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| **Description** | **References** |
| Using PHP | [PHP Manual](http://php.net/manual/en/) |
| Data types: Integer, Float, String, Array, Boolean, Resource, Null, Object | [Data Types](http://php.net/manual/en/language.types.php) |
| Variables (local, global, superglobal)','Constants (magic constants) | [Variables](http://php.net/manual/en/language.variables.php) |
| Constants (magic constants) | [Constants](http://php.net/manual/en/language.constants.php) |
| Expressions and Operators (arithmetic, assignment, bitwise, comparison, error control, execution and others) | [Expressions](http://php.net/manual/en/language.expressions.php), [Operators](http://php.net/manual/en/language.operators.php) |
| Variable handling and debug functions (empty, isset, is\_array, print\_r, var\_dump, var\_export ...) | [Variable handling](http://php.net/manual/en/book.var.php) |
| Control Flow (while, if, else, elseif, for, foreach, break, switch, include, require ...) | [Control Structures](http://php.net/manual/en/language.control-structures.php) |
| Errors and Exceptions (handling, raising, Built-in Exceptions) | [Exceptions](http://php.net/manual/en/language.exceptions.php), [Error handling functions](http://php.net/manual/en/book.errorfunc.php), [Predefined Exceptions](http://php.net/manual/en/reserved.exceptions.php) |
| User-defined Functions | [User defined functions](http://php.net/manual/en/functions.user-defined.php) |
| String Functions (str\*, trim, printf, explode, substr ...) | [String functions](http://php.net/manual/en/ref.strings.php) |
| Input and Output, Reading and Writting Files | [Filesystem](http://php.net/manual/en/book.filesystem.php) |
| Mathematical and Miscellaneous Functions | [Math functions](http://php.net/manual/en/refs.math.php) |
| Array Functions: array\_\*, creation (array, range), sorting (asort, ksort), pointer (current, end), validation (in\_array, key\_exists), count (count, size\_of) ... | [Array functions](http://php.net/manual/en/ref.array.php) |
| Mail function (mail(), sending an attachment) | [Mail functions](http://php.net/manual/en/ref.mail.php) |
| Sessions | [Sessions](http://php.net/manual/en/book.session.php) |

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| **Description** | **References** |
| Relational terminology, Entities | [Entity](http://www.teach-ict.com/as_a2_ict_new/ocr/AS_G061/315_database_concepts/attributes_entities/miniweb/pg2.htm), [Entity](http://whatis.techtarget.com/definition/entity) |
| Relational terminology, Attributes | [Attributes](http://www.teach-ict.com/as_a2_ict_new/ocr/AS_G061/315_database_concepts/attributes_entities/miniweb/pg3.htm), [Attributes](http://www.techopedia.com/definition/1164/attribute-database-systems) |
| Relational terminology, Row (Records, Tuples) | [Row](http://en.wikipedia.org/wiki/Row_(database)) |
| Relationships (One-to-One, One-to-Many, Many-to-Many) | [Relationships](http://code.tutsplus.com/articles/sql-for-beginners-part-3-database-relationships--net-8561) |

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| **Description** | **References** |
| HTML Basic elements | [HTML element reference](https://developer.mozilla.org/en/docs/Web/HTML/Element) |
| HTML Simple page layouts | [HTML Layouts](http://www.w3schools.com/html/html_layout.asp), [HTML Layouts (additional)](http://www.tutorialspoint.com/html/html_layouts.htm) |
| HTML DOM | [What is the Document Object Model?](https://www.w3.org/TR/DOM-Level-2-Core/introduction.html) |
| CSS, Simple style rules | [CSS Structure and Rules](http://www.htmlhelp.com/reference/css/structure.html) |
| Javascript, Control structures | [JavaScript tutorial - Control structures](http://www.howtocreate.co.uk/tutorials/javascript/controls) |
| Javascript, Variables | [JavaScript tutorial - Variables](http://www.howtocreate.co.uk/tutorials/javascript/variables) |
| Javascript, Operators | [JavaScript tutorial - Operators](http://www.howtocreate.co.uk/tutorials/javascript/operators) |
| Javascript, Data types and types conversion | [JavaScript Type Conversion](http://www.w3schools.com/js/js_type_conversion.asp) |
| Javascript, Using basic functionality of javascript libraries (jquery, jquery ui) | [jQuery Introduction](http://www.w3schools.com/jquery/jquery_intro.asp), [How jQuery Works](https://learn.jquery.com/about-jquery/how-jquery-works/), [jQuery UI Tutorial for Beginners – Your Step by Step Guide!](https://www.codeofaninja.com/2013/10/jquery-ui-tutorial-for-beginners.html), [Getting started with jQuery and jQuery UI – Back to Basics](http://www.dotnetcurry.com/jquery/1089/jquery-jqueryui-basic-beginner-tutorial) |
| Javascript, Using plugins of javascript libraries (jquery) | [jQuery - Plugins](http://www.tutorialspoint.com/jquery/jquery-plugins.htm) |

