Conditional Statements in PHP

Session 7

Objectives

- *Explain the use of the if statement*
- *Explain the use of the switch statement*
- *Explain the use of the ternary (?) operator*

Introduction

- A statement
  - Is a smallest element of any programming language
  - Consists of commands given by a programmer to a computer
  - Can be an individual statement or a group of statements within curly braces
  - Usually ends with a semicolon

- PHP script consists of a series of statements which are as follows:
  - An assignment
  - A function call
  - A conditional statement
  - An empty statement that does nothing

Conditional Control Structures

- Control the flow of a program on execution or skip code based on certain criteria

- Are of two types:
  - `if` statement
  - `switch` statement

if Statement

- It is a common control structure
- It contains an expression called as truth expression
- The truth expression:
  - Can be a Boolean, variable, constant or an expression
  - Evaluates to `true`, `false` or `NULL`
  - If evaluates to `true`, following statements are executed
  - If evaluates to `false` or `NULL`, statements are not executed

Syntax

```
if(truth expression)
{
   Statements to be executed;
}
```

Where,

`If` keyword is followed by truth expression in parenthesis

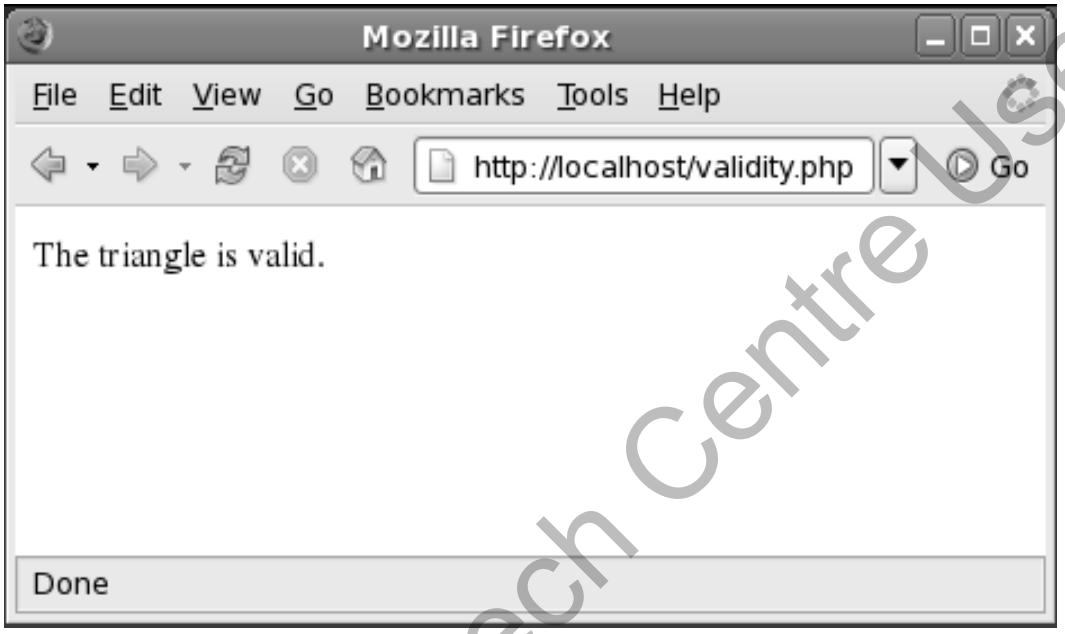
if Statement

- Checking whether a triangle is valid using the `if` statement
  - Enter the following code in a script named **validity.php**

Snippet

```
<html>
<body>
<?php
$a=60;
$b=60;
$c=60;
if($a+$b+$c == 180)
echo "The triangle is valid.";
?>
</body>
</html>
```

Displays the following output:



If the sum of the degrees `$a`, `$b`, and `$c` are equal to 180 then the statement following the `if` condition is executed

if Statement

- Accepting and displaying the salary of an employee based on the salary and bonus
  - **salBonus.html** – accepts user inputs

Snippet

```
<html>
<body>
<form action="salBonus.php" method="GET">
<table>
<tr>
<td>Salary   </td>
<td><input type="text" name="sal"></td>
</tr>
</table>
<br>
<input type="submit" value="Submit">
</form>
</body>
</html>
```

