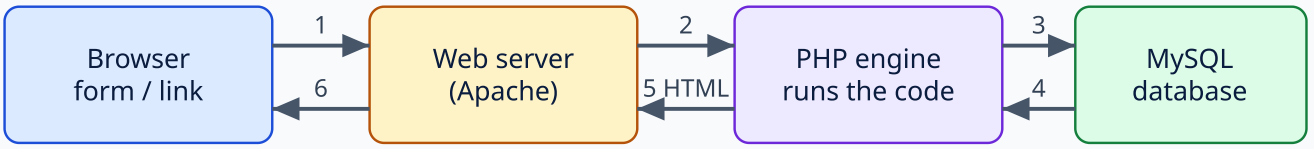
Grade 13 A/L ICT · Lesson 10

10.7 Dynamic Web Pages with PHP and MySQL

Syllabus 10.7. A **static page** shows the same HTML to everyone; a **dynamic page** is built by the server each time, often from a database. **PHP** code is embedded in HTML between <?php and ?>, runs on the **web server** and sends only HTML to the browser. You use **variables**, **arrays**, **control structures** and **functions**, collect input with **forms** and save or retrieve data in a **MySQL** database.

1. How PHP works

How a dynamic PHP page is built



1 request (GET/POST) · 2 run .php file · 3 SQL query · 4 rows back · 5 HTML · 6 page shown

The browser never sees PHP code – only the HTML that PHP prints with echo.

Browser, server, PHP and MySQL

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2. PHP basics

PHP: Variables, arrays, control structures and a function

```
<html><body>
<?php
$school = "Green Valley";            // variable
$marks = array(78, 45, 88);          // indexed array
$total = 0;
foreach ($marks as $m) {             // loop
    $total = $total + $m;
}
$avg = $total / count($marks);

function grade($mark) {              // user-defined function
    if ($mark >= 75) {
        return "A";
    } elseif ($mark >= 50) {
        return "C";
    } else {
        return "F";
    }
}

echo "<h2>" . $school . "</h2>";
echo "<p>Total: $total, Average: " . round($avg, 1) . "</p>";
for ($i = 0; $i < count($marks); $i++) {
    echo "<p>" . $marks[$i] . " = " . grade($marks[$i]) . "</p>";
}
$student = array("name" => "Nimal", "stream" => "Tech");   // associative array
echo "<p>" . $student["name"] . " (" . $student["stream"] . ")</p>";
?>
</body></html>
```

▶ HTML sent to the browser

```
<html><body>
<h2>Green Valley</h2><p>Total: 211, Average: 70.3</p><p>78 = A</p><p>45 = F</p><p>88 = A</p>
<p>Nimal (Tech)</p></body></html>
```

🧱 **Worked example: Explain the output of the basics program.**

foreach adds 78 + 45 + 88 = **211**; the average 211 ÷ 3 = 70.33… is rounded to **70.3**. The for loop calls grade() for each mark: 78 → **A**, 45 → **F**, 88 → **A**. The associative array gives “Nimal (Tech)”. Variables start with $, statements end with ; and the . operator joins strings.

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3. Forms

HTML: A registration form

```
<!DOCTYPE html>
<html>
<head>
  <title>Register</title>
</head>
<body>
  <form action="save.php" method="post">
    <fieldset>
      <legend>Student details</legend>
      Name: <input type="text" name="name" value=""><br>
      Password: <input type="password" name="pwd"><br>
      Gender:
      <input type="radio" name="gender" value="M"> Male
      <input type="radio" name="gender" value="F"> Female<br>
      <input type="checkbox" name="club" value="ICT"> ICT club<br>
      Stream:
      <select name="stream">
        <option value="Tech">Technology</option>
        <option value="Sci">Science</option>
      </select><br>
      <input type="submit" value="Save">
      <input type="reset" value="Clear">
    </fieldset>
  </form>
</body>
</html>
```

▶ **Result in the browser**

Student details

Name:

Password:

