



Looping Structure



LEARNING OBJECTIVES

- To understand the importance of Looping Structure
- To know different types of Looping Structure in PHP
- To know the Basic fundamental logic creation using Looping Structure

Looping Structure:

Loop structures in PHP is an iterative control structures that involves executive the same block of code a specified number of times. Loops that iterate for fixed number of times is also called as Bounded loops. PHP supports four types of loops. Refer Figure 7.1 for flow chart of for Loop Structure.

- for Loop
- foreach Loop
- While Loop
- Do While Loop

For Loop:

The for loop is used when you know how many times you want to execute a statement or block of statements.

Syntax:

```
for (init counter; test counter; increment counter) {  
    code to be executed;  
}
```

Parameters:

- init counter: Initialize the loop initial counter value
- Test counter: Evaluated for every iteration of the loop. If it evaluates to TRUE, the loop continues. If it evaluates to FALSE, the loop ends.
- Increment counter: Increases the loop counter value.

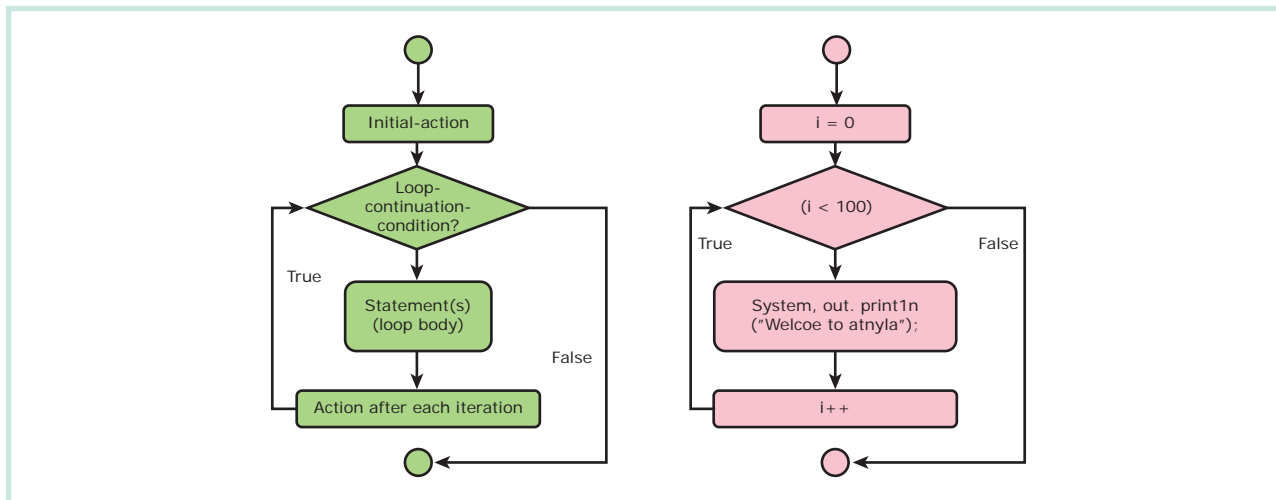


Figure 7.1 Flowchart of For loop Structure and Flow chart

Example:

```
<?php
for ($i = 0; $i <= 10; $i++) {
    echo "The number is: $i<br>";
}
?>
```

Foreach Loop:

foreach loop is exclusively available in PHP and is mainly used for looping through the values of an array. The loop iteration deepens on each KEY Value pair in the Array. For each, loop iteration the value of the current array element is assigned to \$value variable and the array pointer is advanced by one, until it reaches the end of the array element. Refer Figure 7.2.

Syntax:

```
foreach ($array as $value) {
    code to be executed;
}
```

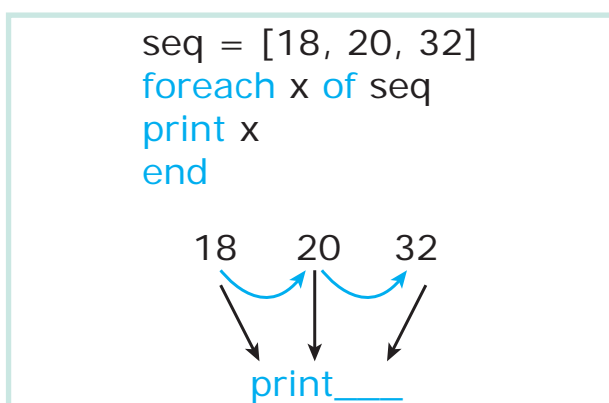


Figure 7.2 Foreach loop Structure and Flow

DO YOU KNOW? The foreach construct provides an easy way to iterate over arrays. foreach works only on arrays and objects, and will issue an error when you try to use it on a variable with a different data type or an uninitialized variable.

Example:

```
<?php
$Student_name = array("Magilan", "Iniyan",
"Nilani", "Sibi", "Shini");

foreach ($Student_name as $value) {
    echo "$value <br>";
}
?>
```



PHP Loop Often when you write code, you want the same block of code to run over and over again in a row. Instead of adding several almost equal code-lines in a script, we can use loops to perform a task.

