OLIVINE
Software Co., Ltd
奧凌資訊有限公司
OliveSeed. Day1.
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Deliver Beyond Expectation.

HELLO OLIVESEED

Olivine Software Co., Ltd..

What we do ?

- Web Application
  - Web-based Information System
  - Website, Web 2.0 platform
  - Mashup Applications
- Provides Open Source solutions
- We follow W3C standards
- Agile Development
- Software as a Service

About Olive Seed

- We are all interest in web application development.
- We talk about web development and
- The skills we needed as a web developer.
- The issues contained :
  - PHP & MySQL ,
  - Object Oriented Programming and
  - Design Patterns
  - ZendFramework & Doctrine
  - Front-End Engineering
  - Anything about web, such as SEO, SNS, cloud computing,AWS,web mining... etc..

Outline

- Day 1 - Getting Start
  - Hello OliveSeed.
  - About Web Development Part I.
  - Quick Guide for PHP Programming
- Day 2 - Zend Framework Part I.
  - Introduce to MVC.
  - Library v.s. Framework.
  - Getting Start to Zend Framework
- Day 3 - Zend Framework Part II.
  - About Web Development Part II.
  - Useful Components

Outline(cont.)

- Day 4 - Doctrine 1.0 - Part I.
  - Introduce to ORM.
  - Model Building and Migration.
  - Record, Collection and Table
  - Validator.
  - Dql.
- Day 5 - Front-end Engineering.
  - XHTML, CSS and Javascript.
  - jQuery.
- Day 6- Project of Olivinesoft.
  - Introduce to OliveTree and core library.
  - Case study.
  - About Web Development Part III.

Outline(cont.)

- Day 7 - More about ZF and Doctrine.
  - Zend Framework Part III.
  - Doctrine 1.0 - Part II.
    - Inheritance or Polymorphism.
    - Hook, Template and Behavior.
- Day 8 - Design Pattern
  - Command Queue Pattern. (Message Queue)
  - Observer Pattern and Finite State Machine (FSM).
  - Singleton, Adapter and Factory Patterns.
- Day 9 - Other Topics
  - HTML5 and CSS3. Node.js .
  - Open source solutions.
  - Crawler, Full-Text Search and Information Retrieval.
  - Data and web mining.
  - AWS, NoSQL database.

DAY 1.

GETTING START

Day I, Getting Start.

- Hello OliveSeed.
  - About OliveSeed
  - Introduce Olivine Software Co., Ltd. .
- About Web Development Part I.
  - Web development process.
  - Tools introduction and
  - Techs. we need.
- Quick Guide for PHP Programming.
  - How to build environment.
  - PHP syntax & Object oriented programming.

WEB DEVELOPMENT

About Web Development Part I.

Web Development

- Web Development Process
- 4 Tiers Application Environments
- Web Application Deployment

Web Development Process

- Information / Requirement Analysis
  - Documents
- Specification Building
  - Site-Map
  - Wireframe
  - ERM, Database Schema.
- Design and Feedback
  - Grid System
- Content Writing
  - CSS and XHTML Coding.
  - W3C Validation

Web Development Process (cont.)

- Coding
  - Server-side and Front-end Engineering
  - MVC+Framework
  - Version Control
- Testing
  - Unit Test. UI Test. Cross-browsered Testing
  - Automated Testing Tools
- Promotion
  - SEO, Marketing
- Maintenance and Updating
  - Google analytics
  - Server Monitoring