Gender: Male Female

ICT club

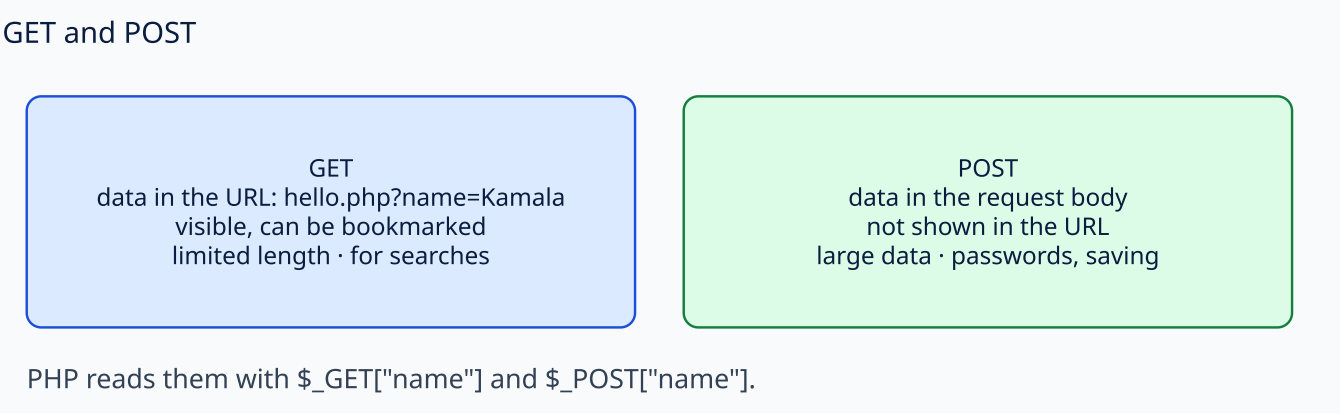
Stream: Technology

Save Clear

Element	Use
<input type="text" name="name" value="">	One line of text; name is the key PHP reads, value the default text
type="password"	Text shown as dots
type="radio"	Choose one of a group with the same name
type="checkbox"	Tick any number of options
<select><option>	Drop-down selection list

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type="submit" / type="reset"	Send the form / clear it
action="save.php" method="post"	Where and how the data is sent
<fieldset><legend>	Groups related fields with a caption



GET and POST methods

PHP: Reading a value sent with GET

```
<?php
// hello.php?name=Kamala
$name = $_GET["name"];
echo "<p>Hello, " . htmlspecialchars($name) . "!</p>";
?>
```

▶ HTML sent to the browser

```
<p>Hello, Kamala!</p>
```

4. Working with a MySQL database

Creating the data source: table student and its rows (SQL)

```
CREATE TABLE student (id INTEGER PRIMARY KEY, name VARCHAR(40), stream VARCHAR(10), mark
INT);
INSERT INTO student VALUES (1, 'Nimal', 'Tech', 78);
INSERT INTO student VALUES (2, 'Kamala', 'Sci', 45);
INSERT INTO student VALUES (3, 'Sunil', 'Tech', 88);
```

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PHP: save.php – saving form data into the database

```
<?php
$db = new PDO("mysql:host=localhost;dbname=school", "root", "");
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    $name = $_POST["name"];
    $stream = $_POST["stream"];
    $sql = "INSERT INTO student (name, stream, mark) VALUES (?, ?, ?)";
    $stmt = $db->prepare($sql);
    $stmt->execute(array($name, $stream, 0));
    echo "<p>Saved " . $stmt->rowCount() . " record for " . htmlspecialchars($name) . ".</p>";
}
$count = $db->query("SELECT COUNT(*) FROM student")->fetchColumn();
echo "<p>Students now: $count</p>";
?>
```

▶ **HTML sent to the browser**

```
<p>Saved 1 record for Amali.</p><p>Students now: 4</p>
```

PHP: list.php – retrieving data into an HTML table

```
<?php
$db = new PDO("mysql:host=localhost;dbname=school", "root", "");
$result = $db->query("SELECT id, name, mark FROM student WHERE stream = 'Tech' ORDER BY mark
DESC");
echo "<table border=\"1\">";
echo "<tr><th>ID</th><th>Name</th><th>Mark</th></tr>";
foreach ($result as $row) {
    echo "<tr><td>" . $row["id"] . "</td><td>" . $row["name"] . "</td><td>" . $row["mark"] . "
</td></tr>";
}
echo "</table>";
?>
```