While Loop:

The while loop executes a block of code as long as the condition specified in the while statement evaluates to true. Refer Figure 7.3

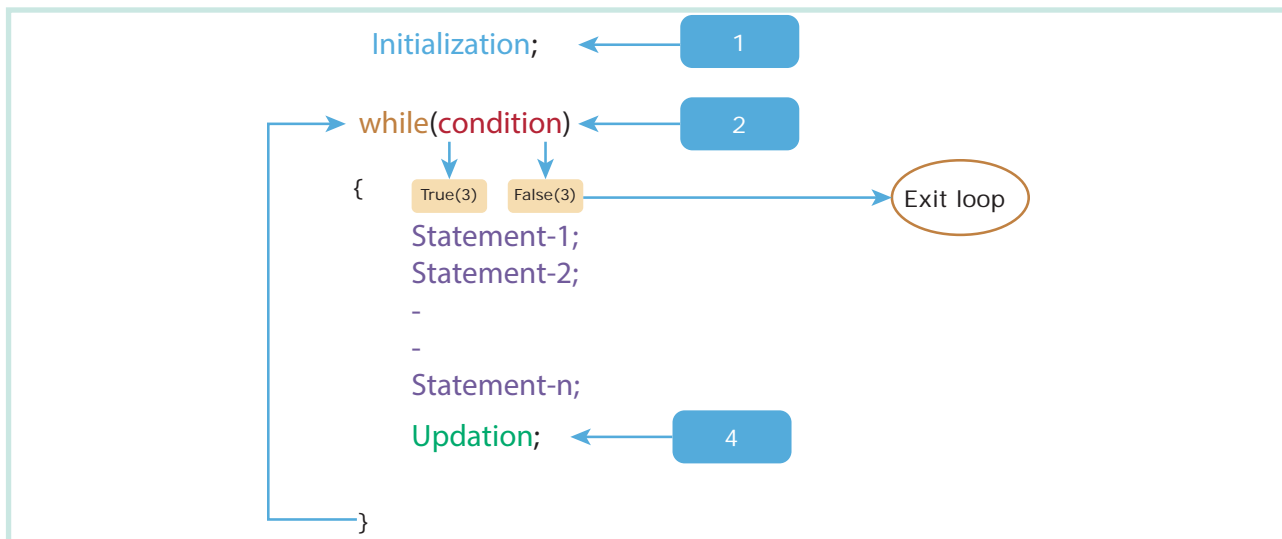


Figure 7.3 While loop Structure and Flow

Syntax:

```
while (condition is true) {
    code to be executed;
}
```

Example:

```
<?php
$Student_count = 10;
$student_number=1;
while($student_number<= $Student_count) {
    echo "The student number is: $student_number<br>";
    $student_number++;
}
?>
```

Do While Loop:

The do.. while loop is always very similar to the while loop but executes the block of code at least once before evaluating the condition. Here the condition is evaluated only at the time of exit of each iteration. Refer Figure 7.4.

