Differentiate between PHP5 and PHP7.

1. **Performance:**
   - **PHP 5:** PHP 5 had performance limitations and was relatively slower compared to later versions.
   - **PHP 7:** PHP 7 introduced significant performance improvements. It included the Zend Engine 3.0, which made PHP 7 up to twice as fast as PHP 5.6 for many applications. This improvement was achieved through better memory usage and optimizations in the core engine.
2. **Scalar Type Declarations:**
   - **PHP 5:** PHP 5 allowed type hinting for class/interface types, but it didn't support scalar type declarations (int, float, string, bool).
   - **PHP 7:** PHP 7 introduced scalar type declarations, which allow you to specify the expected data types for function parameters and return values. You can use `int`, `float`, `string`, and `bool` as type hints.
3. **Return Type Declarations:**
   - **PHP 5:** PHP 5 did not support return type declarations for functions.
   - **PHP 7:** PHP 7 introduced return type declarations, which allow you to specify the expected data type that a function should return. You can use `: returnType` after the function declaration.
4. **Spaceship Operator (<=>):**
   - **PHP 5:** The spaceship operator (<=>) was not available in PHP 5.
   - **PHP 7:** PHP 7 introduced the spaceship operator for comparing two values, making it easier to implement custom sorting and comparison functions.
5. **Null Coalescing Operator (??):**
   - **PHP 5:** The null coalescing operator (??) was not available in PHP 5.
   - **PHP 7:** PHP 7 introduced the null coalescing operator, which provides a concise way to handle potentially null values.
6. **Anonymous Classes:**
   - **PHP 5:** PHP 5 did not support anonymous classes.
   - **PHP 7:** PHP 7 introduced support for anonymous classes, allowing you to define classes on the fly without explicitly naming them.
7. **Error Handling:**
   - **PHP 5:** PHP 5 used traditional error handling with `mysql_error()`, `mysql_errno()`, and `die()`.
   - **PHP 7:** PHP 7 introduced a more consistent and improved error handling mechanism using exceptions. It also introduced the Throwable interface for better exception handling.
8. **Improved Type Hinting:**

- **PHP 5:** PHP 5 had limited support for type hinting, primarily for class and interface types.
- **PHP 7:** PHP 7 expanded type hinting capabilities, including scalar type hints, return type hints, and improved support for custom types through interfaces and classes.

9. **Deprecated Features:**
    - **PHP 5:** PHP 5 included many features and functions that were deprecated and removed in later versions.
    - **PHP 7:** PHP 7 removed several deprecated features and improved the consistency of the language.
10. **Unicode Support:**
    - **PHP 5:** PHP 5 had limited support for Unicode, making handling multibyte character encodings challenging.
    - **PHP 7:** PHP 7 improved Unicode support and introduced functions for working with multibyte strings more effectively.
11. **New Operators and Functions:**
    - **PHP 5:** PHP 5 introduced some operators and functions, but the additions were more significant in PHP 7.
12. **Compatibility:**
    - **PHP 5:** PHP 5 had a substantial user base and many existing applications running on it.
    - **PHP 7:** PHP 7 aimed to maintain backward compatibility with PHP 5 while introducing new features. However, some older code might require modifications to run on PHP 7.

Types of Error in php

1. **Parse Errors:**
    - Parse errors occur during the parsing phase of PHP script execution, often due to syntax errors in the code.
    - These errors prevent the script from running and typically include messages like "syntax error, unexpected token."
2. **Fatal Errors:**
    - Fatal errors are severe issues that cause the script to terminate abruptly.
    - Examples include calling an undefined function or accessing an undefined class.
    - Fatal errors cannot be caught or handled within the script.
3. **Warnings:**
    - Warnings are non-fatal errors that don't halt script execution but indicate potential issues.

- For example, using an uninitialized variable or including a file that doesn't exist.

