

INTRO TO DATABASES  
EECS 116

**Assignment 7**  
**Relational Design, Indexing & Transactions**

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# 1 Answers

## 1.1 Problem 2

### 1.1.1 Problem 2.1

```
SELECT CITY, COUNT(*)  
FROM user  
GROUP by city;
```

### 1.1.2 Problem 2.2

```
CREATE INDEX city_index ON user(city);
```

We chose to use city as the index because that is the condition we are looking for and grouping by. This directly increases our speedup. If we were to use any other attributes such as bid, name, zip, or state, those indexes would not result in a speedup if having a condition looking for the city.

### 1.1.3 Problem 2.3

|                              | Execution Time |
|------------------------------|----------------|
| Before creating an index (A) | 347.601 sec    |
| After creating an index (B)  | 3.058 sec      |
| Time difference (A-B)        | 344.543 sec    |