Information Storage and Management

Lecture 2

September 12, 2019

Labs

Will commence next week on Thursdays: G.24 and G.21

Tables

A typcial DB has:

- Name
- Columns (With types)
- Attributes

Primary Key

A **Primary Key** must be unique, constain values and cannot be NULL

Usage of primary keys:

```
CREATE TABLE Customers (
    ID INT NOT NULL,
    NAME VARCHAR (20) NOT NULL,
    AGE INT NOT NULL,
    ADDRESS CHAR (25) ,
    SALARY DECIMAL (18, 2),
    PRIMARY KEY (ID, NAME) -- See multiple attributes in prim
        key
)
```

Foreign Key

A **Foreign Key** is a way of linking a table to another using the other table's Primary Key. Example:

```
CREATE TABLE Orders (
    OrderID int NOT NULL,
    OrderNumber int NOT NULL,
    PersonID int,
    PRIMARY KEY (OrderID),
    FOREIGN KEY (PersonID) REFERENCES Persons(PersonID)
);
```

Data Types

- Numbers: `INT, LONGINT, TINYINT, NUMERIC, FLOAT, DOUBLE`
  Int is by default implemented to be 32 bit. Use it by default for ints to reduce memory usage
- `NOT NULL` vs `NULL`: whether to allow empty value.
- Strings: `VARCHAR` etc.
- Others include Dates, etc

Aggregation

- `AVG`:

```
SELECT AVG (salary) FROM instructor WHERE deptname= 'Comp.
    Sci.'
```

- Grouping:

```
SELECT ID
FROM instructor
GROUP BY deptname -- Will make the select query inside
    this group
```

Modifying tables

```
DROP TABLE whatever -- Deletes
ALTER TABLE whatever ADD COLUMN idss
```