4 Tiers Application Environments

- Development
- Testing
- Staging
- Production

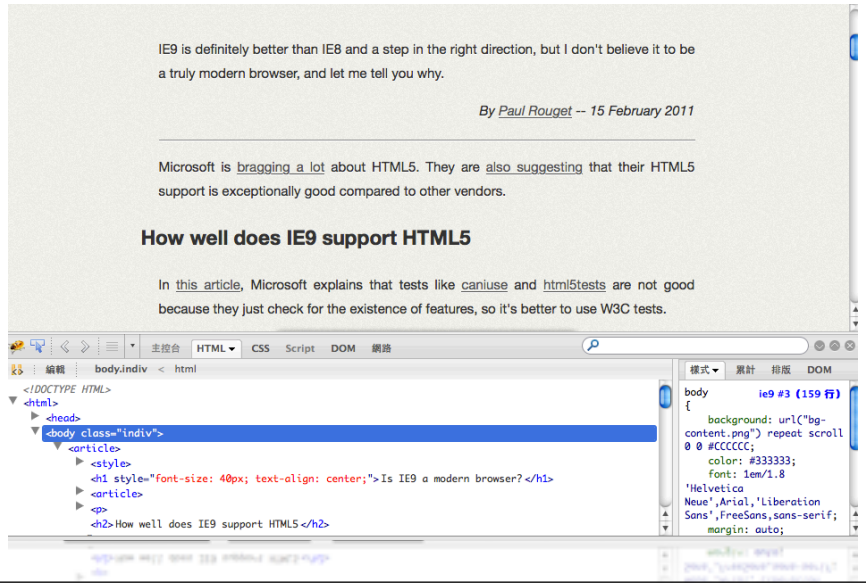
Web Application Deployment

- Backup current version of production.
- Upload the latest version to server.
- Auto-migrations database schema (if necessary).
- Clear all the caches
  - The compressed js/css files
  - Caches in the memory
- Clear all the temporary files
- Rebuild some temporary files or index
- Distribute the static files (if necessary).
- Restart web service (if necessary).
- Rollback to last version when deployment process failed

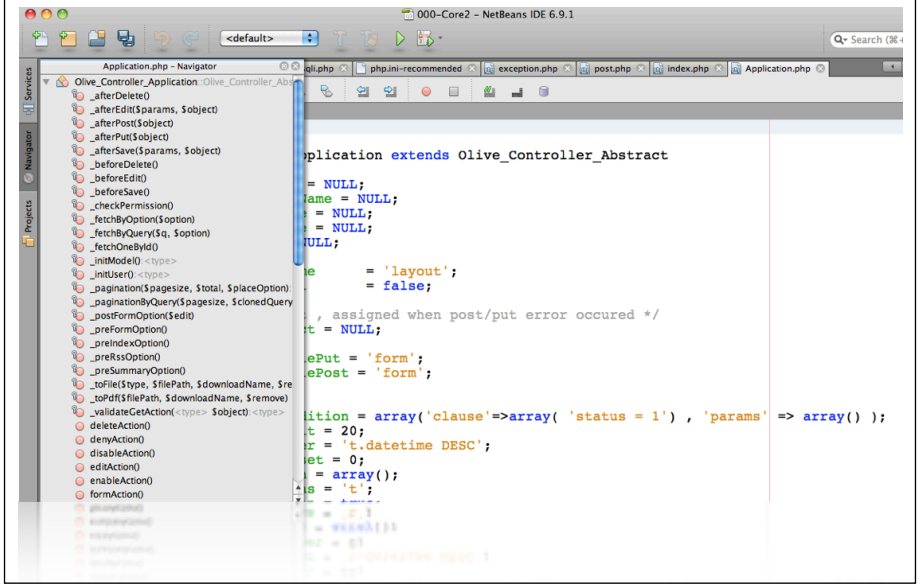
The Tools

- Text Editor or IDE
  - Any text editor.
  - Netbeans, Eclipse, TextMate, Coda, Dreamweaver ...
- A Modern Browser and Debug Tools
- Git :
  - Source code version control system
- XMind and Balsamiq
  - Help to planning, brainstorming and
  - Wireframe mockups
- Others
  - Redmine.
  - Google Apps