▶ **HTML sent to the browser**

```
<table border="1"><tr><th>ID</th><th>Name</th><th>Mark</th></tr><tr><td>3</td><td>Sunil</td>
<td>88</td></tr><tr><td>1</td><td>Nimal</td><td>78</td></tr></table>
```

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PHP: edit.php – setting form values from retrieved data

```
<?php
$db = new PDO("mysql:host=localhost;dbname=school", "root", "");
$stmt = $db->prepare("SELECT * FROM student WHERE id = ?");
$stmt->execute(array($_GET["id"]));
$row = $stmt->fetch();
?>
<form action="update.php" method="post">
  <input type="hidden" name="id" value="<?php echo $row["id"]; ?>">
  Name: <input type="text" name="name" value="<?php echo htmlspecialchars($row["name"]); ?>">
  Mark: <input type="text" name="mark" value="<?php echo $row["mark"]; ?>">
  <input type="submit" value="Update">
</form>
```

▶ **HTML sent to the browser**

```
<form action="update.php" method="post">
  <input type="hidden" name="id" value="2">
  Name: <input type="text" name="name" value="Kamala">
  Mark: <input type="text" name="mark" value="45">
  <input type="submit" value="Update">
</form>
```

🧱 **Worked example: What does each database program print, and why?**
save.php receives name=Amali by POST, runs a prepared INSERT and prints “Saved 1 record” – the table now has **4** students. list.php selects stream Tech ordered by mark DESC, so Sunil **88** comes before Nimal **78**. edit.php reads id=2 from the URL and puts **Kamala** and **45** into the value attributes, so the form opens already filled.

- Connect: new PDO("mysql:host=...;dbname=...", user, password) – or mysqli_connect() in older code.
- Use **prepared statements** with ? placeholders and htmlspecialchars() on output for security.
- These programs were run with PHP 8; for testing, the MySQL line was swapped for an SQLite database with the same table.

💡 View the page source in the browser: you will see only HTML – proof that PHP ran on the server.

🚀 **Beyond the syllabus (2026 update)** *Not required for the exam – read for interest.* In 2026 PHP 8 powers WordPress and Laravel sites; many apps also send JSON from PHP to JavaScript (fetch) instead of whole pages.

Key Words

Static web page – Page that shows the same content to every visitor.

Dynamic web page – Page built by the server each time it is requested.

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PHP – Server-side scripting language embedded in HTML.

Server-side script – Code that runs on the web server, not the browser.

Variable – Named value in PHP starting with a dollar sign.

Array – Variable that holds many values by index or key.

Associative array – Array that uses named keys such as name.

echo – PHP statement that outputs text or HTML.

Form – HTML element that collects user input.

GET method – Sends form data in the URL.

POST method – Sends form data in the request body.

Prepared statement – SQL with placeholders filled safely.

Sample Q&A

1. Static vs dynamic page?

> **Answer:** Static is fixed HTML; dynamic is built by the server each time.

2. Where does PHP run?

> **Answer:** On the web server.

3. Total and average in basics?

> **Answer:** 211 and 70.3.

4. GET vs POST?

> **Answer:** GET puts data in the URL; POST hides it in the body.

5. First row of list.php?

> **Answer:** 3, Sunil, 88.

6. What fills the edit form?

> **Answer:** The row id=2 – Kamala, 45 – in value attributes.

