

## Homework 8

CS386D Database Systems

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**1 Part 1**

Inserting 5 million sorted rows: 746.5 seconds.

$$\frac{1.25\text{Gbytes}}{746.5\text{seconds}} = \frac{1.25 \times 2^{30}\text{bytes}}{746.5\text{seconds}} = \frac{1797960.19\text{bytes}}{\text{second}} = \frac{1.71\text{Mbytes}}{\text{second}}$$

$$\frac{1797960.19\text{bytes}}{\text{second}} \text{ or } \frac{1.71\text{Mbytes}}{\text{second}}$$

**2 Part 3****A**

```
select * from employees
  where employee_position = 'Professor'
     and
     department in ('Computer Science', 'Mathematics')
```

last_name	employee_position	department
Miranker	Professor	Computer Science
Mok	Professor	Computer Science
Alcook	Professor	Mathematics

**B**

```
select * from employees
```

last_name	employee_position	department	manager
Fenves	President	UT	null
Goldbart	Dean	Natural Science	Fenves
Wood	Dean	Engineering	Fenves
Beckner	Chairman	Mathematics	Goldbart
Tewfik	Chairman	Electrical and Computer Engineering	Wood
Ghosh	Professor	Electrical and Computer Engineering	Tewfik
Alcook	Professor	Mathematics	Beckner
Miranker	Professor	Computer Science	null
Mok	Professor	Computer Science	null

```

create table employees (
  last_name char(50) primary key,
  employee_position char(50),
  department char(50),
  manager char(50)
  references employees(last_name)
  on delete set null
)

```

**C**

```
select * from employees
```

last_name	employee_position	department	manager
Fenves	President	UT	null
Wood	Dean	Engineering	Fenves
Tewfik	Chairman	Electrical and Computer Engineering	Wood
Ghosh	Professor	Electrical and Computer Engineering	Tewfik

```

create table employees (
  last_name char(50) primary key,
  employee_position char(50),
  department char(50),
  manager char(50)
  references employees(last_name)
  on delete cascade
)

```

**D**

```
select * from employees
```

last_name	employee_position	department	manager
Fenves	President	UT	null
Goldbart	Dean	Natural Science	Fenves
Wood	Dean	Engineering	Fenves
Beckner	Chairman	Mathematics	Goldbart
Tewfik	Chairman	Electrical and Computer Engineering	Wood
Ghosh	Professor	Electrical and Computer Engineering	Tewfik
Alcook	Professor	Mathematics	Beckner
Smith	Chairman	Computer Science	Goldbart
Miranker	Professor	Computer Science	Smith
Mok	Professor	Computer Science	Smith

```
create table employees (  
  last_name char(50) primary key,  
  employee_position char(50),  
  department char(50),  
  manager char(50)  
    references employees(last_name)  
    on delete cascade  
    on update cascade  
)
```