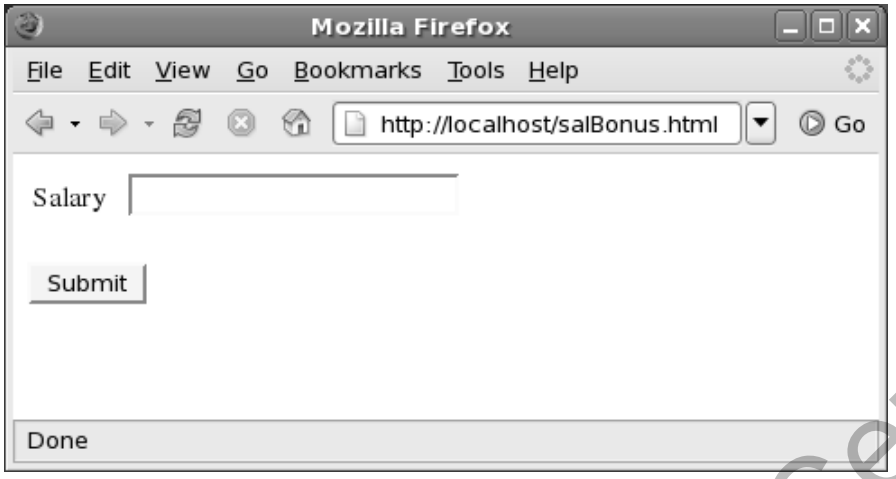
if Statement

- Accepting and displaying the salary of an employee based on the salary and bonus
  - **salBonus.php** – process the salary and calculate the bonus

Snippet

```
<?php
$sal = $_GET['sal'];
echo "Salary before bonus : $";
echo $sal;
echo "<br>";
if ($sal > 850)
{
   $bonus = $sal * .1;
   echo "Bonus : $$bonus";
   echo "<br>";
 $sal = $sal + $bonus;
   echo "Total Salary : $$sal";
}
?>
```

salBonus.html displays the following output:



salBonus.php displays the following output:

The code accepts and displays the bonus at the rate of 10% and total salary when the salary of the employee is greater than $850.

if...else Statement

- Is used along with `if` statement
- Is executed when a specified condition is `false`

Syntax

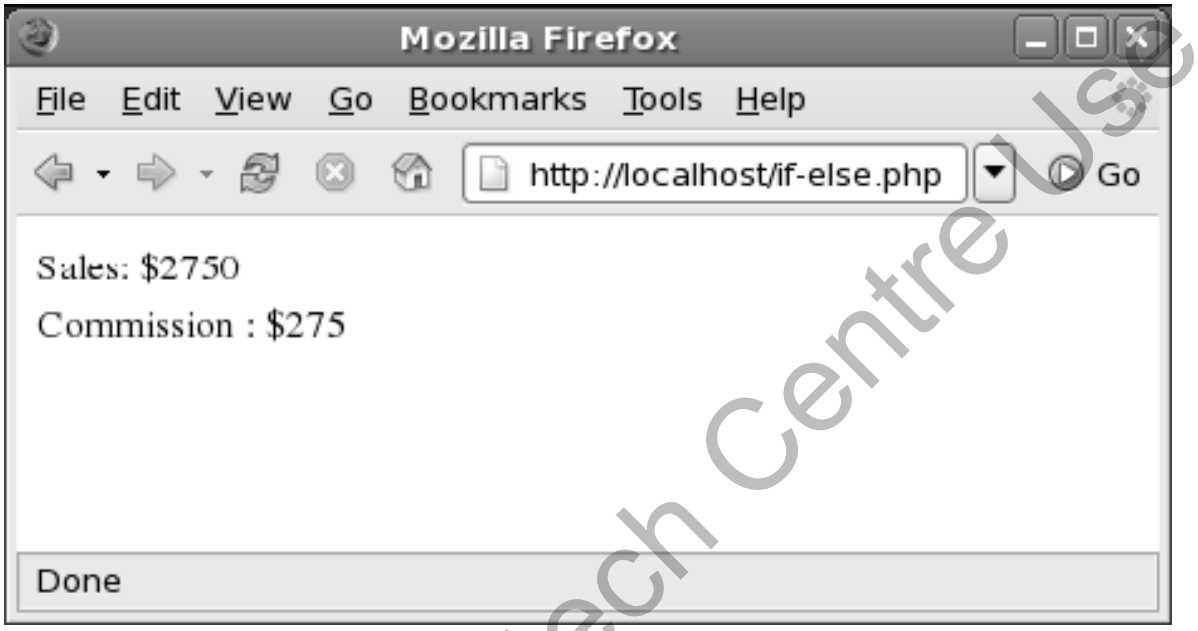
```
if(truth expression)
{
   Statements to be executed if the condition evaluates
to true;
}
else
{
   Statements to be executed if the condition evaluates
to false;
}
```

