

## ◆ What is an Array in PHP?

An **array** is a data structure that can hold **multiple values** in a **single variable**.

For example:

```
$fruits = ["Apple", "Banana", "Cherry"];
```

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## ◆ Types of Arrays in PHP

### 1. Indexed Arrays

Indexed arrays use numeric indexes starting from 0.

#### ✓ How to Create:

```
$colors = array("Red", "Green", "Blue");  
// or  
$colors = ["Red", "Green", "Blue"];
```

#### ✓ How to Access:

```
echo $colors[0]; // Output: Red
```

#### ✓ Looping Through:

```
foreach ($colors as $color) {  
    echo $color . "<br>";  
}
```

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### 2. Associative Arrays

Associative arrays use **named keys** instead of numeric indexes.

## ✓ How to Create:

```
$person = array(  
    "name" => "Sobuj",  
    "age" => 28,  
    "city" => "Dhaka"  
);  
// or  
$person = ["name" => "Sobuj", "age" => 28, "city" => "Dhaka"];
```

## ✓ How to Access:

```
echo $person["name"]; // Output: Sobuj
```

## ✓ Looping Through:

```
foreach ($person as $key => $value) {  
    echo "$key: $value <br>";  
}
```

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# 3. Multidimensional Arrays

Arrays that contain one or more arrays inside them.

## ✓ Example:

```
$users = [  
    ["name" => "Sobuj", "email" => "sobuj@example.com"],  
    ["name" => "Rabbil", "email" => "rabbil@example.com"]  
];
```

## ✓ Accessing:

```
echo $users[0]["name"]; // Output: Sobuj
```

## ✓ Looping:

```
foreach ($users as $user) {  
    echo "Name: " . $user["name"] . ", Email: " . $user["email"] . "<br>";  
}
```

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## ◆ What is JSON?

**JSON (JavaScript Object Notation)** is a lightweight data-interchange format that is easy for humans to read and write and easy for machines to parse and generate.

Example JSON:

```
{  
  "name": "Sobuj",  
  "age": 28  
}
```

---

## ◆ Convert PHP Array to JSON

```
$person = [  
    "name" => "Sobuj",  
    "age" => 28  
];  
  
$jsonData = json_encode($person);  
  
echo $jsonData;  
// Output: {"name":"Sobuj","age":28}
```





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## ◆ Convert JSON to PHP Array

```
$json = '{"name":"Sobuj","age":28}';  
  
$array = json_decode($json, true); // true = return as associative array  
  
echo $array["name"]; // Output: Sobuj
```

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## When to Use Which?

-  Use **indexed arrays** for simple lists.
  -  Use **associative arrays** for key-value pairs like user data.
  -  Use **multidimensional arrays** when you need to group sets of data (like tables).
  -  Use **JSON** to store or send structured data (e.g., API communication or file storage).
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