Firebugs - F2E Debug Tools

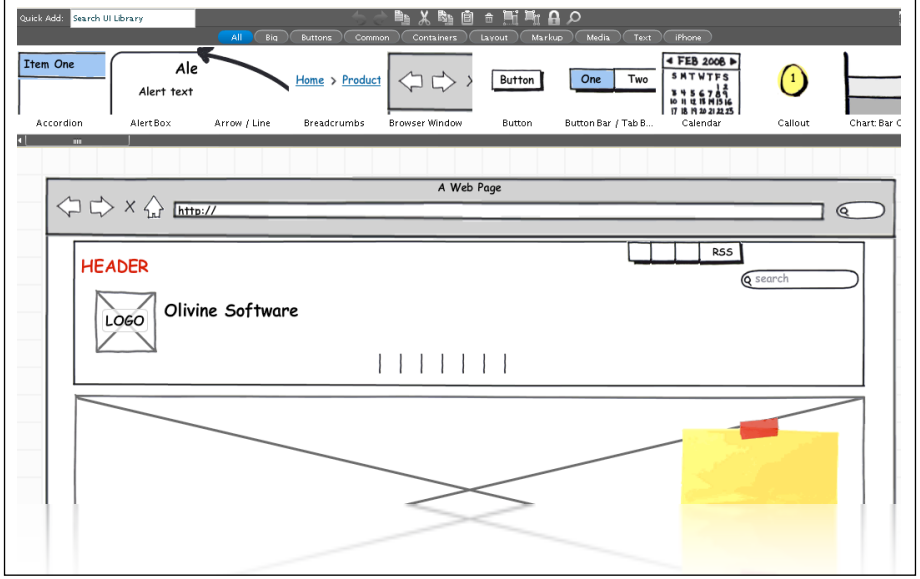


Netbeans - IDE for developing PHP



XMind - Mind Mapping

Balsamiq - Wireframe



Techs We Need

- HTML and CSS
- Design Sense
- JavaScript
- One of the big three(PHP,.NET,Java)
- Database
- SEO
- Web Server Administration
- Flash ?

And You also have to know

- Network
- Client-Server
- HTTP

PHP PROGRAMMING

Development Environment

PHP Programming

- Development Environment
- PHP Basic Syntax
  - Syntax
  - Types
  - Variables and Constants
  - Operator
  - Expression
  - Control Structures
  - Functions
- PHP and MySQL database
- PHP Object Oriented Programming

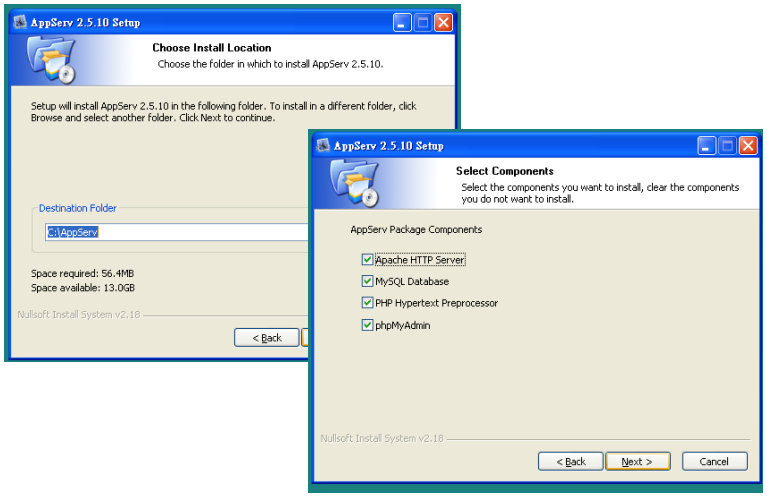
Your development environment

- LAMP
  - Install Apache,MySQL and PHP
  - Edit the configuration of Apache and PHP
    - http.conf
    - php.ini
- An IDE for yourself
- The Browsers
  - Webkit : Google Chrome or Safari
  - Mozilla : Firefox 3.6+
  - IE 9.0+ (?)
  - Firebug & Google page speed
- Create a Website
  - Apache Virtual Host