4. **Notices:**
   - Notices are less severe than warnings and are often related to variables that are used without being explicitly initialized.
   - While notices don't halt script execution, they should be addressed to ensure correct behavior.
5. **Errors Triggered by User-defined Functions:**
   - These errors can occur within user-defined functions or methods.
   - Developers can use the `trigger_error()` function to generate custom errors and exceptions within their code.
6. **Exceptions:**
   - Exceptions are a more advanced error-handling mechanism introduced in PHP 5.
   - They allow for structured error handling using `try`, `catch`, `finally`, and `throw` statements.
   - Exceptions can be categorized into two main types:
     - **Built-in Exceptions:** PHP provides several built-in exception classes, such as `Exception`, `InvalidArgumentException`, `RuntimeException`, etc.
     - **Custom Exceptions:** Developers can define their own custom exception classes to handle specific application-level errors.
7. **Deprecated Features:**
   - Deprecated features are functions, classes, or methods that are marked as deprecated and may be removed in future PHP versions.
   - Using deprecated features generates warnings to encourage developers to update their code.
8. **Compile-time Errors:**
   - Compile-time errors occur during the compilation phase before script execution.
   - These errors include issues like referencing a non-existent class or extending a final class.
9. **Execution-time Errors:**
   - Execution-time errors occur during script execution and may be triggered by various runtime conditions.
   - Examples include division by zero, accessing an undefined array index, or exceeding memory limits.
10. **Assertion Errors:**
    - Assertions are used to test conditions during development and are typically disabled in production.
    - When an assertion fails, an `AssertionError` is thrown, indicating a logical error in the code.
11. **Database Errors:**

- These errors occur when interacting with a database using database extensions like MySQLi or PDO.
- Examples include connection errors, query errors, and data retrieval errors.

12. **HTTP Errors:**
    - HTTP errors are not PHP-specific but may be relevant when dealing with web applications.
    - Examples include HTTP status codes like 404 (Not Found) or 500 (Internal Server Error).

LAMP Setup

Setting up a LAMP (Linux, Apache, MySQL, PHP) stack on a server involves installing and configuring the necessary components to host web applications or websites. Here are the steps to set up a LAMP stack on a Linux server:

1. Provision a Linux Server:

1. Choose a Linux distribution such as Ubuntu, CentOS, or Debian for your server.
2.Rent a virtual private server (VPS) from a hosting provider or set up a physical server, if applicable.

2. Connect to the Server:

Access your server via SSH using a terminal or an SSH client. Replace `your_server_ip` with the actual IP address of your server.

```
cssCopy code
ssh username@your_server_ip
```

3. Update the System:

Before installing any software, update the package list and upgrade installed packages to ensure you have the latest security updates.

```
sqlCopy code
sudo apt update sudo apt upgrade
```

4. Install Apache Web Server:

Install the Apache web server using the package manager for your Linux distribution. For example, on Ubuntu:

Copy code
```
sudo apt install apache2
```

5. Start and Enable Apache:

Start the Apache service and enable it to start automatically on boot.

bashCopy code
```
sudo systemctl start apache2 sudo systemctl enable apache2
```

6. Test Apache:

Open a web browser and enter your server's IP address. You should see the default Apache test page, indicating that Apache is running.

7. Install MySQL (or MariaDB):

Install the MySQL or MariaDB database server. MariaDB is a drop-in replacement for MySQL and is often used in modern LAMP setups.

Copy code
```
sudo apt install mariadb-server
```

8. Secure MySQL (Optional but Highly Recommended):

Run the MySQL secure installation script to set a root password and improve security.

Copy code
```
sudo mysql_secure_installation
```

9. Install PHP:

Install PHP and necessary PHP modules for your web applications.

Copy code
```
sudo apt install php php-mysql
```

10. Test PHP:

Create a PHP info file to test PHP installation. Create a file named `info.php` in the web server's document root (usually `/var/www/html`) with the following content:

phpCopy code
```
<?php phpinfo(); ?>
```

Access `http://your_server_ip/info.php` in a web browser to see PHP information.

11. Configure Apache for PHP:

To enable Apache to process PHP files, you may need to configure Apache to use the PHP module. On Ubuntu, it's usually enabled by default. On other distributions, you might need to enable it manually.

12. Create and Host Your Web Applications:

Upload your web application files to the appropriate directory (usually `/var/www/html`) and configure Apache virtual hosts if needed.

