CENTER FOR TEXTUAL STUDIES AND
DIGITAL HUMANITIES

DIGH 401 - Introduction to Computing

Fall Semester 2013

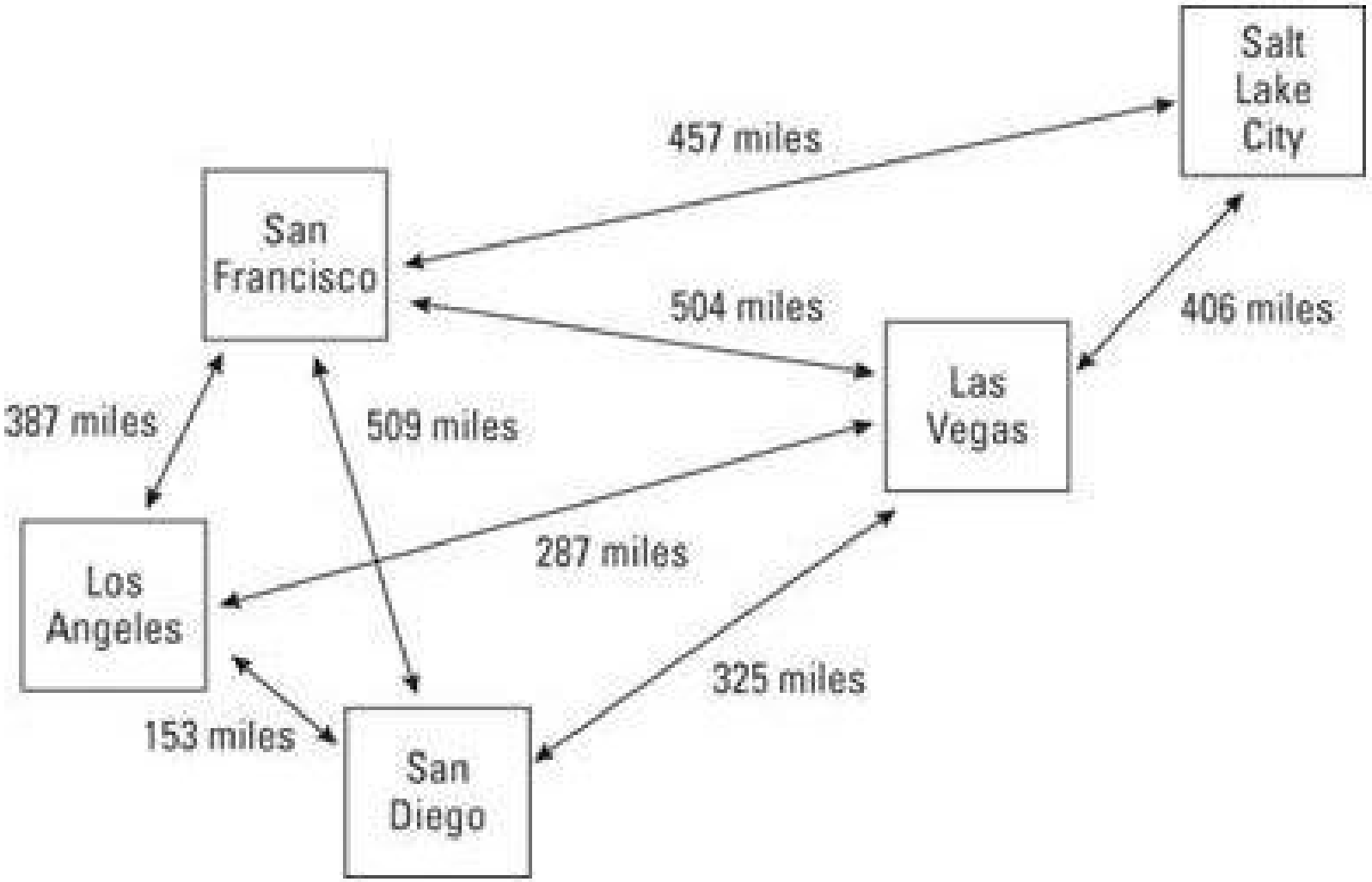
Week 12

Today's Class

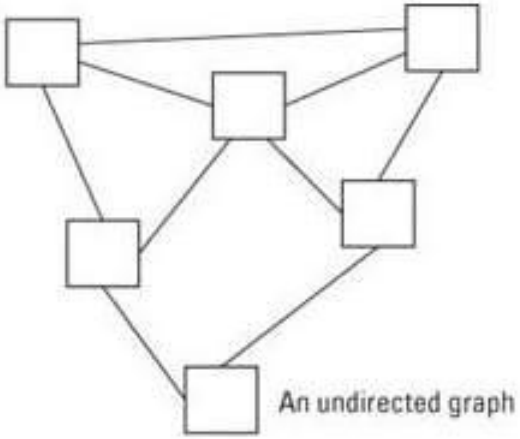
- Data Structures (cont'd)
    - graphs

- Basic web design
    - HTML Part 1

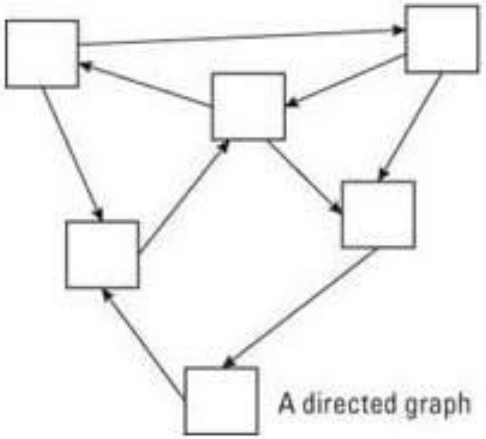
Data Structures - A brief look at Graphs



