

Databases

Dr. Paul West

Department of Computer Science
College of Charleston

March 10, 2014

Midterm

- lowest: 62%
- median: 84%
- highest: 93%
- Most missed question: How many bytes do 6 hexadecimal digits represent?
-

Midterm

- lowest: 62%
- median: 84%
- highest: 93%
- Most missed question: How many bytes do 6 hexadecimal digits represent?
- 1 hexadecimal digits represent 4 bits. 8 bits represent a byte. $6 \times 4 = 24$ bits. $24 \text{ bits} / 8 = 3$ bytes.

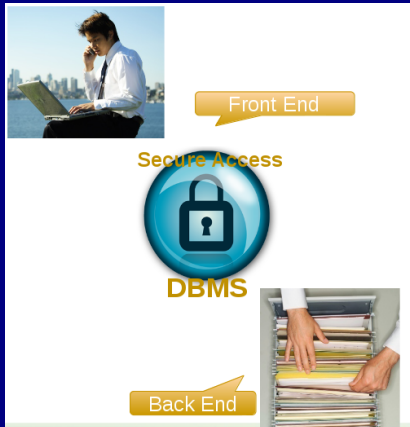
Grades

- Remember 60% of your final grade comes from your assignments!
- Late assignment will be accepted, but assessed a late penalty (-20%)
- If you have a low grade, **do your assignments.**

Value

Databases are a key ingredient of today's Internet services, and the backbone of our information-driven economy.

Database Management System



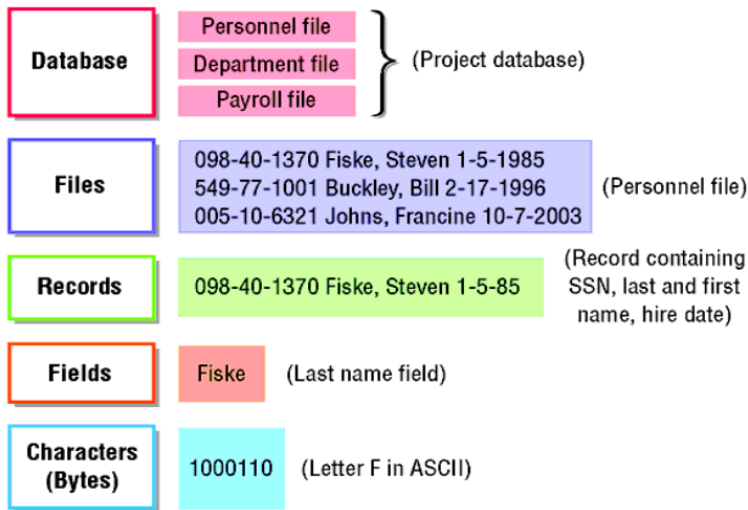
A **DBMS** consists of a group of programs that manipulate the database and provide an interface between the database and the user or the database and application programs.

Database Fields

- A database holds a collection of data organized to meet a user's needs.
- Fields are set to hold specific types of data.
- A Record is a collection of related fields.
- A File (Table) is a collection of records.
- A Database is a collection of Files/Tables.

Purchases : Table					
	ItemPurchased	Quantity	Price	CardNumber	Date
	Sun Glasses	1	\$49.99	4224 2342 2341 2222	10/29/2003
	Beach Towel	2	\$15.00	4224 2342 2341 2222	10/29/2003
	Dive Mask	1	\$69.99	4224 2342 2341 2222	10/29/2003
▶		0	\$0.00		
Record:   4    of 4					

Example Database Hierarchy



Keys and Primary Key

- **Key:** A field in a record that is used to identify the record
- **Primary key:** A field that uniquely identifies a record
 - A primary key field prevents duplicate records from occurring in a table.

Employee number	Last name	First name	Hire date	Dept. number
005-10-6321	Hassam	Hoda	10-7-2003	257
549-77-1001	Nguyen	Dong	2-17-1996	650
098-40-1370	Fiske	Steven	1-5-1985	598

Primary key field

Attributes (fields)

Entities (records)

EBay Example

Welcome to the new eBay Motors | [Frequently Asked Questions](#) | [Need Help?](#)

eBay Motors [Sign in or register](#) [eBay Home](#) | [Site Map](#)

[Buy](#) [Sell](#) [My eBay](#) [Research](#) [Help](#)

All of eBay Motors [Advanced Search](#)


[Cars & Trucks ▾](#) [Parts & Accessories ▾](#) [Motorcycles ▾](#) [Powersports ▾](#) [Boats ▾](#) [Other Vehicles ▾](#)

[Back to list of items](#) Listed in category: [eBay Motors](#) > [Cars & Trucks](#) > [Mini](#) > [Mini Cooper S](#) [Live Help](#)