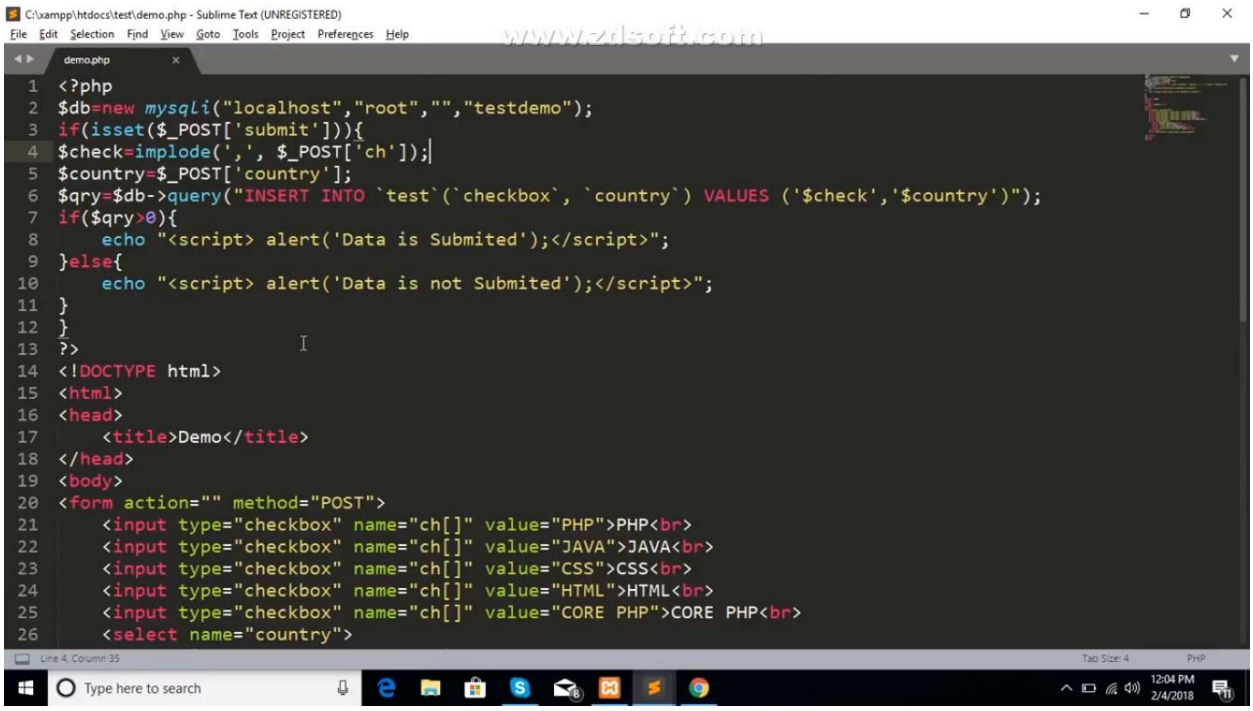
13. Secure Your Server:

1.Implement firewall rules (e.g., using UFW or iptables) to restrict access to your server.
2.Keep software up to date, apply security patches, and follow best practices for server security.

14. Optional: Install phpMyAdmin (Database Management Tool):

If you need a web-based interface for managing MySQL/MariaDB databases, you can install phpMyAdmin. Be sure to secure it properly.

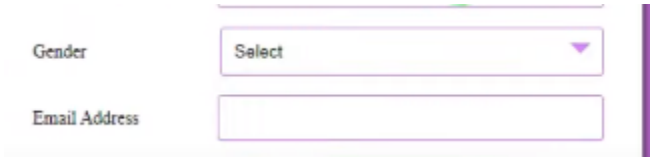
That's it! You now have a basic LAMP stack set up on your server. You can expand upon this setup by installing additional PHP modules, configuring Apache virtual hosts, and securing your web applications as needed.




```php
<?php
$con=mysqli_connect("localhost","root","","complete_php");
//$sql="insert into student(name,city) values('Vishal','Delhi')";
//$sql="update student set name='Amit' where id=1";
//$sql="delete from student where id=1";
$sql="select * from student";
$res=mysqli_query($con,$sql);
while($row=mysqli_fetch_assoc($res)){
    echo '<pre>';
    print_r($row);
}
?>
```