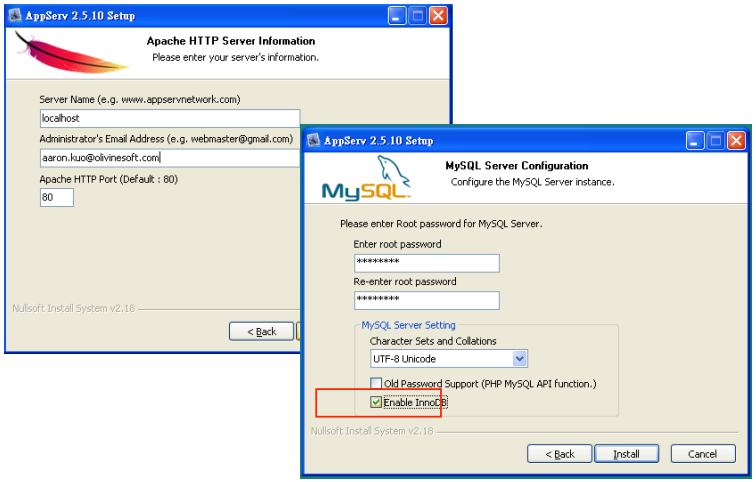
Install Apache, MySQL and PHP

- Download Appserv and install it
-

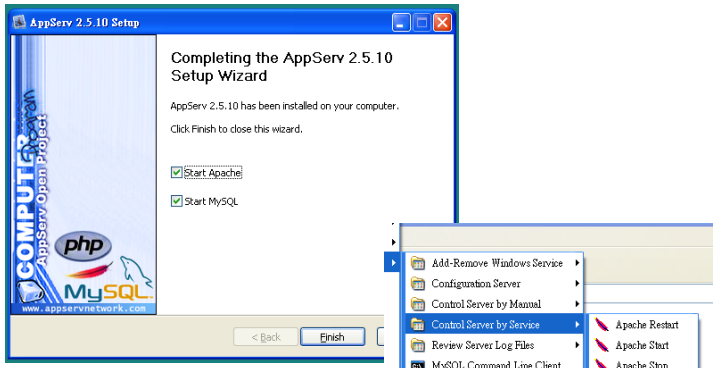
Appserv. (Apache+MySQL+PHP)

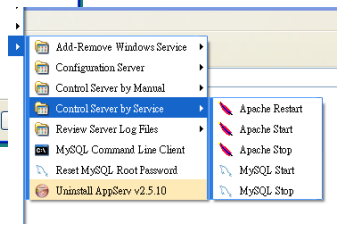


Appserv. (Apache+MySQL+PHP)



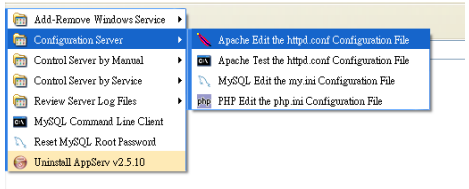
Appserv. (Apache+MySQL+PHP)





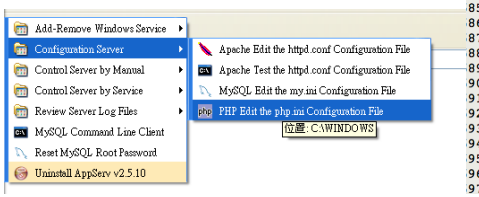
Apache Configuration (http.conf)

- config the loaded modules
- config the web directories
- config virtual host



PHP Configuration (php.ini)

- PHP environment setting
- Config the extensions, ex :
  - PDO & PDO MySQL
  - GD library
  - Multi Bytes String
  - Open SSL ... etc.




```
;extension=php_mime_magic.dll
;extension=php_ming.dll
;extension=php_msql.dll
;extension=php_mssql.dll
;extension=php_mysql.dll
;extension=php_mysqli.dll
;extension=php_oci8.dll
;extension=php_openssl.dll
;extension=php_pdo.dll
;extension=php_pdo_firebird.dll
;extension=php_pdo_mssql.dll
;extension=php_pdo_mysql.dll
;extension=php_pdo_oci.dll
;extension=php_pdo_oci8.dll
;extension=php_pdo_odbc.dll
;extension=php_pdo_pgsql.dll
;extension=php_pdo_sqlite.dll
;extension=php_pgsql.dll
;extension=php_pspell.dll
;extension=php_shmop.dll
;extension=php_snmp.dll
;extension=php_soap.dll
;extension=php_sockets.dll
;extension=php_sqlite.dll
;extension=php_sybase_ct.dll
;extension=php_tidy.dll
;extension=php_xmlrpc.dll
```

Create a Virtual Website

- Apache Virtual Host
  - http://test.local point to C:\Sites\test
  - Restart Apache Service

Apache 設定

打開你的 Apache 設定檔，加上以下這段設定

先注意有沒有這行

```
NameVirtualHost *:80
```

若已被註解掉請取消註解，若沒有就加上它

加入一個新的站台

在 http.conf 檔最下方插入以下這段設定

Windows 環境：

```
<VirtualHost *:80>
ServerName test.local
DocumentRoot "C:\sites\test\"
DirectoryIndex index.php index.html index.htm
</VirtualHost>
```

Create a Virtual Website(cont.)

