COSC 4820

The first day

Kim Buckner

University of Wyoming

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Course Management

- Will use WyoCourses for management.
- Syllabus - available from course site.
- Should not change often, but may.
- Promise to give you notice of such.

Syllabus

- Contains grading info and course rules.
- Also has office location, phone, office hours, email.
- When in doubt, ask

(more . . .)

- I will post assignment grades and exam grades in the WyoCourses gradebook.
- I expect you to check your grades to make sure that I have in fact graded your work.
- Use the syllabus information to compute your course grade.
- My offline gradebook is the official one, NOT WyoCourses.

(more . . .)

- If you are working with UDSS, please make sure that you inform them and me prior to the first exam/assignment it can affect.
- A University excuse is required for missed assignments to be graded. This applies ONLY to individual submissions.
- A University excuse is required for make-up of missed exams.

(more . . .)

- Late assignments can only be accepted, per the course policy in the syllabus.

- Besides those situations already specified, no late work, no make-ups, ABSOLUTELY no "extra credit."

- There will be individual homework assignments (not many).

The Text

- Required, will assign readings and use as basis for discussions and homework
- "A First Course in Database Systems", 3rd edition
- Authors – Jeffrey D. Ullman and Jennifer Widom
- Will also use on-line resources

- What is a Database?

Basics

- What is a Database?
- It is a *container*
- It contains *relations*
- Relations have *attributes*

- Think of attributes as the columns of a table
- They are ordered in a "standard" way, their position within the schema
- Because we need to be able to have a way to display them

more ...

- Database $\equiv$ set of *relations*
- Relation $\equiv$ set of *attributes*
- Relation plus attributes $\Rightarrow$ *schema*
- Set of relation schema $\Rightarrow$ *database schema*

(more . . .)

- Definitions of *schema*
  - a representation of a plan or theory in the form of an outline or model.
  - a conception of what is common to all members of a class; a general or essential type or form. (from Kantian philosophy)

  (from Oxford Languages via Google)

- Plural is *schemata*, although many lazy English speakers just add an 's.'

more ...

- If the attributes are the colums, then what are the rows?
- They are *tuples* (n-tuples if you prefer)
- Each tuple is a set of related attributes
- Each attribute must be *atomic* (simplest form or basic type)
- Each attribute must have a domain

A Table

The relation COURSE

crsnum	dept	title	inst	credits
3050	COSC	Ethics	Buckner	1
1010	COSC	Prog I	Anderson	4
1200	COSC	CIS	Dierson	3

More basics

- Domains equate to datatypes.
- Some are "normal"
- Some are not
- Some may seem to violate the principle of *atomicity*

more . . .

- A table consists of a set of tuples
- There is no order implied or guaranteed
- There may (should ?) be *keys* for a table
- The key may be a single attribute or a set of attributes
- Keys require that no two tuples can have the same value of key attributes

Schema

- All this leading to the definition of a schema
- It is more than just a set of names
- We will talk about the SQL (structured query language) method
- Because it is an "Industry standard".
- Later on we will be using MySQL (MariaDB?) software

Create table

- The syntax can *actually* be more complex than discussed here.

- CREATE TABLE ⟨*table name*⟩(
  ⟨*col_name*⟩⟨DATA_TYPE⟩,
  . . .)

- Or you can create the table then ADD (and DROP) columns

More about "create table"

- MODIFY ⟨*tablename*⟩ ADD ⟨*col_name*⟩ ⟨DATA_TYPE⟩
- MODIFY ⟨*tablename*⟩ DROP ⟨*col_name*⟩
- You can use DEFAULT in the declaration for default values

More about "create table"

- Keys
  - PRIMARY KEY, no **NULL**'s allowed
  - UNIQUE can have **NULL** values

- Keys can have multiple attributes

- Require that no two tuples can have the same value (or set of values)

Assignments

- Turn in via WyoCourses.
- May require accessing online resources.
- I expect electronic documents unless otherwise stated.
- The only acceptable types are doc, docx, odt, pdf.

(more . . .)

- Make **sure** that you "SUBMIT" at the bottom of the page.
- The first assignment is online and is Due before class on Monday.