

MODULE 2 DATABASE PROGRAMMING

INSERT, UPDATE, DELETE, Transactions, Constraints, and Referential Integrity



YESTERDAY...

What is a key?

What is a primary key?

What is a foreign key?

What is a join?

What is a union?

Databases: Only good for retrieving data?



ADDING INFORMATION

SYNTAX:

```
INSERT INTO table_name (column1, column2, ..., column_n)  
VALUES (value1, value2, ... value_n);
```

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ADDING INFORMATION

SYNTAX:

```
INSERT INTO table_name (column1, column2, ..., column_n)  
select column1, column2, ..., column_n from table_two  
where condition;
```

UPDATING INFORMATION

SYNTAX:

```
UPDATE table_name  
SET column1 = value, column2 = value  
WHERE column3 = value;
```



DELETING INFORMATION

SYNTAX:

DELETE FROM table_name
WHERE column=value;

WHY DELETING IS BAD

- Can't get data back
- What if you deleted the wrong record?
- Customer changes their mind

NOT
GONNA
HAPPEN



INSERTING AGAIN

REFERENTIAL INTEGRITY

- **Keys** ensure that relationships between tables remain consistent.
 - *PRIMARY KEY* - allows FKs to establish a relationship, and enforces NOT NULL and UNIQUE,
FOREIGN KEY - enforces valid PK values, and limits deletion of the PK row if FK row exists
- **Constraints** define the conditions with which a column must comply.
 - *NOT NULL*
UNIQUE
CHECK - specifies acceptable values that can be entered in the column
DEFAULT - provides a default value for the column
 - *Identity Specification* – Auto generate primary key



BANKING



Update HenrysAccount
set balance=balance-100



Update TomsAccount
set balance=balance+100

BANKING



Update HenrysAccount
set balance=balance-100



Update TomsAccount
set balance=balance+100



TRANSACTIONS

- A **transaction** is a single unit of work. When it is successful, it should be "committed". If an error is encountered at any point it should be cancelled or rolled back.

- START TRANSACTION
 <sql statements>
 [ROLLBACK || COMMIT]



LET'S CODE!



WHAT QUESTIONS DO
YOU HAVE?



Introduction to Relational Database Design