- DNS

DNS 設定

這時你已經在本機上建立了一個虛擬站台
但在瀏覽器網址輸入 test.local 是連不到東西的
因為世界上根本沒有 test.local 這個網址的存在，所以你的電腦去做 dns 查詢是查不到這個網址對應的主機在哪
這時，你必須要對本機上的 dns 查詢動手腳，讓 test.local 這個網址指到自己這台電腦
因此，你修改 hosts 這個檔案

請用文字編輯器打開 hosts 這個檔案
若是 windows 環境，這個檔案位於 C:\windows\system32\drivers\etc\hosts
Mac 環境，位於 /etc/hosts

打開 hosts 檔之後，在其中增加一行

```
127.0.0.1    test.local
```

這樣，就會把 test.local 這個網址指向本機，
而 Apache 服接收到要求時，就會指定連到剛才所設定的虛擬站台的目錄中

PHP PROGRAMMING

PHP Introduction and
Programming Language Basic

PHP

- http://zh.wikipedia.org/wiki/PHP
- PHP : Hypertext Preprocessor
- A Server-Side HTML embedded scripting language
- Open Source Software
- Returned to the browsers as plain HTML
- http://www.php.net/manual/en/index.php

Syntax

- Hello world

```
<html>
<body>
<?php
echo "Hello World";
?>
</body>
</html>
```

- Block Tags
  - "<?php" and "?>"
  - escaping from html

```
<?php
echo "<html><body>Hello World</body></html>";
?>
```

- Use "echo" to print out result
- Use "$" to represent a Variable
- Use "." to connect strings
- End statement with ";"

```
<?php
$name = 'Johnson';
echo 'My name is ' . $name ;
?>
```

Syntax (cont.)

- Separation
  - 一般正常的寫法

```php
<?php
echo 'text';
echo 'text2';
?>
```

  - 雖有單行輸出，結尾可以省略「;」

```php
<?php echo 'text' ?>
```

  - php 程式結束，結尾省略了 close tag (?>)

```php
<?php echo 'text';
```

- Short tag

過去在許多 php 環境中，有開放所謂 short tag 的支援，即可以 <? ?> 來做為程式開始結束的寫法
例如

```php
<?
$m = 3+6;
?>
```

但在新版本的 php 中，已不建議使用；php.ini 中預設即把 Short Tag 的支援關閉
因此請避免使用 short tag 的寫法

如果遇到別人寫的程式使用了 short tag，若要在你的環境中運行，你必須去 php.ini 的設定中，把這項支援的設定打開

Syntax (cont.)

- Comments
  - PHP Supported C,C++,Unix Shell (Perl style)comments
  - # one line : shell style comment
  - // one line : c++ style comment
  - /* ....
    multi lines comment ...
    type comments here ...
    */

- **單行註解**

```
1 <?php
2 // 這是一行註解
3 ?>
```

- **單行註解**

```
1
2 <?php
3 # 這是一行註解，
4 ?>
```

- **多行註解**

```
1 <?php
2 /*
3 這是多行註解
4 可以寫多行字
5 */
6 ?>
```

Useful Functions

- exit and die
  - terminate the current script

terminate the current script

```php
<?php
echo 'we are going to be terminated!';
exit;
?>
```

or use die

```php
<?php
mysql_query( 'SELECT * FROM database ') or die( mysql_error() );
echo 'success !';
?>
```

Useful Functions (cont.)

- print_r
  - print human readable information about a variable

```php
<?php
$data = array( 'apple' , 'orange' , 'lemon' , 'banana' );
print_r( $data );
?>
```

- var_dump
  - Dumps information about a variable

```php
<?php
$data = array( 'apple' , 123  ,  true , 3.1416 );
var_dump( $data );
?>
```

Types

- Scalar
  - integer , ex : 2012;
  - float, ex : 3.14;
  - boolean = true or false ;
  - string , ex : ‘Hello world’;
- Mixed
  - Array and Object
- Special
  - NULL
  - Resource

Array

- The key-value pair (hash structure) ;
- Declare an Array;

如何宣告陣列

- 直接宣告陣列

```php
<?php
$data = array( 'Apple' , 'Google' , 'Microsoft' );
?>
```

會自動指定各元素的索引值（ 0 => Apple , 1 => Google , 2 => Microsoft ）

- 也可以自訂索引值

```php
<?php
$data = array(  0 =>'Apple' , 2=> 'Microsoft' , 1 => 'Google');
?>
```

- 索引值也可以是字串

```php
<?php
$data = array(  'f'=>'Female' , 'm' => 'Male' , 'n' => 'Unknown' );
?>
```

Array (Cont.)