- Displaying a block of code with an `if...else` statement
  - Enter the following code:

Snippet

```
<?php
$sales = 2750;
if($sales > 2000)
{
   $comm = $sales * .1;
   echo "Sales: $$sales <br> Commission : $$comm";
}
else
{
   $comm = $sales * .05;
   echo "Sales: $$sales <br> Commission : $$comm";
}
?>
```

Displays the following output:



When the sales amount exceeds $2000, the program executes the body of the `if` statement and calculates commission at the rate of 10%.

When the sales amount is less than $2000, the program executes the body of the `else` statement.

if...else Statement

- `else if` clause is:
  - Used along with `if` statement
  - An optional clause that allows testing alternative conditions

if...else Statement

- Demonstrating the use of `else if` clause
  - **saleComm.html** - accepts the sales amount from the user

Snippet

```
<html>
<body>
<form action="SaleComm.php" method="GET">
<table>
<tr>
<td>Total Sales : </td>
<td><input type="text" name="sal"></td>
</tr>
</table>
<br>
<input type="submit" value="Submit">
</form>
</body>
</html>
```

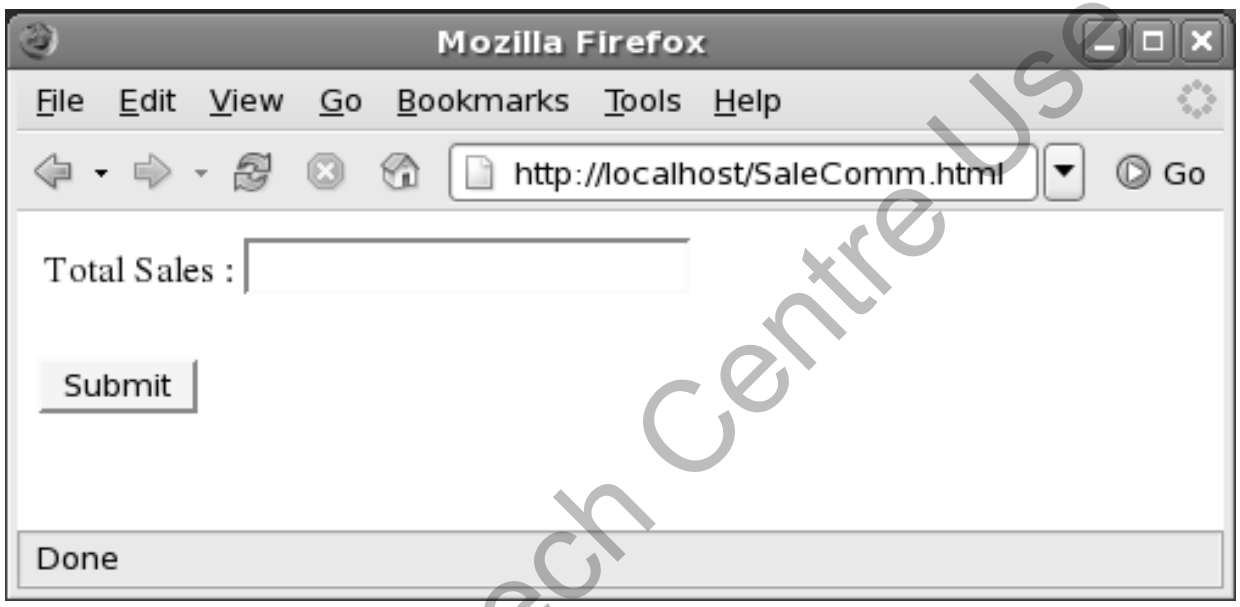
if...else Statement

- **saleComm.php** - processes the sales amount and calculates the commission

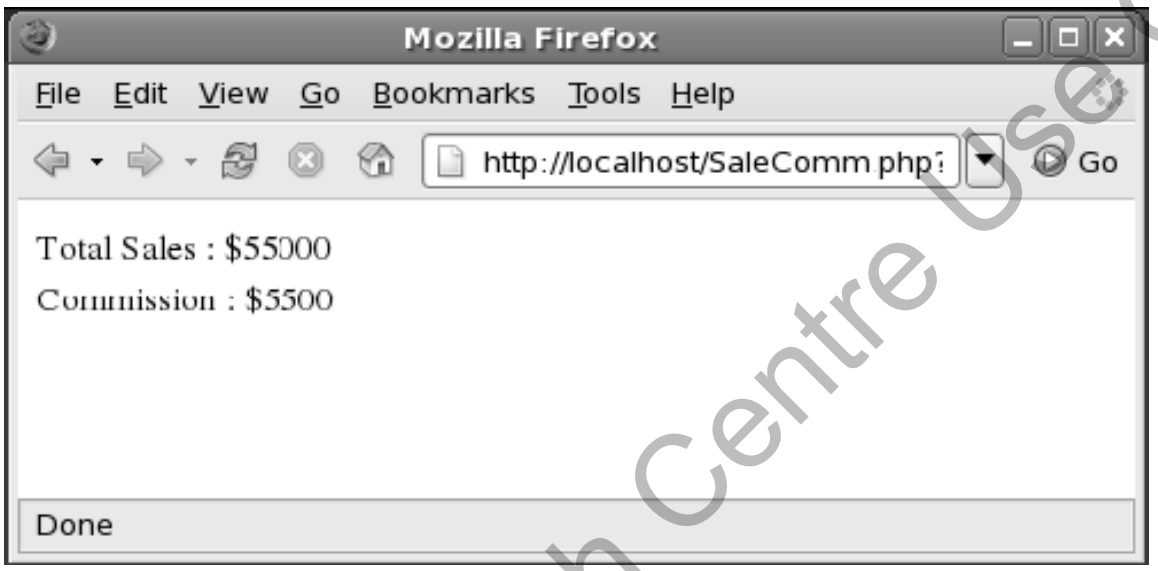