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| **Description** | **References** |
| Understanding of MySQL dbms | [Mysql About](https://en.wikipedia.org/wiki/MySQL) |
| Tables, relationships, keys, constraints understanding | [SQL Book (chapter 2) (Chapter 2)](http://www.tutorialspoint.com/sql/sql_tutorial.pdf) |
| SQL data types | [SQL Book (chapter 5) (Chapter 5)](http://www.tutorialspoint.com/sql/sql_tutorial.pdf) |
| SQL operators, functions | [SQL Book (chapter 4) (Chapter 4)](http://www.tutorialspoint.com/sql/sql_tutorial.pdf) |
| Data manipulation (insert, update, delete) | [SQL Book (chapter 4) (Chapter 4)](http://www.tutorialspoint.com/sql/sql_tutorial.pdf) |
| Retrieving data (simple select statement) | [SQL Book (chapter 4) (Chapter 4)](http://www.tutorialspoint.com/sql/sql_tutorial.pdf) |
| Joins understanding | [SQL Book (chapter 26) (Chapter 26)](http://www.tutorialspoint.com/sql/sql_tutorial.pdf) |

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| **Description** | **References** |
| Fundamental concepts (revisions, working copy, repository) | [Revision Control](https://en.wikipedia.org/wiki/Revision_control), [SVN basics](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.basic), [Getting started GIT basics](https://git-scm.com/book/en/v2/Getting-Started-Git-Basics) |
| Getting data from repository | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Basics, Getting a Git Repository](https://git-scm.com/book/en/v2/Git-Basics-Getting-a-Git-Repository) |
| Examining local changes, comparing working copy to repository | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Basics, Getting a Git Repository](https://git-scm.com/book/en/v2/Git-Basics-Recording-Changes-to-the-Repository) |
| Updating working copy, merging changes | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Basics, Working with Remotes](https://git-scm.com/book/en/v2/Git-Basics-Working-with-Remotes) |
| Updating to specific version | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git checkout](https://git-scm.com/docs/git-checkout) |
| Examining change history | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Basics, Viewing the Commit History](https://git-scm.com/book/en/v2/Git-Basics-Viewing-the-Commit-History) |
| Discarding changes (save temporary changes if supported. Stash in Git) | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Basics, Recording Changes to the Repository](https://git-scm.com/book/en/v2/Git-Basics-Recording-Changes-to-the-Repository) |
| Resolving conflicts in code | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Branching and Merging, Basic Merge Conflicts](https://git-scm.com/book/en/v2/Git-Branching-Basic-Branching-and-Merging#_basic_merge_conflicts) |
| Copying, moving files, folders in repository | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Basics, Recording Changes to the Repository](https://git-scm.com/book/en/v2/Git-Basics-Recording-Changes-to-the-Repository) |
| Committing changes | [svn basic usage](http://svnbook.red-bean.com/en/1.7/svn-book.html#svn.tour), [Git Basics, Recording Changes to the Repository, Committing the changes](https://git-scm.com/book/en/v2/Git-Basics-Recording-Changes-to-the-Repository#Committing-Your-Changes) |

# **OOP**

Competency Level: Basic

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| **Description** | **References** |
| Polymorphism | [Understanding and Applying Polymorphism in PHP](http://code.tutsplus.com/tutorials/understanding-and-applying-polymorphism-in-php--net-14362) |
| Encapsulation | [What is Encapsulation in PHP?](http://www.tisuchi.com/object-oriented-php-part-3-encapsulation-php/) |
| Inheritance vs. Aggregation | [Object-Oriented PHP Part 2: Relationships](http://nefariousdesigns.co.uk/object-oriented-php-part-2-relationships.html) |
| Types vs. Classes | [PHP - Variable Types](http://www.tutorialspoint.com/php/php_variable_types.htm), [Object Oriented Programming in PHP](http://www.tutorialspoint.com/php/php_object_oriented.htm) |
| Single responsibility principle | [The Single Responsibility Principle](https://www.sitepoint.com/the-single-responsibility-principle/) |

# **Web Server Applications**

Competency Level: Basic

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| **Description** | **References** |
| Basic knowledge of client - server architecture (2-Tire, 3-Tire) | [Client-server model](https://en.wikipedia.org/wiki/Client%E2%80%93server_model), [Multitier architecture](https://en.wikipedia.org/wiki/Multitier_architecture), [N-Tier Data Applications Overview](https://msdn.microsoft.com/en-us/library/bb384398.aspx), [What is N-Tier architecture?](http://stackoverflow.com/questions/312187/what-is-n-tier-architecture) |
| Web server basic | [Web server](https://en.wikipedia.org/wiki/Web_server), [Web server](http://www.webopedia.com/TERM/W/Web_server.html) |
| Application server | [Application server](https://en.wikipedia.org/wiki/Application_server) |