数据库系统作业

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9.
- a)　branch(**branch_name**, branch_city, assets)
  　　　主码：branch_name
  customer (**customer_name**, customer_street, customer_city)
  　　主码：customer_name
  loan (**loan_number**, branch_name, amount)
  　　主码：loan_number
  borrower (**customer_name**, **loan_number**)
  　　主码：customer_name loan_number
  account (**account_number**, branch_name, balance)
  　　主码：account_name
  depositor (**customer_name**, **account_number**)
  　　主码：customer_name account_name

- b)

数据库名	主码	外码
branch	branch_name	NULL
customer	customer_name	NULL
loan	loan_number	branch_name 参照 branch
borrower	customer_name loan_number	customer_name 参照 customer loan_number 参照 loan
account	account_name	branch_name 参照 branch
deposito	customer_name account_name	customer_name 参照 customer account_name 参照 account

10. 不能，s_id 不再是 advisor 的主码。因为可能存在多个元组有着相同的 s_id，此时 s_id 不能用来区别不同的元组。advisor 的主码应该是 s_id,i_id。

11. 关系是关系模式的一个实例
关系模式是类型的定义

12.
- a) $\prod_{person\_name}(\sigma_{company\_name="First\ Bank\ Corporation"}(works))$
- b) $\prod_{person\_name,city}(\sigma_{company\_name="First\ Bank\ Corporation"}(works \bowtie employee))$
- c) $\prod_{person\_name,street,city}(\sigma_{(company\_name="First\ Bank\ Corporation"\ \wedge\ salary\ >\ 10000)}(works \bowtie employee))$

13.
- a) $\prod_{load\_number}(\sigma_{amount\ >\ 10000}(load))$
- b) $\prod_{customer\_name}(\sigma_{balance\ >\ 6000}(depositor \bowtie account))$
- c) $\prod_{customer\_name}(\sigma_{(balance\ >\ 6000\ \wedge\ branch\_name\ ="Uptown")}(depositor \bowtie account))$