Lab 09: Server-side Includes and Executes

In this lab exercise, you will learn how to simplify some PHP coding by separating navigation and logics. This includes the integration and execution of separate PHP pages and/or external programs.

9.1 Server-side Includes (and Requires)

Including files is very useful when you want to include and reuse the same PHP segments on multiple pages of your PHP application. This can be achieved by inserting the content of one PHP file into another PHP file (before the server executes it). The INCLUDE (or REQUIRE) statement takes content that exists in the specified file and copies it into the file that uses the include statement.

Syntax: include 'filename'; or require 'filename';

Both INCLUDE and REQUIRE statements are identical, except upon failure:

- require will produce a fatal error (E_COMPILE_ERROR) and stop the script
- include will only produce a warning (E_WARNING) and the script will continue

So, if you want the execution to go on and show users the output, even if the included file is missing, use the INCLUDE statement. Otherwise, always use the REQUIRE statement to include a key file to the flow of execution. This will help to avoid compromising your application's security and integrity, just in-case one key file is accidentally missing.

A common practice is to put standard header, footer, menu and navigation into separate files, then include them in PHP files that deals with contents.

Figure 1 to 3 below demonstrates the use of INCLUDE and REQUIRE, separating menu and content pages.

```php
<?php

echo "<p>";
echo "<a href=\"./\">Home</a> - ";
echo "<a href=\"./displaytable.php\">Display Table</a> - ";
echo "<a href=\"./servervariables.php\">Server Variables</a> - ";
echo "<a href=\"./sample_errors.php\">Sample Errors</a> - ";
echo "<a href=\"http://moodle.whitireia.ac.nz\">Moodle Page</a> - ";
echo "<a href=\"http://www.pcsupport.ac.nz\">PC Support Page</a>";
echo "</p>";

?>
```

Figure 1: Menu file.

```php
<?php

include "incl_menu.php";
include "index.html";

?>
```

Figure 2: A PHP file that includes menu and an HTML file.

```php
<?php

include "incl_menu.php";

include "displaytabledetails.php";

?>
```

Figure 3: A PHP file that includes menu and another PHP file.

9.2 Server Executes

Slightly different than INCLUDE and REQUIRE, EXECUTE runs an external program and optionally returns outputs into an array variable, along with status of execution.

Syntax : exec (<command> [, $output [, $return_var]])

Parameters : command : The command that will be executed.

output : If the output argument is present, then the specified array will be filled with every line of output from the command.

return_var : If the return_var argument is present along with the output argument, then the return status of the executed command will be written to this variable.

Figure 4 below demonstrates execution of an external program, capturing the output and displaying the values onto a web browser.

```php
<?php

exec ("gen_year.exe", $output);

for ($i = 0; $i < count($output); $i++) {
    echo $output[$i] . ", ";
}

?>
```

Figure 4: Example PHP codes to execute external program and display its output onto web browser.

Your tasks:

1. Create a C# console program that returns some output values.
2. Create a PHP page that contains a page header.
3. Create a PHP page that contains a page footer.
4. Create a PHP page that displays the following:
   Page header, output values of C# program, page footer
5. Repeat the above with a C# console program that accepts parameters.

-- END --