Select Insert

Reference Cyber variye youtube chanel
https://www.youtube.com/watch?v=UNFdrhu_5GU&list=PLejKBGxF74J67G7KSGHA4JPOKW9H3cQq3&index=9




```php
<?php
    if($_POST['register'])
    {
        $fname    = $_POST['fname'];
        $lname    = $_POST['lname'];
        $pwd      = $_POST['password'];
        $cpwd     = $_POST['conpassword'];
        $gender   = $_POST['gender'];
        $email    = $_POST['email'];
        $phone    = $_POST['phone'];
        $address  = $_POST['address'];

        $query = "INSERT INTO FORM VALUES('$fname','$lname','$pwd','$cpwd','$gender','$email','$
            phone','$address')";
        $data = mysqli_query($conn,$query);

        if($data)
        {
            echo "Data Inserted into Database";
        }
        else
        {
            echo "Failed";
        }
    }
?>
```

```html
<div class="input_field">
    <label>Gender</label>
    <div class="custom_select">
    <select name="gender">
        <option value="Not Selected">Select</option>
        <option value="male">Male</option>
        <option value="female">Female</option>
    </select>
</div>
</div>
```

```php
if($total != 0)
{
    while($result = mysqli_fetch_assoc($data))
    {
        echo $result[fname]." ".$result[lname]." ".$result[gender]." ".$
            result[email]." ".$result[phone]." ".$result[address]."<br>";
    }
}
else
{
    echo "No records found";
}
```

```php
<?php
while($result = mysqli_fetch_assoc($data))
{
    echo "<tr>
            <td>".$result[fname]."</td>
            <td>".$result[lname]."</td>
            <td>".$result[gender]."</td>
            <td>".$result[email]."</td>
            <td>".$result[phone]."</td>
            <td>".$result[address]."</td>
        </tr>
        ";
}
```

```php
<div class="input_field">
    <label>Address</label>
    <textarea class="textarea" name="address" required>
        <?php echo $result['address']; ?>
    </textarea>
</div>
```

Updated

```
<select name="gender" required>
    <option value="">Select</option>

    <option value="male"
        <?php
            if($result['gender'] == 'male')
            {
                echo "selected";
            }
        ?>
    >

    Male</option>
<option value="female"
<?php
        if($result['gender'] == 'female')
        {
            echo "selected";
        }
    ?>
>

Female</option>
</select>
```

```php
$email    = $_POST['email'];
$phone    = $_POST['phone'];
$address = $_POST['address'];

$query = "UPDATE form2 set fname='$fname',lname='$lname',password
    ='$pwd',cpassword='$cpwd',gender='$gender',email='$email',
    phone='$phone',address='$address' WHERE id='$id'";

$data = mysqli_query($conn,$query);

if($data)
{
    echo "Record Updated";
}
else
{
    echo "Failed to Update";
}
```

