Sept 8

XML - lang for defining other tagged based languages. Derives from SGML

Using XML DTDs to specify a lang.

To specify a tagged based languages

One needs to:

(0) Name of lang defining <!DOCTYPE BOOKLIST [defn of lang]>

(1) Specify its elements (i.e., its tags)

Ex

<!ELEMENT BOOKLIST (BOOK)*>

b/w <BOOKLIST> </BOOKLIST>

tags can have 0 or more <BOOK> </BOOK> items

(2) Specify the attributes each tag has

<!ATTLIST BOOK GENRE (Fiction|Nonfiction) #REQUIRED>

says book tag has a genre attribute

<BOOK GENRE = "Nonfiction" >

(3) specifies Entity References — these are abbreviations for common parts of langs

Ex

<!ENTITY nbsp SDATA " " >

  is an abbreviation for the unicode character

<!DOCTYPE Matrix[

```
<!-- "matrices" contain zero or more "matrix" elements. -->
<!ELEMENT matrices (matrix)>

<!-- "matrix" contains one or more "row" elements. -->
<!ELEMENT matrix (row+) >
<!-- "matrix" has 2 attributes which are "numberOfRows" and "numberOfColumns" -->
<!ATTLIST matrix
        numberOfRows      CDATA #REQUIRED
        numberOfColumns CDATA #REQUIRED
>

<!-- "row" contains one ore more "column" elements. -->
<!ELEMENT row (column+) >

<!-- "column" contains zoro or one "matrixInColumn element (in the future it will be able to
<!ELEMENT column (matrix?)>
<!-- "column" has 1 attribute which is "content" (it is a matrix element in the matrix it can
<!ATTLIST column
        content CDATA #REQUIRED
>
```

]>

See XML overhead

Languages that have already been defined MathML
X3D
SOAP
WML
VoiceML etc.

XML Schema

Notice an XML DTD is very much like specifying a schema for a database.

Databases schemas actually more specific for instance a DTD element only has only other elements in it of #PCDATA (character table).

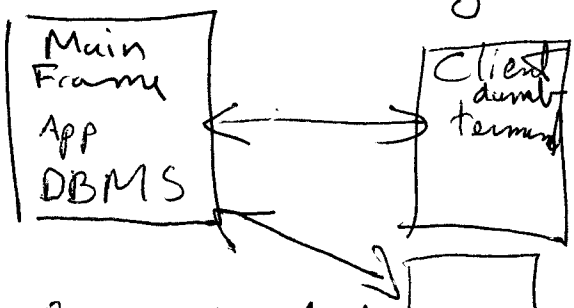
but...
with a database schema can specify int, float, etc.

XML schema is a new variation on DTDs to handle this. Talk about later.

Three Tiers Architecture

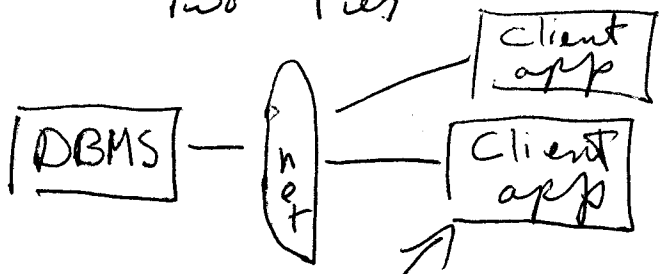
What are the ways can connect application w/ database?

Single Tiers



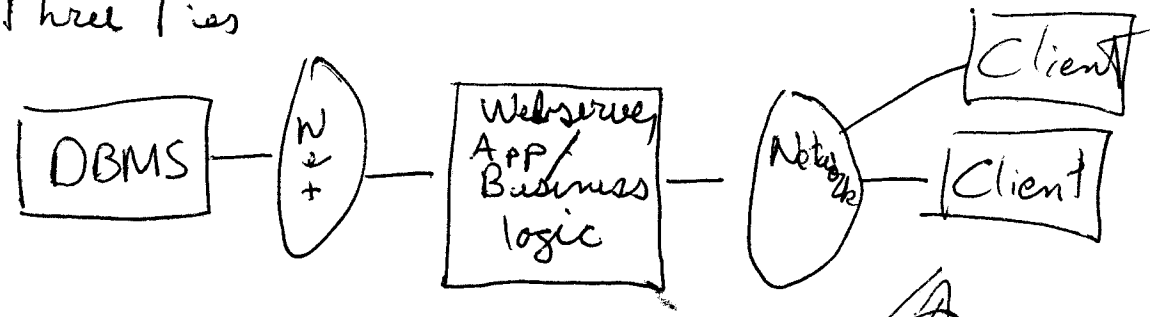
Problem: tend to be character based because graphical displays don't tend to scale well to thousands of users

Two Tiers



Now can have GUIs but no central place to update business logic

Three Tiers



Presentation Tier – web pages w/ javascript

Middle Tier – app/business logic
C++ or java or perl or php, etc

Data Management Tier – DBMS.

More on presentation layer

Learned HTML. Now learn more: forms

```
<form action="myformhandler.php"
      method="GET" name="form1">
    <input type="text" name="firstname"/>
    <input type="submit" value="Turn in
           name="submit"          form" />
</form>
```

How does this get sent to web server?