'1988-01-04'**,**

'Son'

**);**

**INSERT**

**INTO**

dependent

**VALUES(**

123456789**,**

'Alice'**,**

'F'**,**

'1988-12-30'**,**

'Daughter'

**);**

**INSERT**

**INTO**

dependent

**VALUES(**

123456789**,**

'Elizabeth'**,**

'F'**,**

'1967-05-05'**,**

'Spouse'

**);**

**CREATE** **TABLE** project**(**

Pname **VARCHAR(**255**)** **NOT** **NULL,**

Pnumber **INT** **NOT** **NULL,**

Plocation **VARCHAR(**255**)** **NOT** **NULL,**

Dnum **INT** **NOT** **NULL,**

**PRIMARY** **KEY(**Pnumber**)**

**);**

**INSERT**

**INTO**

project

**VALUES(**'ProductX'**,** 1**,** 'Bellaire'**,** 5**);**

**INSERT**

**INTO**

project

**VALUES(**'ProductY'**,** 2**,** 'Sugarland'**,** 5**);**

**INSERT**

**INTO**

project

**VALUES(**'ProductZ'**,** 3**,** 'Houston'**,** 5**);**

**INSERT**

**INTO**

project

**VALUES(**'Computerization'**,** 10**,** 'Stafford'**,** 4**);**

**INSERT**

**INTO**

project

**VALUES(**'Reorganization'**,** 20**,** 'Houston'**,** 1**);**

**INSERT**

**INTO**

project

**VALUES(**'Newbenefits'**,** 30**,** 'Stafford'**,** 4**);**

3. 6.10

a**.**

**CREATE** **TABLE** 6\_10\_a **AS(**

**SELECT** **DISTINCT**

employee**.**Fname**,**

employee**.**Dno

**FROM**

employee**,**

works\_on

**WHERE**

works\_on**.**Hours **>** 10 **AND** works\_on**.**Essn **=** employee**.**Ssn **AND** Dno **=(**

**SELECT** **DISTINCT**

employee**.**Dno

**FROM**

project**,**

employee

**WHERE**

project**.**Pname **=** 'productX' **AND** project**.**Dnum **=** employee**.**Dno

**)**

**);**

b**.**

**CREATE** **TABLE** 6\_10\_b **AS(**

**SELECT** **DISTINCT**

employee**.**Fname

**FROM**

employee**,**

dependent

**WHERE**

dependent**.**Dependent\_name **=** employee**.**Fname

**);**

c**.**

**CREATE** **TABLE** 6\_10\_c **AS(**

**SELECT**

Fname

**FROM**

employee

**WHERE**

Super\_ssn **=(**

**SELECT**

Ssn

**FROM**

employee

**WHERE**

Fname **=** 'Franklin'

**)**

**);**

4. 6.11

a**.**

**INSERT**

**INTO**

employee

**VALUES(**

'Robert'**,**

'F'**,**

'Scott'**,**

'943775543'**,**

'1972-06-21'**,**

'2365

Newcastle Rd,Bellaire,TX'**,**

'M'**,**

58000**,**

'888665555'**,**

1

**);**

b**.**

**INSERT**

**INTO**

project

**VALUES(**'ProductA'**,** 4**,** 'Bellaire'**,** 2**);**

c**.**

**INSERT**

**INTO**

department

**VALUES(**

'Production'**,**

4**,**

'943775543'**,**

'2007-10-01'

**);**

#1062 **-** Duplicate entry '4' **for** **key** 'PRIMARY'

d**.**

**INSERT**

**INTO**

works\_on

**VALUES(**'677678989'**,** **NULL,** '40.0'**);**

#1048 **-** **Column** 'Pno' cannot be **null**

e**.**

**INSERT**

**INTO**

dependent

**VALUES(**

'453453453'**,**

'John'**,**

'M'**,**

'1990-12-12'**,**

'spouse'

**);**

f**.**

**DELETE**

**FROM**

works\_on

**WHERE**

Essn **=** "333445555"**;**

g**.**

**DELETE**

**FROM**

employee

**WHERE**

Ssn **=** "987654321"**;**

h**.**

**DELETE**

**FROM**

project

**WHERE**

Pname **=** "ProductX"**;**

i**.**

**UPDATE**

department

**SET**

Mgr\_ssn **=** '123456789'**,**

Mgr\_start\_date **=** '2007-10-01'

**WHERE**

Dnumber **=** 5**;**

j**.**

**UPDATE**

employee

**SET**

Super\_ssn **=** '943775543'

**WHERE**

Ssn **=** '999887777'**;**

k**.**

**UPDATE**

works\_on

**SET**

Hours **=** '5.0'

**WHERE**

Essn **=** '999887777' **AND** Pno **=** 10**;**

5. 6.12

a**.**

**CREATE** **TABLE** 6\_12\_a **AS(**

**SELECT** NAME

**FROM**

student

**WHERE**

Major **=** 'CS'

**);**

b**.**

**CREATE** **TABLE** 6\_12\_b **AS(**

**SELECT**

Course\_name

**FROM**

course**,**

**section**

**WHERE**

Instructor **=** 'King' **AND** course**.**Course\_number **=** **section.**Course\_number

**);**

c**.**

**CREATE** **TABLE** 6\_12\_c **AS(**

**SELECT**

Course\_number**,**

semester**,**

**YEAR,**

Student\_number

**FROM**

**section,**

grade\_report

**WHERE**

**section.**Instructor **=** 'King' **AND** **section.**Section\_identifier **=** grade\_report**.**Section\_identifier

**);**

d**.**

**CREATE** **TABLE** 6\_12\_d **AS(**

**SELECT**

student**.**name**,**

Course\_name**,**

course**.**Course\_number**,**

Credit\_hours**,**

semester**,**

**YEAR,**

grade

**FROM**

student**,**

**section,**

grade\_report**,**

course

**WHERE**

student**.**Student\_number **=** grade\_report**.**Student\_number **AND** **section.**Section\_identifier **=** grade\_report**.**Section\_identifier **AND** course**.**Course\_number **=** **section.**Course\_number

**);**

6. 6.13

a**.**

**INSERT**

**INTO**

student

**VALUES(**'Johnson'**,** 25**,** 1**,** 'Math'**);**

b**.**

**UPDATE**

student

**SET**

**class** **=** 2

**WHERE** NAME

**=** 'Smith'**;**

c**.**

**INSERT**

**INTO**

course

**VALUES(**

'Konwledge Engineering'**,**

'CS4390'**,**

'3'**,**

'CS'

**);**

d**.**

**DELETE**

**FROM**

student

**WHERE** NAME

**=** 'Smith' **AND** Student\_number **=** 17**;**

7. 7.5

a**.**

**CREATE** **TABLE** 7\_5\_a **AS(**

**SELECT**

Dname**,**

**COUNT(**Fname**)**

**FROM**

employee**,**

department

**WHERE**

employee**.**Salary **>** 30000 **AND** employee**.**Dno **=** department**.**Dnumber

**GROUP** **BY**

Dname

**);**

b**.**

**CREATE** **TABLE** 7\_5\_b **AS(**

**SELECT**

Dname**,**

**COUNT(**Fname**)**

**FROM**

employee**,**

department

**WHERE**

employee**.**Salary **>** 30000 **AND** employee**.**Dno **=** department**.**Dnumber **AND** employee**.**sex **=** 'M'

**GROUP** **BY**

Dname

**);**