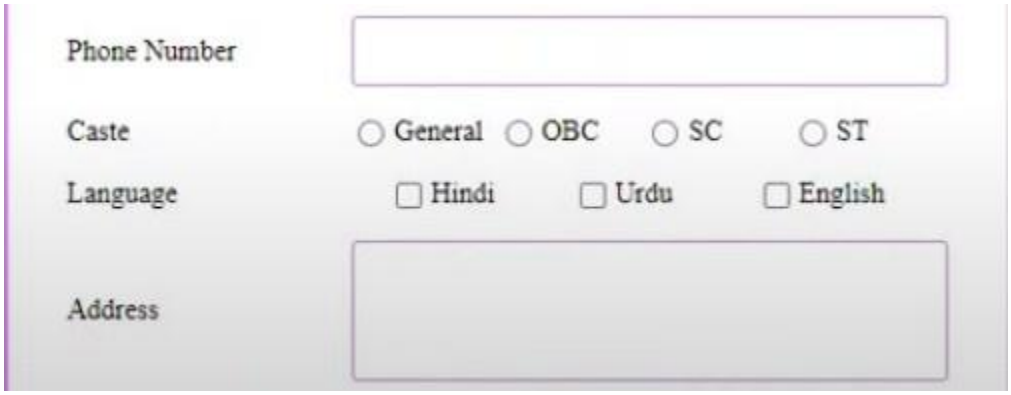
```php
    $query = "UPDATE form2 set fname='$fname',lname='$lname',password='$
        pwd',cpassword='$cpwd',gender='$gender',email='$email',phone='$
        phone',address='$address' WHERE id='$id'";

    $data = mysqli_query($conn,$query);

    if($data)
    {
        echo "<script>alert('Record Updated')</script>";
        ?>

        <meta http-equiv = "refresh" content = "0; url =
        http://localhost:8080/crud/display.php" />

        <?php
    }
    else
    {
        echo "Failed to Update";
    }
}
```

```
                <a href='delete.php?id=$result[id]'><input type='submit'
                    value='Delete' class='delete' onclick = 'return
                    checkdelete()'></a></td>
            </tr>
             ";
    }
```

```
<script>
    function checkdelete()
    {
        return confirm('Are you sure your want to delete this record ?');
    }
</script>
```

```
$id = $_GET['id'];

$query = "DELETE FROM FORM2 WHERE id = '$id' ";
$data = mysqli_query($conn,$query);

if($data)
{
    echo "<script>alert('Record Deleted')</script>";
    ?>

    <meta http-equiv = "refresh" content = "0; url = http://localhost:8080
    /crud/display.php" />

    <?php
}
else
{
    echo "<script>alert('Failed To Deleted')</script>";
}

?>
```

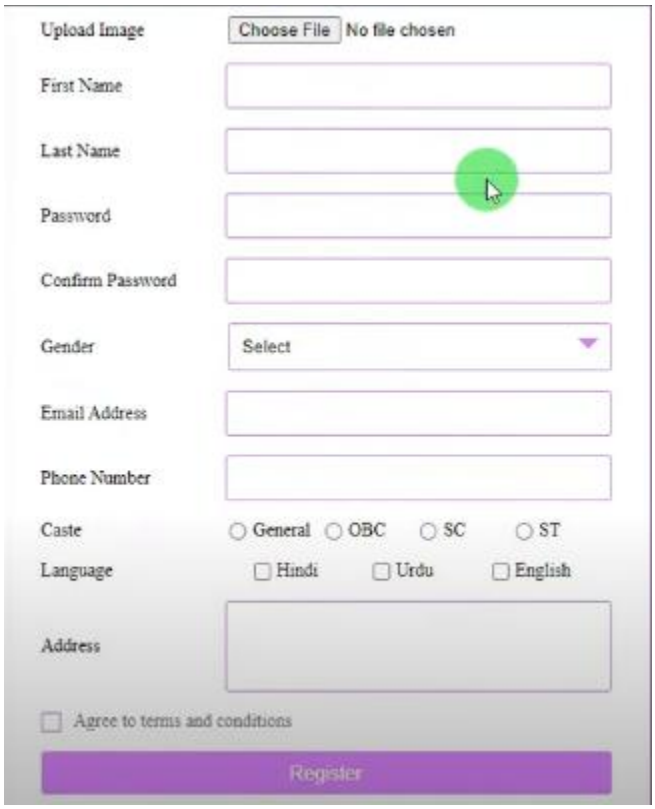
Redio




```
<div class="input_field">
    <label>Phone Number</label>
    <input type="text" class="input" name="phone" required>
</div>

<div class="input_field">
    <label style="margin-right: 100px;">Caste</label>
    <input type="radio" name="r1" value="General" required><label style="margin-left: 5px;">General</label>
    <input type="radio" name="r1" value="OBC" required><label style="margin-left: 5px;">OBC</label>
    <input type="radio" name="r1" value="SC" required><label style="margin-left: 5px;">SC</label>
    <input type="radio" name="r1" value="ST" required><label style="margin-left: 5px;">ST</label>
</div>

<div class="input_field">
    <label>Address</label>
    <textarea class="textarea" name="address" required></textarea>
</div>
```

```
<?php
    if($_POST['register'])
    {
        $fname   = $_POST['fname'];
        $lname   = $_POST['lname'];
        $pwd     = $_POST['password'];
        $cpwd    = $_POST['conpassword'];
        $gender  = $_POST['gender'];
        $email   = $_POST['email'];
        $phone   = $_POST['phone'];
        $caste   = $_POST['r1'];
        $address = $_POST['address'];

        $query = "INSERT INTO FORM2 (fname,lname,password,cpassword,gender,email,phone,caste,address)
            VALUES('$fname','$lname','$pwd','$cpwd','$gender','$email','$phone','$caste','$address')";
        $data = mysqli_query($conn,$query);

        if($data)
        {
            echo "Data Inserted into Database";
        }
        else
```

```
<div class="input_field">
    <label style="margin-right: 100px;">Caste</label>
    <input type="radio" name="r1" value="General" required

    <?php
        if($result[caste] == "General")
        {
            echo "checked";
        }
    ?>
<label style="margin-left: 5px;">General</label>
<input type="radio" name="r1" value="OBC" required

<?php
    if($result[caste] == "OBC")
    {
        echo "checked";
    }
?>
```