Snippet

```
<?php
$sal=$_GET['sal'];
echo "Total Sales : $";
echo $sal;
echo "<br>";
if ($sal > 50000){
   $comm = $sal * .10;
   echo "Commission : $$comm";
   echo "<br>"; }
else if ($sal > 20000 and $sal <= 50000){
   $comm = $sal * .07;
   echo "Commission : $$comm";
   echo "<br>"; }
else if ($sal < 20000){
   $comm = $sal * .05;
   echo "Commission: $$comm";
   echo "<br>";
}
?>
```

saleComm.html displays the following output:



saleComm.php displays the following output:



In the code, commission is calculated according to the sales amount the user enters.

Nested if Statement

- An `if` statement within an `if` statement or an `else` statement is known as nested `if` statement

Nested if Statement

- Calculating the electricity charges based on the units of electricity consumed
  - **elecBill.html** - accepts the number of units consumed

Snippet

```
<html>
<body>
<form action="elecBill.php" method="GET">
<table>
<tr>
<td>Electricity Units Consumed : </td>
<td><input type="text" name="units"></td>
</tr>
</table>
<br>
<input type="submit" value="Submit">
</form>
</body>
</html>
```

Nested if Statement

- Calculating the electricity charges based on the units of electricity consumed
  - **elecBill.php** - calculates total electricity bill

