Assignment1 (Chap 1, Chap 2)

Chapter 1

1.7 List four significant differences between a file-processing system and a DBMS.

1.8 Explain the concept of physical data independence and its importance in

database systems.

2.14 Consider the employee database of Figure 2.17. Give an expression in the relational algebra to express each of the following queries:

a. Find the ID and name of each employee who works for “BigBank”.

b. Find the ID, name, and city of residence of each employee who works for

“BigBank”.

c. Find the ID, name, street address, and city of residence of each employee

who works for “BigBank” and earns more than $10000.

d. Find the ID and name of each employee in this database who lives in the

same city as the company for which she or he works.

*employee* (ID,*person\_name*, *street*, *city*)

*works* (ID, *person\_name*, *company\_name*, *salary*)

*company* (*company\_name*, *city*)

**Figure 2.17** Employee database.

2.15 Consider the bank database of Figure 2.18. Give an expression in the relational

algebra for each of the following queries:

a. Find each loan number with a loan amount greater than $10000.

b. Find the ID of each depositor who has an account with a balance greater

than $6000.

c. Find the ID of each depositor who has an account with a balance greater

than $6000 at the “Uptown” branch.

*branch*(*branch name*, *branch city, assets*)

*customer* (*ID*, *customer\_name*, *customer\_street, customer\_city*)

*loan* (*loan\_number*, *branch\_name, amount*)

*borrower* (*ID*, *loan\_number*)

*account* (*account\_number*, *branch\_name, balance*)

*depositor* (*ID*, *account\_number*)

**Figure 2.18** Bank database.