Checkbox

```
<div class="input_field">
    <label style="margin-right: 100px;">Language</label>
        <input type="checkbox" name="language[]" value="Hindi" required><label style="margin-left: 5px;">Hindi</label>
        <input type="checkbox" name="language[]" value="Urdu" required><label style="margin-left: 5px;">Urdu</label>
        <input type="checkbox" name="language[]" value="English" required><label style="margin-left: 5px;">English</label>
            </div>

            <div class="input_field">
                <label>Address</label>
                <textarea class="textarea" name="address" required></textarea>
            </div>
```

```
{
    $fname    = $_POST['fname'];
    $lname    = $_POST['lname'];
    $pwd      = $_POST['password'];
    $cpwd     = $_POST['conpassword'];
    $gender   = $_POST['gender'];
    $email    = $_POST['email'];
    $phone    = $_POST['phone'];
    $caste    = $_POST['r1'];

    $lang    = $_POST['language'];
    $lang1   = implode(",",$lang);

    $address = $_POST['address'];

    $query = "INSERT INTO FORM2 (fname,lname,password,cpassword,gender,email,
        phone,caste,language,address) VALUES('$fname','$lname','$pwd','$cpwd','$
        gender','$email','$phone','$caste','$lang1','$address')";
    $data = mysqli_query($conn,$query);

    if($data)
    {
        echo "Data Inserted into Database";
```

```
splay.php    update_design.php
$id = $_GET['id'];

$query = "SELECT * FROM FORM4 where id= '$id'";
$data = mysqli_query($conn, $query);
$result = mysqli_fetch_assoc($data);

$language  = $result['language'];
$language1 = explode(",", $language)

?>

<!DOCTYPE html>
<html>
<head>
```

```
<label style="margin-right: 100px;">Language</label>
    <input type="checkbox" name="language[]" value="Hindi"

    <?php
    if(in_array(Hindi, $language1))
    {
        echo "checked";
    }
    ?>

    >
```

```
<label style="margin-left: 5px;">Hindi</label>
<input type="checkbox" name="language[]" value="Urdu"

<?php
if(in_array(Urdu, $language1))
{
    echo "checked";
}
?>

>
```

display.php | update_design.php | form.php

```
        $phone    = $_POST['phone'];
        $caste    = $_POST['r1'];

        $lang     = $_POST['language'];
        $lang1    = implode(",",$lang);

        $address = $_POST['address'];

        $query = "UPDATE form4 set fname='$fname',lname='$lname',password='$pwd'
            ,cpassword='$cpwd',gender='$gender',email='$email',phone='$phone',
            caste='$caste',language='$lang1',address='$address' WHERE id='$id'";

        $data = mysqli_query($conn,$query);

        if($data)
        {
            echo "<script>alert('Record Updated')</script>";
            ?>

            <meta http-equiv = "refresh" content = "0; url =
            http://localhost:8080/crud/display.php" />

            <?php
```