Snippet

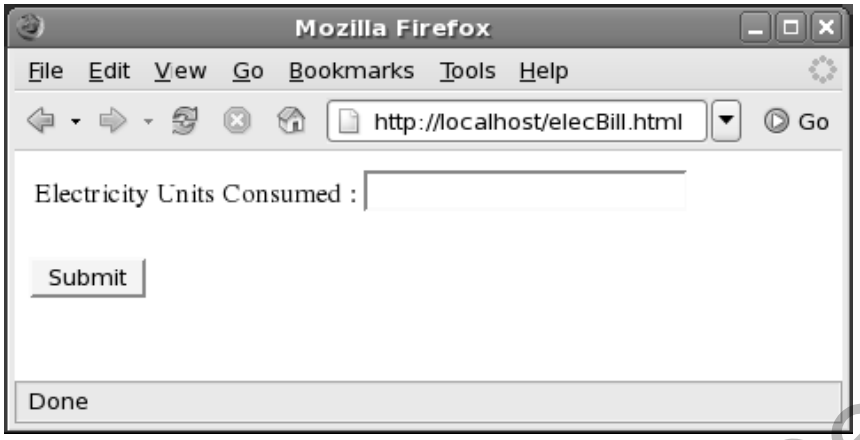
```
<?php
$units=$_GET['units'];
echo "Number of Units Consumed : ";
echo $units;
echo "<br>";
if ($units > 1000)
{
   $rate = $units * 3;
   $service = $rate * .1;
   echo "Service Charge added for Units above 1000 : $$service";
   echo "<br>";
   $totalbill = $rate + $service;
   echo "Total Electricity Bill : $$totalbill";
   }
```

Nested if Statement

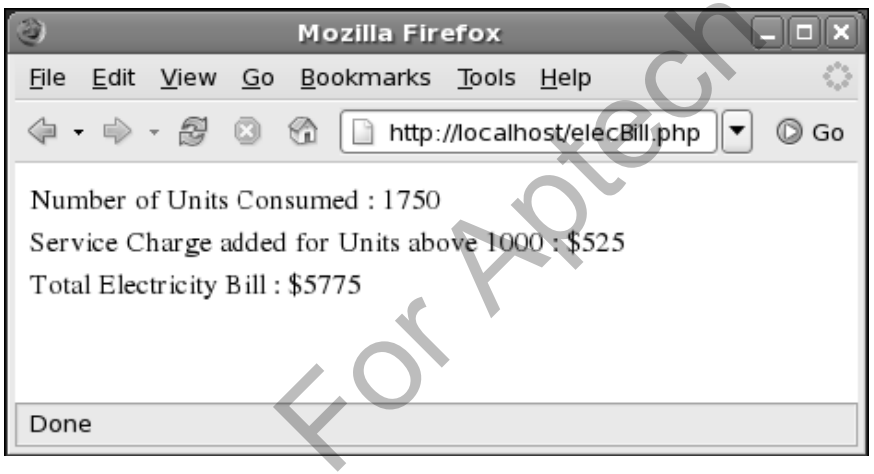
```
else
{
   if ($units > 500 and $units <= 1000)
{
   $rate = $units * 2;
   echo "Total Electricity Bill : $$rate";
}
else
{
   $rate = $units * 1.5;
   echo "Total Electricity Bill : $$rate";
}
}
?>
```

Nested if Statement

elecBill.html – displays the following output:



elecBill.php – displays the following output:



In the code, if the user enters 1500 as input, PHP code in Code first calculates the rate and stores the value in the `$rate` variable.

To calculate the service charge to be levied on the electricity bill, Code **elecBill.php** calculates the service charge at the rate of 10% and stores the value in the `$service` variable.