- Use “[ ]” to access data. ex :

使用 [索引值]來存取陣列

```php
<?php
$data = array( 'Apple' , 'Google' , 'Microsoft' );
echo $data[1] ;

$x = 2;
echo $data[$x];

$data[3] = 'Oracle';
?>
```

也可以不指定索引值，來 put 資料到陣列中

```php
<?php
$data = array();

$data[] = 'Apple' ;
$data[] = 'Google' ;
$data[] = 'Microsoft';
?>
```

Variables

- “$” and naming rule.
- “” and ‘’
- Pre-defined Variables
  - $_GET, $_POST, $_FILE, $_GLOBAL
  - $_SERVER, $_ENV; $_COOKIE, $_SESSION
  - $argc, $argv
  - http://www.php.net/manual/en/reserved.variables.php
- Variable Scope
  - local, global and static.
- Variable Type Juggling and Casting
- Constants

$_GET and $_POST

- HTTP (Hypertext Transfer Protocol
  - Request Message
    - Request + Headers + Message Body
  - Response
    - status code
      - 2xx Success, ex : 200 OK
      - 3xx Redirect, ex: 301 Moved Permanently
      - 4xx Client Error, ex : 404 Not Found , 403 Forbidden
      - 5xx Server Error, ex: 500 Internal Server Error
      - 1xx Informational
    - http://en.wikipedia.org/wiki/List_of_HTTP_status_codes

Type Juggling

- Type Juggling

PHP 是個相當有彈性的語言，對變數的限制較不嚴謹
變數型別的判斷，是在執行時才依據 variable 與 operator 來作判斷

```php
<?php

$foo = "0";  // $foo is string (ASCII 48)
$foo += 2;   // $foo is now an integer (2)
$foo = $foo + 1.3;  // $foo is now a float (3.3)
$foo = 5 + "10 Little Piggies"; // $foo is integer (15)
$foo = 5 + "10 Small Pigs";     // $foo is integer (15)

$a    = 'car'; // $a is a string
$a[0] = 'b';   // $a is still a string
echo $a;       // bar

?>
```

- Type Casting

  - (int), (integer) - cast to integer
  - (bool), (boolean) - cast to boolean
  - (float), (double), (real) - cast to float
  - (string) - cast to string
  - (array) - cast to array
  - (object) - cast to object
  - (unset) - cast to NULL (PHP 5)

Constants

- Define a Constant
  - define(name , value); or CONST name = value;

你可以在程式中定義常數，常數定義之後，在程式的執行過程不能被修改
使用 define() 這個函式來定義常數，傳入兩個參數，第一個是常數名稱，第二個則是定義的值

```php
<?php

define( 'PI' , 3.1416 );

$r = 30
$cycle = $r * PI ;

?>
```

- Check whether a given named constant exists
  - defined(name);
  - return true or false.
-

```php
<?php

if ( !defined( 'PI' ) )
    define( 'PI' , 3.1416 );

?>
```

Constants (cont.)

- Magic Constants
  - http://www.php.net/manual/en/language.constants.predefined.php
- Pre-Defined Constant
  - http://www.php.net/manual/en/reserved.constants.php

Operators

- +,-,*,/,%
- =
- ==,>=,<=,!
- ++,--,+=,-=,*=,/=
- ||,&&,===
- ?
- http://www.php.net/manual/en/language.operators.php

Expression

- The most important building.
- Almost anything you write is an expression.

```php
<?php
function double($i)
{
    return $i*2;
}
$b = $a = 5;        /* assign the value five into the variable $a and $b */
$c = $a++;          /* post-increment, assign original value of $a
                       (5) to $c */
$e = $d = ++$b;     /* pre-increment, assign the incremented value of
                       $b (6) to $d and $e */

/* at this point, both $d and $e are equal to 6 */

$f = double($d++);  /* assign twice the value of $d before
                       the increment, 2*6 = 12 to $f */
$g = double(++$e);  /* assign twice the value of $e after
                       the increment, 2*7 = 14 to $g */
$h = $g += 10;      /* first, $g is incremented by 10 and ends with the
                       value of 24. the value of the assignment (24) is
                       then assigned into $h, and $h ends with the value
                       of 24 as well. */
?>
```

Control structures

- if,if-else,if-elseif,if-elseif-else
- for,foreach,while,do-while
- switch
- return, break and continue
- Alternative syntax

一般我們用「{}」大括號來作為控制敘述結構的區段，
除此此外我們也可以用「:」符號來代替開始，並以 endif/endfor/endwhile ... 等來作為結束，例如

```php
<?php
if( $a == 5):
      echo 'A is 5';
else if( $a > 10 ):
    echo 'A is greater than 10' ;
endif;
?>
```

Control structures (cond.)