After Insert data Redirection

```
        $address = $_POST['address'];

        $query = "INSERT INTO FORM4 (std_image,fname,lname,password,cpassword,gender,
            email,phone,caste,language,address) VALUES('$folder','$fname','$lname','$
            pwd','$cpwd','$gender','$email','$phone','$caste','$lang1','$address')";
        $data = mysqli_query($conn,$query);

        if($data)
        {
            echo "<script> alert('Data Inserted into Database') </script>";
        }
        else
        {
            echo "<script> alert('Failed') </script>";
        }
    }
?>
```

```
<body>
    <?php
        $connection = mysqli_connect("localhost","root","","aptech");
        $query = "SELECT * FROM tbl_products";
        $result = mysqli_query($connection,$query);
    ?>
    <select>
        <option>Select Any Product</option>
        <?php
            foreach($result as $row)
            {
                echo "<option>$row[product_name]</option>";
            }
        ?>
    </select>
</body>
```

File Upload

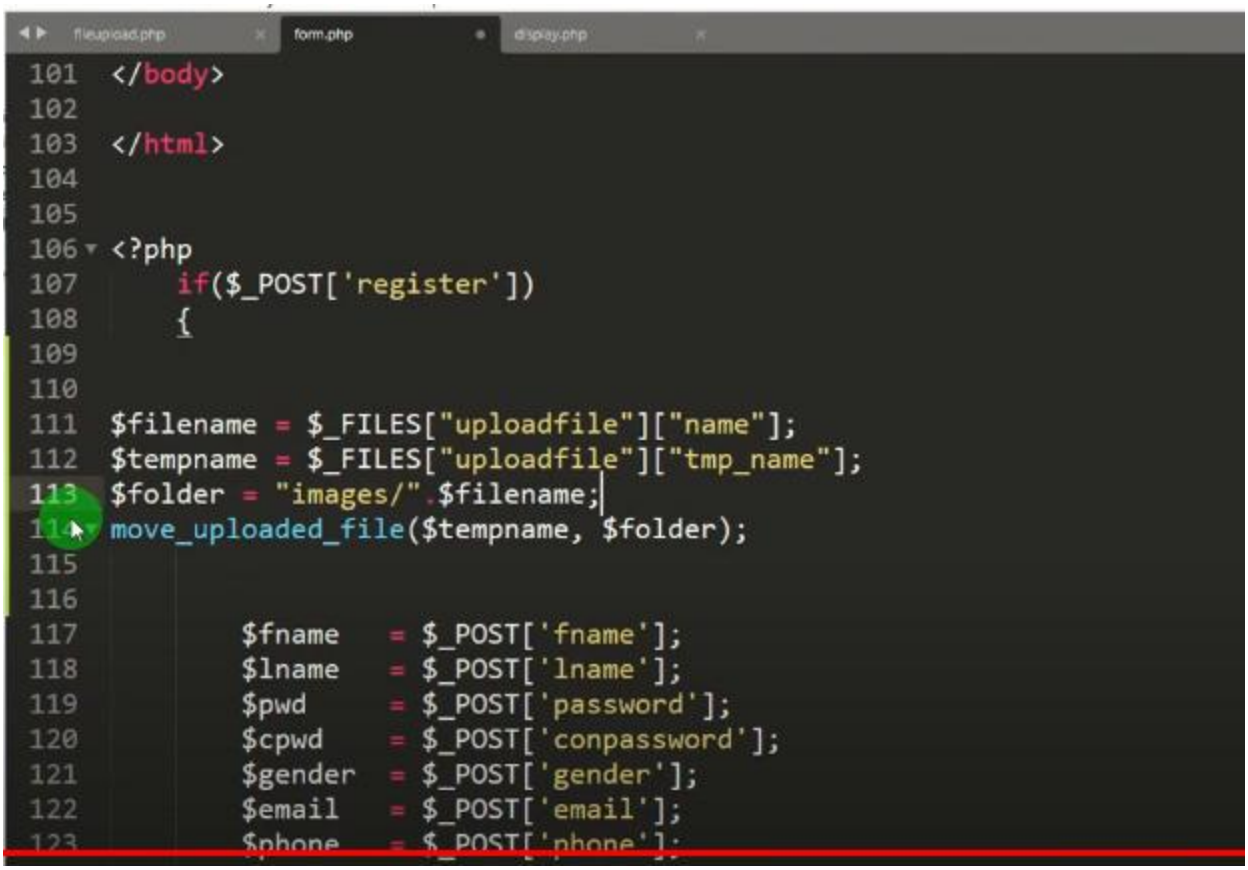
```
<body>
    <form action="#" method="POST" enctype="multipart/form-data">
        <input type="file" name="uploadfile"><br><br>
        <input type="submit" name="submit" value="Upload File">
    </form>
</body>
```

```
<?php

//print_r($_FILES["uploadfile"]);
$filename = $_FILES["uploadfile"]["name"];
$tempname = $_FILES["uploadfile"]["tmp_name"];
$folder = "images/".$filename;
echo $folder;
move_uploaded_file($tempname, $folder);

?>
```

```
<?php

//print_r($_FILES["uploadfile"]);
$filename = $_FILES["uploadfile"]["name"];
$tempname = $_FILES["uploadfile"]["tmp_name"];
$folder = "images/".$filename;
//echo $folder;
move_uploaded_file($tempname, $folder);

echo "<img src='$folder' height='100px' width='100px' ";

?>
<img src="images/1_L5IJM6n8N4wiwqRgoZrWaw.png" height="100px"
width="100px">
```

```php
<?php
if(isset($_POST['submit'])){
    echo '<pre>';
    print_r($_FILES);
    move_uploaded_file($_FILES['doc']['tmp_name'],
    'media/'.$_FILES['doc']['name']);
}

?>
