Chapter 06
Basic SQL

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Gender	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

DEPT_LOCATIONS

Dnumber	Dlocation

PROJECT

Pname	Pnumber	Plocation	Dnum

WORKS_ON

Essn	Pno	Hours

DEPENDENT

Essn	Dependent_name	Gender	Bdate	Relationship
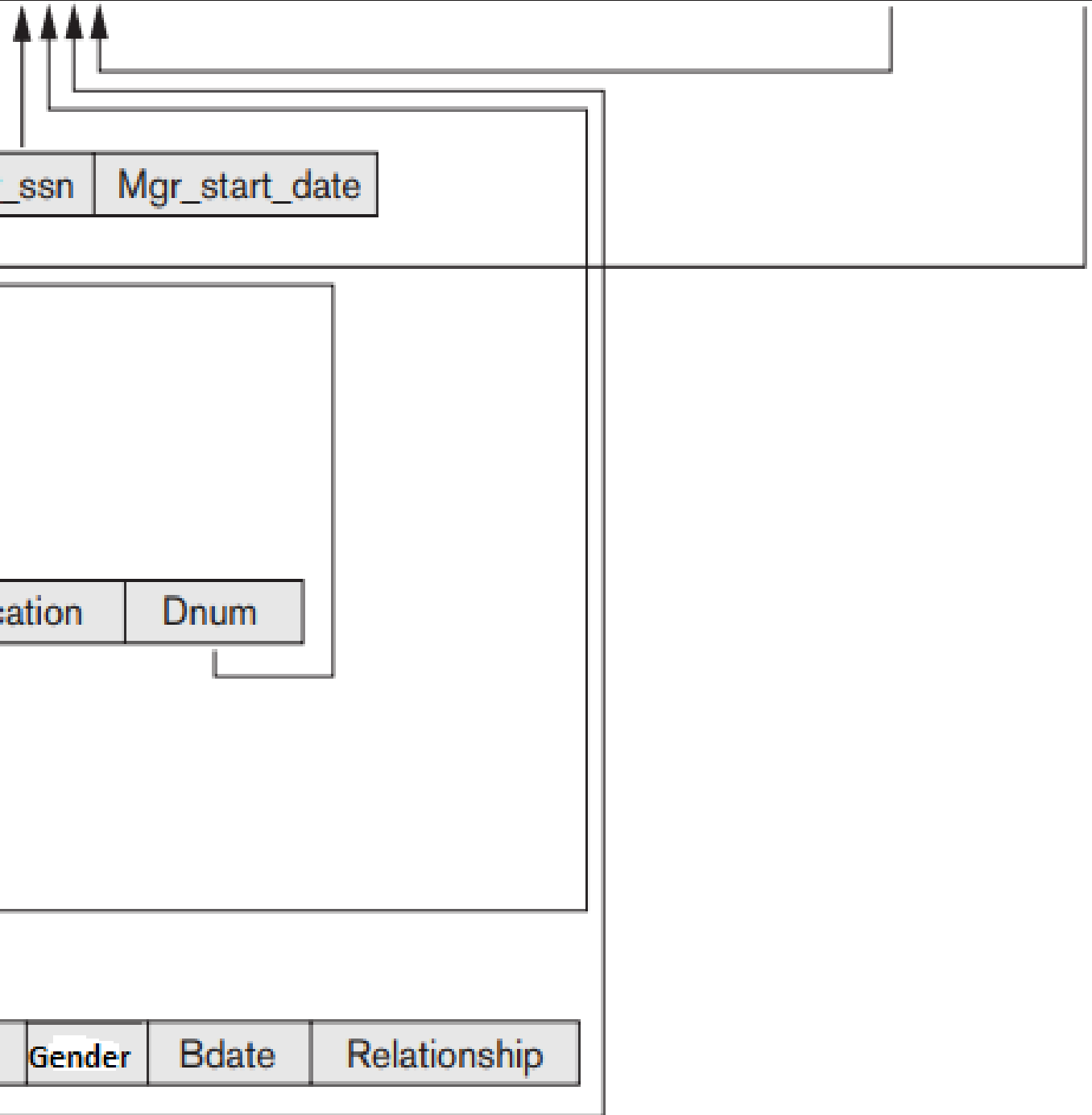
Domain Constraint

Create DOMAIN Range as Integer Not Null
CHECK (value >=10000 AND value <=100000);

Create table staff (
S_id char(9) PRIMARY KEY,
S_Name varchar(30),
S_Salary Range
);

Create DOMAIN ID as VARCHAR PRIMARYKEY
CHECK (SELECT FORMAT(##k-####));

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Gender	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date
Research	5	333445555	1988-05-22
Administration	4	987654321	1995-01-01
Headquarters	1	888665555	1981-06-19

DEPT_LOCATIONS

Dnumber	Dlocation
1	Houston
4	Stafford
5	Bellaire
5	Sugarland
5	Houston

WORKS_ON

Essn	Pno	Hours
123456789	1	32.5
123456789	2	7.5
666884444	3	40.0
453453453	1	20.0
453453453	2	20.0
333445555	2	10.0
333445555	3	10.0
333445555	10	10.0
333445555	20	10.0
999887777	30	30.0
999887777	10	10.0
987987987	10	35.0

PROJECT

Pname	Pnumber	Plocation	Dnum
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenefits	30	Stafford	4

DEPENDENT

Essn	Dependent_name	G	Bdate	Relationship
333445555	Alice	F	1986-04-05	Daughter
333445555	Theodore	M	1983-10-25	Son
333445555	Joy	F	1958-05-03	Spouse
987654321	Abner	M	1942-02-28	Spouse
123456789	Michael	M	1988-01-04	Son
123456789	Alice	F	1988-12-30	Daughter
123456789	Elizabeth	F	1967-05-05	Spouse

The SELECT-FROM-WHERE Structure of Basic SQL Queries

```
SELECT      <attribute list>
FROM        <table list>
WHERE       <condition>;
```

where

- <attribute list> is a list of attribute names whose values are to be retrieved by the query.
- <table list> is a list of the relation names required to process the query.
- <condition> is a conditional (Boolean) expression that identifies the tuples to be retrieved by the query.

Query 01

Retrieve the birth date and address of the employee(s) whose name is 'John B. Smith'.

Query 02

Retrieve the name and address of all employees who work for the 'Research' department.

Query 03

For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.

Query 04

Select all EMPLOYEE Ssns (QA)

and all combinations of EMPLOYEE Ssn and DEPARTMENT Dname (QB) in the database.

Query 05

Retrieve the salary of every employee (QA)
and all distinct salary values (QB)

Query 06

Make a list of all project numbers for projects that involve an employee whose last name is 'Smith', either as a worker or as a manager of the department that controls the project.

Query 07

Retrieve all employees whose address is in Houston, Texas.

Query 08

Show the resulting salaries if every employee working on the 'ProductX' project is given a 10% raise.

Query 09

Retrieve all employees in department 5 whose salary is between $30,000 and $40,000.

Query 10

Retrieve a list of employees and the projects they are working on, ordered by department and, within each department, ordered alphabetically by last name, then first name.