It then stores the total amount in the `$totalbill` variable.

switch Statement

- Used as an alternative to a lengthy `if...else` construct
- Consists of an expression that is compared to all possible case expressions listed in its body
- On finding a match, it executes the block of code ignoring any further case lines
- Uses a break statement to halt the execution of the switch statement and transfer the control to the code following switch

Syntax

```
switch(variable){
   case value1:
Code executes if condition equals value1
   break;
   case value2:
Code executes if condition equals value2
   break;
.
.
.
   default:
Code executes if the variable does not matches any
specified value
}
```

Where,

- `case` keyword is followed by a case constant
- `default` is a special case executed when none of the case constants is matching

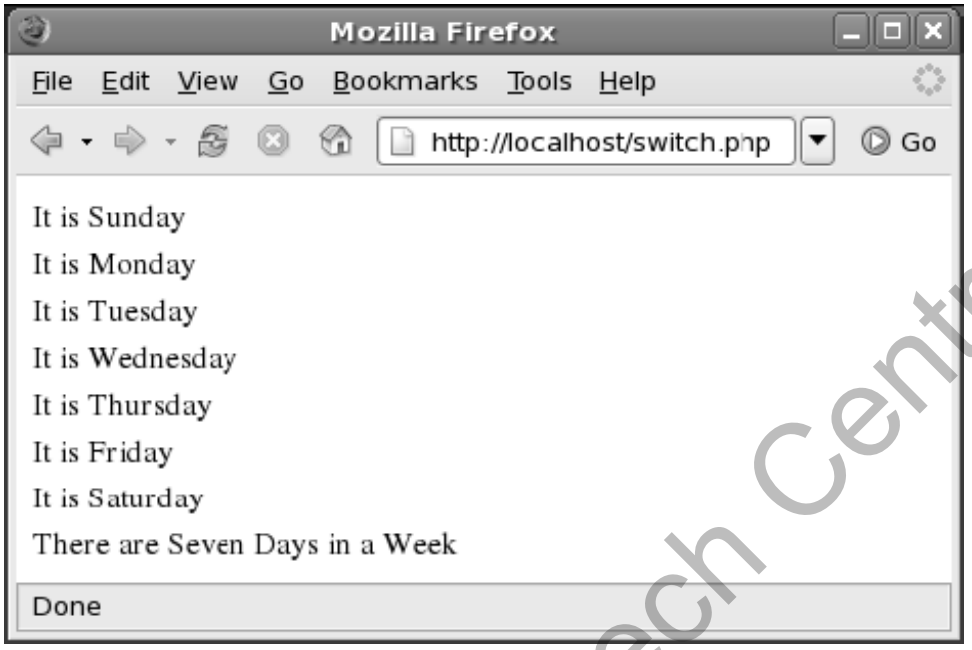
- Displaying a switch statement without any `break` statement
  - Enter the code in a script named **switch.php**

Snippet

```
<?php
$day = 1;
switch ($day)
{
  case 1:
  echo "It is Sunday";
  echo "<br>";
  case 2:
  echo "It is Monday";
  echo "<br>";
```

```
case 3:
echo "It is Tuesday";
echo "<br>";
case 4:
echo "It is Wednesday";
echo "<br>";
case 5:
echo "It is Thursday";
echo "<br>";
case 6:
echo "It is Friday";
echo "<br>";
case 7:
echo "It is Saturday";
echo "<br>";
default:
echo "There are Seven Days in a Week";
echo "<br>";
}
?>
```

Displays the following output:



In the code, the weekday is 1, the program displays the message related to `case` 1.

Due to the absence of a `break` statement, it also displays the messages related to the subsequent cases until it reaches the end of the switch statement.

- Displaying a switch statement without any `break` statement
  - Enter the code in a script named **break.php**

