DIGH 401 - Introduction to Computing

Fall Semester 2013

Week 8

Today's Class

- Presentations

- XAMPP

- manipulating data

XAMPP basics

Overview - after downloading and installation

- open XAMPP Control application
    - start required services such as Apache & MySQL
- Apache root directory is 'htdocs'
- create a testing directory
- MySQL admin control panel
    - http://localhost/phpmyadmin/

start developing...

Programming basics

Overview

- list of instructions that tell the computer what to do, eg: 'Hello World'

```php
<?php

echo "Hello World!";

?>
```

[Example](#)

Programming basics

Manipulating Data - intro

- numbers, text, input
- mathematical operations such as addition, subtraction, multiplication...
- string operations such as replace, concatenate, re-order, diff...
- operators such as +, -, and *
- functions are commands that perform more sophisticated calculations such as calculating the square root of a number

Programming basics

Manipulating Data - assignment operator (=)

- nothing more than an equal, =, sign

$variableName = value;

- value could be a fixed number, specific string, mathematical equation that calculates a single value...

Programming basics

Manipulating Data - using arithmetic operators

+	addition	10 + 22.6
-	subtraction	22.6 - 10
*	multiplication	10 * 4
/	division	120 / 4
%	modulus	39 % 7
-	negation	- 2

Programming basics

Manipulating Data - operator precedence

- normally plays a role in multiple calculations on the same value or variable
- how do we know the order a computer will complete calculations?
- group calculations together to ensure sequence of overall calculation
- bracket calculations to help isolate calculations

100, 75, 25

Manipulating Data - Mathematics

A few mathematics functions

- with basic mathematical operators you can create any type of complicated formula (quadratic equation, generating random numbers...)
- most programming languages include built-in mathematical functions
- functions are either built-in or available as separate libraries
- many advantages to the use of built-in mathematical functions
- mathematical functions remove the need to know how to write a function to calculate the square root, for example

Manipulating Data - Mathematics

A few PHP Mathematics functions - rocket thrust exercise!

- abs() finds the absolute value of a number

- round() rounds a number to the nearest integer

- ceil() rounds a number upwards to the nearest integer

- floor() rounds a number downwards to the nearest integer

- min() returns the smaller of the two arguments passed

- max () returns the larger of the two arguments passed

- rand(min, max) simply returns a random integer
  - Example

Further information: PHP Mathematics functions

```php
<?php
echo '<p>'.rand().'</p>';
echo '<p>'.rand(1, 49).'</p>';
?>
```