

## CS122 Using Relational Databases and SQL

### Single-Table Selections

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## Selection Queries

- ◆ Retrieve the records that satisfy certain conditions

```
select field(s) from table(s)
[where condition(s)]
[order by field(s) asc|desc];
```

## Selection Query Examples

- ◆ List the descriptions of all products
- ◆ List all products
- ◆ List all CPU products
- ◆ List all products that cost more than \$80, and order the results by price in descending order
- ◆ List the orders placed in this month

## Values

- ◆ Numbers: 10, 30.2
- ◆ Strings: 'CPU', 'John's Kitchen'
- ◆ Dates: '2007-06-01'
- ◆ NULL

## Operators

- ◆ Arithmetic
  - +, -, \*, /, %
- ◆ Comparison
  - <, >, <=, >=, =, <>
  - between
- ◆ Logical
  - and, or, not
- ◆ String
  - like
- ◆ Other
  - is null
  - in

## LIKE

- ◆ Pattern matching
  - %: any zero or more characters
  - .: any single character
  - [abc], [a-z], [0-9]: range
  - \* -- zero or more instances of the preceding character

```
select * from products where description like '%intel%';
```

## Expressions

(1-0.1) \* price

category = 'CPU' and price > 100

description like '%intel%'

order\_date between '2007-5-19' and '2007-6-17'  
and shipping\_date is null

## More Selection Query Examples

- ◆ Find the prices of the CPU products after 10% discount
- ◆ Find the hard drives made by Maxtor
- ◆ Find the orders made last month but have not been shipped yet

## CASE: switch style

```
SELECT product_id,  
       CASE category  
         WHEN 'MB' THEN 'Motherboard'  
         WHEN 'CPU' THEN 'Processor'  
         ELSE 'ERROR!'  
       END  
FROM products;
```

## CASE: if-else style

```
SELECT product_id,  
       CASE  
         WHEN Price > 200 THEN 'Expensive'  
         ELSE 'Cheap'  
       END  
FROM products;
```

## DISTINCT

- ◆ Remove duplicate results

```
select distinct address from customers;
```

## Column Aliases

- ◆ Name the result columns

```
select description as 'Intel CPUs' from products  
where category = 'CPU' and description like '%Intel%';
```