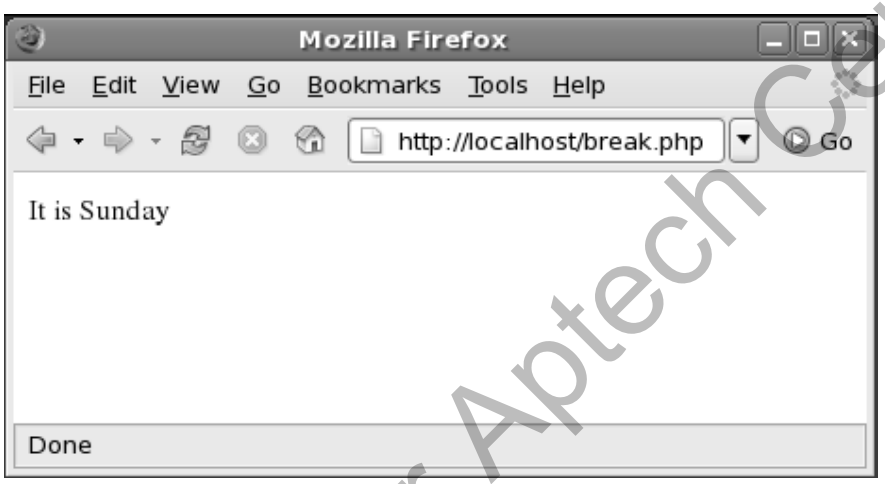
Snippet

```
<?php
$day = 1;
switch ($day)
{
  case 1:
  echo "It is Sunday";
  echo "<br>";
  break;
  case 2:
  echo "It is Monday";
  echo "<br>";
  Break;
```

```
case 3:
echo "It is Tuesday";
echo "<br>";
break;
case 4:
echo "It is Wednesday";
echo "<br>";
break;
case 5:
echo "It is Thursday";
echo "<br>";
Break;
case 6:
echo "It is Friday";
echo "<br>";
break;
case 7:
echo "It is Saturday";
echo "<br>";
Break;
```

```
default:
echo "There are Seven Days in a Week";
echo "<br>";
break;
}
?>
```

Displays the following output:



In the code, the weekday is 1, the program displays only the message related to `case` 1.

If the value assigned is any other value apart from numbers 1 to 7, the program displays 'There are Seven Days in a Week.'

Ternary (?) Operator

- It is also known as a conditional operator
- It simplifies complex conditions into one-line statements
- It is considered as an alternative for the `if…else` statement

Syntax

```
truth_exp ? expr1 : expr2;
```

Where,

- `truth_expr` is evaluated and if it is `true`, `expr1` is evaluated
- If it is `false`, `expr2` is evaluated

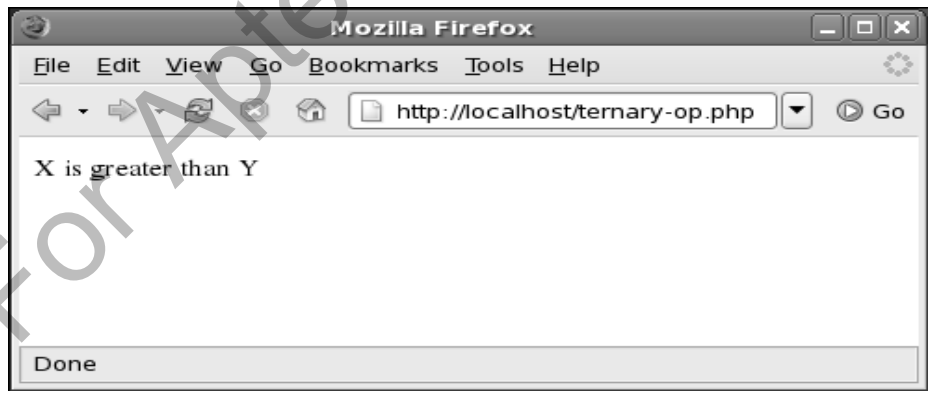
Ternary (?) Operator

- Displaying the output using the ternary operator
  - Enter the code as shown in code in the script named **ternary-op.php**

Snippet

```
<?php
$x = 100;
$y = 50;
$disp = ($x > $y) ? "X is greater than Y" : "Y is
greater than X";
echo $disp;
?>
```

Displays the following output:



Summary

- Conditional statements execute a set of statements only when a specified condition is satisfied and modify the order of flow in a program
- The if statement executes a block of code only when the specified condition is true
- In a nested if statement, you can include an if statement within another if statement or an else statement
- A switch...case statement checks a single variable against multiple values and executes a block of code based on the value it matches

Summary

- The break statement is used to transfer the control to the statements following the switch...case statement
- The default statement is used when none of the case statements matches the value of the switch variable
- Ternary operator is also known as conditional operator. It simplifies complex conditions into one-line statements