$\hbox{X-Authentication-Warning: $M$ anta. Stanford. EDU: widom owned process doing -bs}$ 

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Subject: Re: Quals Questions

Date: Fri, 15 Jan 1999 17:04:56 -0800

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CS

Jennifer Widom

1999 EE Quals Question

Question for students with no database implementation background

Consider two tables of information stored in a computer, for example:

Employee table:

| 1 | ID  | 1 | name  | 1 | deptNum | 1 |
|---|-----|---|-------|---|---------|---|
| 1 | 123 | 1 | Joe   | ı | 55      | Ī |
| 1 | 456 | 1 | Mary  | ١ | 22      | Ī |
| Ī | 789 | 1 | Fred  | 1 | 55      | 1 |
| Ī | 135 | 1 | Susan | ١ | 13      | ١ |
| 1 | 246 | 1 | John  | 1 | 22      | 1 |
| Ī |     | ١ |       | 1 |         | ı |

Department table:

| 1 | num | name |          | 1 |
|---|-----|------|----------|---|
| Ī | 10  | ١    | research | Ī |
| Ī | 55  | ١    | support  | 1 |
| Ī | 22  | 1    | sales    | 1 |
| Ī | 18  | ١    | HR       | 1 |
| Ī | 13  | ١    | develop. | 1 |
| 1 |     | ١    |          | 1 |

Your goal is to write an algorithm that computes the "join" of these two tables based on Employee.deptNum = Department.num:

| 1 | ID  | 1 | emp-name | 1 | deptNum/num | ١ | dept-name |
|---|-----|---|----------|---|-------------|---|-----------|
| 1 | 123 | 1 | Joe      | Ī | 55          | 1 | support   |
| Ī | 456 | ١ | Mary     | ١ | 22          | 1 | sales     |
| 1 | 789 | 1 | Fred     | I | 55          | 1 | support   |
| 1 | 135 | ١ | Susan    | ١ | 13          | ١ | develop.  |
| 1 | 246 | Ī | John     | 1 | 22          | ١ | sales     |
| ī |     | Ī |          | 1 |             | 1 |           |