2007 Mini Mini Cooper S JCW
Mini · Mini Cooper S

Item number: 260426202982

Bidder or seller of this item? [Sign in](#) for your status [Watch this item](#) in My eBay



1 of 24

[Supersize](#)

Current bid: **US \$15,100.00**
[Reserve not met](#)
[PayPal account required](#)

Your maximum bid: **US \$**
(Enter US \$15,200.00 or more)

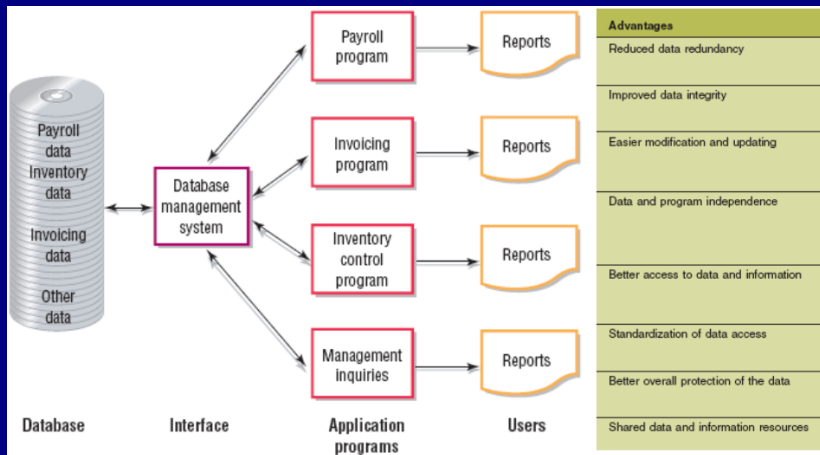
Buy It Now price: **US \$28,000.00**
Immediate deposit of US \$500.00 required
Get low monthly payments

End time: **Jun-16-09 20:21:44 PDT (2 days 2 hours)**
Shipping: Buyer responsible for vehicle pick-up or shipping. Vehicle shipping quote is available.

Meet the seller
Seller: [mxmomsrule](#) (323) [★](#)
Feedback: 100% Positive
Member: since Dec-29-01 in United States
· [See detailed feedback](#)
· [Ask seller a question](#)
· [Add to Favorite Sellers](#)
· [View seller's other items](#)

Buy safely
· Check the seller's feedback
· Review the vehicle history report
· Get tips and advice in the [Buyer Checklist](#)
✓ This vehicle is eligible for up to \$50,000 in free [Vehicle Purchase Protection](#)

Overall DBMS Approach



Disadvantages?

- SQL (pronounced "ess-que-el") stands for Structured Query Language.
- SQL is used to communicate with a database.
- SQL statements are used to perform tasks such as update data on a database, or retrieve data from a database.
- Common Commands:
 - **Select**: retrieve a record from a database.table
 - **Insert**: store a record into a database.table
 - **Update**: change a record in a database.table
 - **Delete**: remove a record in a database.table
 - **Create**: create a database or table
 - **Drop**: delete a database or table
- NOTE: Select, Insert, Update, and Delete operate on records inside of a table!

Creating Database

- Log into cpanel and click on “phpMyAdmin” under Databases.
- We will start with creating an auction site, just like ebay.
- First, lets create

```
CREATE DATABASE westpe_auction ;
```

Creating the Tables

- First create users for the site:

```
CREATE TABLE users(  
  fname      varchar(255),  
  lname      varchar(255),  
  id         int  
);
```

- then the items...

```
CREATE TABLE auction_item(  
  name       varchar(255),  
  description varchar(255),  
  seller     int,  
  id        int  
);
```

- and finally a table for bids:

```
CREATE TABLE bids(  
  auction_item int,  
  bidder      int,  
  amount      int  
);
```

- How are these linked?

Adding Users

- Now add some users:

```
INSERT INTO users
VALUES ("John", "Doe", 1);
INSERT INTO users
VALUES ("Jane", "Doe", 2);
INSERT INTO users
VALUES ("Alice", "Johnson", 3);
INSERT INTO users
VALUES ("Bob", "Creach", 4);
INSERT INTO users
VALUES ("Malice", "Hacker", 5);
```

- What is the purpose of the last number?

Item and Bids

- Now create an item:

```
INSERT INTO auction_item  
VALUES ("Paper Clip", "One unused paper clip.", 1, 1);
```

- What do the two numbers represent?
- Now create some bids:

```
INSERT INTO bids  
VALUES (1, 3, 10);
```

```
INSERT INTO bids  
VALUES (1, 4, 11);
```

- What do the three numbers represent?

Reading

`http://www.sqlcourse.com/intro.html`
Sections 1-8.

- Create 3 more users.
- Create 3 more auction items where one of the item's seller is one of the newly created users.
- Create 3 bids.