- "require" and "include"
  - Includes and evaluates the specified file during execution of the script.
  - Includes the reused codes and libraries usually.

```
vars.php
<?php
$color = 'green'; $fruit = 'apple';
?>

test.php
<?php

echo "A $color $fruit"; // A

include 'vars.php';

echo "A $color $fruit"; // A green apple

?>
```

- "require_once" and "include_once"
  - as the name suggest, it will be include just once.

Function

- The Concepts
  - Arguments.and Return Value.
    - f(x) = mx + k
  - Reusable
- User-defined functions
- Variable functions
- Anonymous functions
- Internal functions

User-Defined Function

- function functionName([$arg1 , $arg2 ...])

宣告函式時，使用「function」這個關鍵字，

```
function 函式名稱( 參數1 , 參數2 .... ) {
    // expressions
}
```

```php
<?php

function bmi( $height , $weight ) {

    $value = $weight / ( $height * $height ) ;
    return $value;
}

?>
```

Variable function

- Use variable as name of function to call

Variable Function

我們可以用變數的方式來呼叫函式
例如我們訂義了上面的 bmi 函式之後

```php
<?php

$call = 'bmi';
$my_bmi = $call( 173,60);
echo $my_bmi;
?>
```

另外也可用 call_user_func 這個函式來呼叫（callback）

Anonymous function

- Like JavaScript :

Anonymous function

PHP5 增加了匿名函式，如同 JavaScript 的用法

```php
<?php
$af = function( $h , $w ){
    return $h / ( $w*$w ) ;
}

$my_bmi = $af( 173,60 );

?>
```

PHP Function Library

- http://php.net/manual/en/funcref.php
  - Mathematical
  - Date and time
  - Array
  - String
  - File
  - Language
  - Database / MySQL
  - Image
  - XML
  - Other
    - JSON, YAML, SPL

Quick View

- Write a Guestbook
  - Index page
  - Post page.
  - Use file system as storage

Class and Object

- Object Oriented Programming
  - http://en.wikipedia.org/wiki/Object-oriented_programming
  - http://www.inf.ufsc.br/poo/smalltalk/ibm/tutorial/oop.html
  - Class and Object
    - methods and variables
  - Interface and Message
- The Four specific object properties :
  - Data Abstraction.
  - Encapsulation.
  - Inheritance.
  - Polymorphism.
- Abstract Class

Class and Object

```php
<?php
class Player {
    protected $_name ;
    protected $_team;

    public function __construct( $name , $team ) {
        $this->_name = $name ;
        $this->_team = $team ;
    }

    public function getName() {
        return $this->_name ;
    }

    public function getTeam() {
        return $this->_team;
    }
}

$a = new Player( 'James' , 'Miami Heats' );
$b = new Player( 'Wang' , 'NewYork Yankees' );

echo $a->getName()  . ' is a player of ' . $b->getTeam() ;
echo '<br />';
echo $b->getName() . ' is a player of ' . $b->getTeam() ;

?>
```

Exception

- Try and Catch
- Throw an Exception

Quick View II

- Write a Guestbook with OOP
  - Class Guestbook
  - Index Page => page() method.
  - Post page. => post() method.

PHP PROGRAMMING

PHP & MySQL Database

MySQL Database

- MySQL Database
  - DB Name,
  - User Name
  - User Password,
  - Host
- phpMyAdmin
  - create database and table

PHP & MySQL

- http://php.net/manual/en/book.mysql.php
- mysql_connect
- mysql_select_db
- mysql_query
- mysql_num_rows
- mysql_fetch_
  - mysql_fetch_rows
  - mysql_fetch_assoc
  - mysql_fetch_array
- mysql_insert_id

MySQL, MySQLi & PDO MySQL

- PHP-MySQL
  - Procedural Style only
  - mysql_real_escape_string
- MySQLi
  - Effective Improvement
  - Security : prevent from SQL Injection
  - Object Oriented Style
- PDO
  - Object Oriented
  - Abstract Layer
- ORM

Quick View III

- Guestbook
  - change the storage to MySQL database.

Thank you!

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