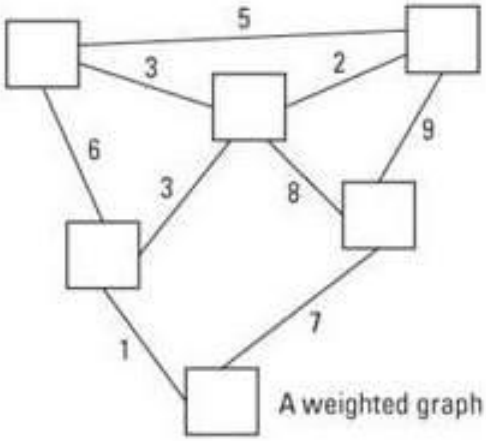
Data Structures - Different types of Graphs



An undirected graph



A directed graph



A weighted graph

Data Structures - Uses for Graphs

- often used to model a variety of real world problems
    - most efficient way to route email through a network
    - shortest route for a flight path...
- interesting hypothetical problems include
    - Seven Bridges of Königsberg
    - Chinese Postman Problem
    - Traveling Salesman Problem
    - Three Cottage Problem (Wikipedia / Math Forum)

HTML

Intro

- HyperText Markup Language (HTML)
- HTML relies on keywords or element tags
- HTML can also use attributes within opening element tags
- keywords follow a rigidly defined syntax
- HTML creates web pages that web browsers can view
- an error or bug may cause the page to not render or simply render incorrectly
- to understand the current core of web page designing you need to know at least the basics of HTML

HTML - Elements and attributes

Element syntax

- start with an opening element tag, and close with a closing tag
- content is everything between opening and closing element tags
- elements can contain empty content
- empty elements should be closed in the opening tag
- most elements permit attributes within the opening tag

Attribute

- attributes provide additional information to the parent element
- always added to the opening tag
- standard syntax of name/value pairs, class="401"
- standard attributes include
    - class
    - id
    - style
    - title

HTML

Structure of HTML

- basic HTML tag defines the entire HTML document

```
<html>

</html>
```

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/strict.dtd">
<html>
<head>
...
</head>
<body>
...
</body>
</html>
```

HTML - working within the <body>

- to define the main body of the web page we use the <body> element
- headings can be created using variants of
    - <h1>, <h2>.....<h6>
- we can now add some simple text in a element

...

- add a line break using the
 element
- <hr /> element adds a horizontal line
- comments can also be added through our HTML

<!-- comment... -->

HTML - working within the <body>

Formatting some text

- formatting can be considered relative to stylistic and semantic requirements
- formatting is also available for embedded 'code' viewing

- text formatting includes
    - bold <b>, emphasis , italic <i>, strong , sub and superscripted <sub> <sup>, inserted & deleted <ins> <del>...

- computer 'code' formatting includes
    - code <code>, variables <var>, pre-formatted text <pre>...

- quotations, citations and definitions include
    - abbreviations <abbr>, acronyms <acronym>, citation <cite>, definition <dfn>...

HTML - working within the <body>

Linking in HTML

Example

- linking is an inevitable part of web design and HTML usage
- can be considered within three different contexts
    - linking to an external site
    - linking to another page within the same site
    - linking different parts of the same page
- add links to text and images within the HTML
- <a> element for links plus required attributes
    - Google or
      Email
    - another page
    - Internal Anchor or
      Anchor
    - Visit Internal Anchor or
      Visit External Anchor

HTML - working within the <body>

Linking in HTML - continued

- standard attributes supported by <a> element include
    - class, id, lang, style, title...

- optional attributes are available for <a> element including
    - target, href, name...

- target attribute specifies where the link will be opened relative to the current browser window. Possible attribute values include
    - _blank
    - _self
    - _parent
    - _top

HTML - working within the <body>

Working with images

- <img> allows us to embed an image within a web page
- <img> element requires a minimum 'src' attribute

- other optional attributes include
  - class, id, alt, title, width, height...

- use images as links

- image maps

```
<map name="textmap">
  <area shape="rect" coords="..." alt="Quote 1" href="notes1.html" />
</map>
```

HTML - working within the <body>

Adding a table

- organise data within a table starting with the <table> element
- three primary child elements include
    - <tr>, <th>, <td>

```
<table>
<tr>
<th>header 1</th>
</tr>
<tr>
<td>row 1, cell 1</td>
</tr>
</table>
```

- also add a <caption>, span multiple columns using the 'colspan' attribute, or span multiple rows using the 'rowspan' attribute

HTML - working within the <body>

Organising a list

- unordered list <ul>, ordered list <ol>, definition list <dl>
- and <ol> contains list items

```
<ul>
<li>...</li>
</ul>

<ol>
<li></li>
</ol>
```

- definition list uses <dt> for the item, and <dd> for the definition

```
<dl>
<dt>Game 1</dt>
<dd>our definition</dd>
</dl>
```

HTML - working within the <body>

Using forms

- used to capture data input by a user, which can then be processed by the server
- <form> element acts as the parent wrapper for a form
- <input> element for user input includes options using the 'type' attribute
    - text, password, radio, checkbox, submit

```
<form>
Text field: <input type="text" name="textfield" />
</form>
```

HTML - working within the <body>

Processing forms

```
<form action="process_form.php" method="post">
Name: <input type="text" name="name" />
Age: <input type="text" name="age" />
<input type="submit" />
</form>

<?php

$name = $_POST['name'];
$age = $_POST['age'];

echo 'Name = '.$name.'<br />';
echo 'Age = '.$age.'<br />';

?>
```

Example