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MCQ

1. PHP code is written between

A. <% and %> only
B. <script> and </script>
C. <php> and </php>
D. <?php and ?>
E. {{ and }}

2. PHP runs on the

A. web server
B. browser
C. DNS server
D. printer
E. keyboard

3. The basics program prints Average

A. 70.0
B. 70.3
C. 211
D. 71
E. 70.33

4. grade(45) returns

A. A
B. B
C. F
D. C
E. 45

5. Which input type shows typed text as dots?

A. password
B. submit
C. hidden
D. radio
E. text

6. Choosing exactly one option from a group uses

A. check boxes
B. a fieldset
C. a reset button
D. radio buttons
E. a password box

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7. After save.php runs, the number of students is

A. 5
B. 3
C. 1
D. 0
E. 4

8. The first data row printed by list.php is

A. Amali 0
B. Nimal 78
C. Sunil 88
D. Nimal 88
E. Kamala 45

9. Which term means: “Page that shows the same content to every visitor”?

A. PHP
B. Static web page
C. Array
D. POST method
E. echo

10. Which term means: “Page built by the server each time it is requested”?

A. Associative array
B. Form
C. Dynamic web page
D. Server-side script
E. Prepared statement

11. Which term means: “Server-side scripting language embedded in HTML”?

A. echo
B. GET method
C. Static web page
D. PHP
E. Variable

12. Which term means: “Code that runs on the web server, not the browser”?

A. POST method
B. Form
C. Dynamic web page
D. Array
E. Server-side script

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13. Which term means: “Named value in PHP starting with a dollar sign”?

A. PHP
B. Variable
C. Associative array
D. Prepared statement
E. GET method

14. Which term means: “Variable that holds many values by index or key”?

A. Static web page
B. echo
C. POST method
D. Server-side script
E. Array

15. Which term means: “Array that uses named keys such as name”?

A. Variable
B. Associative array
C. Dynamic web page
D. Form
E. Prepared statement

16. Which term means: “PHP statement that outputs text or HTML”?

A. echo
B. GET method
C. Static web page
D. PHP
E. Array

17. Which term means: “HTML element that collects user input”?

A. Server-side script
B. Associative array
C. Dynamic web page
D. Form
E. POST method

18. Which term means: “Sends form data in the URL”?

A. GET method
B. echo
C. PHP
D. Prepared statement
E. Variable

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19. Which term means: “Sends form data in the request body”?

A. Server-side script
B. Form
C. POST method
D. Static web page
E. Array

20. Which term means: “SQL with placeholders filled safely”?

A. Associative array
B. GET method
C. Dynamic web page
D. Variable
E. Prepared statement

Structured Questions

1. Distinguish static and dynamic web pages. *(3 marks)*

> Fixed vs built per request; example; database.

2. Write PHP that stores three marks in an array and prints the total and average. *(4 marks)*

> array; foreach; count; echo 211 and 70.3.

3. Write an HTML form with text, password, radio, checkbox, select, submit and reset. *(3 marks)*

> form action method; fieldset; each input type.

4. Compare GET and POST. *(4 marks)*

> URL vs body; visibility; size; uses.

5. Write PHP to save form data into MySQL and display all records. *(5 marks)*

> connect; $_POST; prepared INSERT; SELECT; loop echo table.

Summary

- Dynamic pages are built on the server.
- PHP sits in <?php ?> and echoes HTML.
- Variables, arrays, control structures, functions.
- Forms send data by GET or POST.
- PHP saves and retrieves MySQL data.

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MCQ answer key – 10.7

1. **D** – Tags.
2. **A** – Server-side.
3. **B** – 211 ÷ 3 rounded.
4. **C** – Below 50.
5. **A** – Password.
6. **D** – Radio.
7. **E** – 3 + 1.
8. **C** – ORDER BY mark DESC.
9. **B** – Static web page – Page that shows the same content to every visitor.
10. **C** – Dynamic web page – Page built by the server each time it is requested.
11. **D** – PHP – Server-side scripting language embedded in HTML.
12. **E** – Server-side script – Code that runs on the web server, not the browser.
13. **B** – Variable – Named value in PHP starting with a dollar sign.
14. **E** – Array – Variable that holds many values by index or key.
15. **B** – Associative array – Array that uses named keys such as name.
16. **A** – echo – PHP statement that outputs text or HTML.
17. **D** – Form – HTML element that collects user input.
18. **A** – GET method – Sends form data in the URL.
19. **C** – POST method – Sends form data in the request body.
20. **E** – Prepared statement – SQL with placeholders filled safely.

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