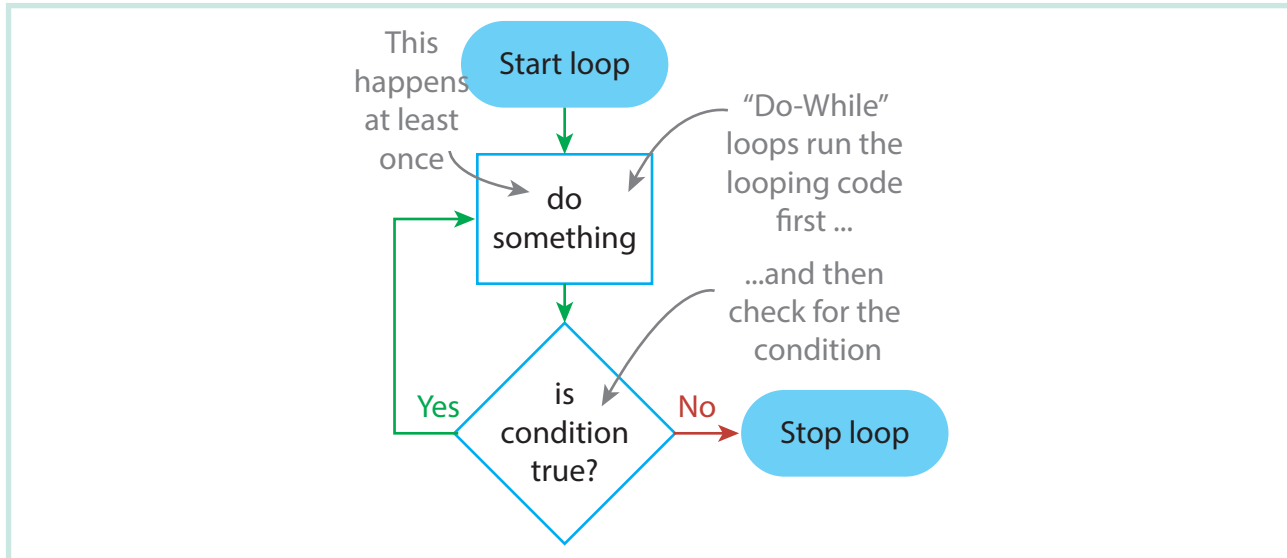


Figure 7.4 DoWhile loop Structure and Flow Chart

Syntax:

```
do {  
    code to be executed;  
} while (condition is true);
```

Example:

```
<?php  
$Student_count = 10;  
  
$student_number=1;  
  
do  
  
{  
  
    echo "The student number is: $student_number<br>";  
    $student_number++;  
  
}  
while($student_number<= $Student_count)  
  
?>
```

POINTS TO REMEMBER

- PHP while loops execute a block of code while the specified condition is true.
- The for loop is used when you know in advance how many times the script should run.
- The foreach loop works only on arrays, and is used to loop through each key/value pair in an array.
- do...while - loops through a block of code once, and then repeats the loop as long as the specified condition is true

A-Z GLOSSARY

Looping Structure	In programming it is often necessary to repeat the same block of code a given number of times, or until a certain condition is met. This can be accomplished using looping statements
for Loop	For loops execute a block of code a specified number of times.
foreach Loop	The foreach construct provides an easy way to iterate over arrays
While Loop	PHP while loops execute a block of code while the specified condition is true.



EVALUATION

Part - I

Choose the correct answer

1. The loop exclusively used for arrays is _____
 - a) While
 - b) Do While
 - c) For
 - d) for each
2. Loops that iterate for fixed number of times is called
 - a) Unbounded loops
 - b) Bounded loops
 - c) While loops
 - d) For loops
3. Which loop evaluates condition expression as Boolean, if it is true, it executes statements and when it is false it will terminate?
 - a) For loop
 - b) For each loop
 - c) While loop
 - d) All of them
4.

```
for ($ x=0; $ x<5; x++)  
echo "Hai"
```

The above loop executes how many no of times?
 - a) 5
 - b) 4
 - c) 3
 - d) 2



5. What will be displayed in a browser when the following PHP code is executed:

```
<?php
for ($counter = 20; $counter < 10;
$counter++){
echo "Welcome to Tamilnadu ";
}
echo "Counter is: $counter";
?>
```

- a) Welcome to Tamilnadu
- b) Counter is: 20
- c) Welcome to Tamilnadu Counter is: 22
- d) Welcome to Tamilnadu Welcome to Tamilnadu Counter is: 22

6. What will be displayed in a browser when the following PHP code is executed:

```
<?php
for ($counter = 10; $counter < 10;
$counter = $counter + 5){
echo "Hello";
}
?>
```

- a) Hello Hello Hello Hello Hello
- b) Hello Hello Hello
- c) Hello
- d) None of the above

7. PHP supports which types of looping techniques;

- a) for loop
- b) while loop
- c) foreach loop
- d) all the above

8. Consider the following code

```
<? php
$count=12;
do{
printf("%d squared=%d<br/>",
$count, pow($count,2));
} while($count<4);
?>
```

What will be the output of the code.

- a) 12 squared 141
- b) 12 squared=141
- c) "12 squared=141"
- d) Execution error

9. What will be the output of the following PHP code ?

```
<?php
for ($x = 1; $x < 10; ++$x)
{
print "*\t";
}
?>
```

- a) *****
- b) *****
- c) *****
- d) Infinite loop

10. What will be the output of the following PHP code ?

```
<?php
for ($x = -1; $x < 10; --$x)
{
print $x;
}
?>
```

- a) 123456713910412
- b) 123456713910
- c) 1234567139104
- d) Infinite loop



Part - II

Short Answers

1. Define Looping Structure in PHP.
 2. Define for loop in PHP.
 3. What is For each loop in PHP?
 4. List out Looping Structure in PHP.
 5. Write Syntax of For loop in PHP.
 6. Write Syntax of For each loop in PHP.
 7. Write Syntax of while loop in PHP.
 8. Write Syntax of Do while loop in PHP.
 9. Compare For loop and for each loop.
 10. Explain the use of for each loop in PHP
2. Write the purpose of Looping Structure in PHP
 3. Differentiate For each and While loop.
 4. Write short notes on Do while Loop.
 5. Differentiate While and Do while loops.

Part - III

Explain in Brief Answer

1. Write the features Looping Structure.

Part - IV

Explain in detail

1. Explain Looping Structure in PHP.
2. Discuss in detail about For each loop.
3. Explain the process Do while loop.
4. Explain concepts of for loop with example.
5. Explain working of loops in array.



STUDENT ACTIVITY

- Create simple array element and display the values using foreach
- Explain real world usages in using Looping Structure