<form method="post" enctype="multipart/form-data">
    <input type="file" name="doc"/>
    <input type="submit" name="submit"/>
</form>
```

```php
<?php
if(isset($_POST['submit'])){
    $file=rand(111111111,999999999);

    echo '<pre>';
    print_r($_FILES);
    move_uploaded_file($_FILES['doc']['tmp_name'],
    'media/'.$file.$_FILES['doc']['name']);
}

?>
<form method="post" enctype="multipart/form-data">
    <input type="file" name="doc"/>
    <input type="submit" name="submit"/>
</form>
```




```
$lang    = $_POST['language'];
$lang1   = implode(",",$lang);

$address = $_POST['address'];

$query = "INSERT INTO FORM4 (std_image,fname,lname,password,cpassword,gender,
    email,phone,caste,language,address) VALUES( $folder','$fname','$lname','$
    pwd','$cpwd','$gender','$email','$phone','$caste','$lang1','$address')";
$data = mysqli_query($conn,$query);

if($data)
{
    echo "Data Inserted into Database";
}
else
{
```

```php
<?php
while($result = mysqli_fetch_assoc($data))
{
    echo "<tr>
            <td>".$result[id]."</td>

            <td><img src= '".$result[std_image]."' height='100px' width='100px'></td>

            <td>".$result[fname]."</td>
            <td>".$result[lname]."</td>
            <td>".$result[gender]."</td>
            <td>".$result[email]."</td>
            <td>".$result[phone]."</td>
            <td>".$result[caste]."</td>
            <td>".$result[language]."</td>
            <td>".$result[address]."</td>

            <td><a href='update_design.php?id=$result[id]'><input type='submit'
                value='Update' class='update'></a>

            <a href='delete.php?id=$result[id]'><input type='submit' value='Delete'
                class='delete' onclick = 'return checkdelete()'></a></td>
        </tr>
```

PHP file upload

```php
<?php
if(isset($_POST['submit'])){
    //move_uploaded_file();
    foreach($_FILES['doc']['name'] as $key=>$val){
        $rand=rand('11111111','99999999');
        $file=$rand.'_'.$val;
        move_uploaded_file($_FILES['doc']['tmp_name'][$key],'media/'.$file);
        //insert into table(image) values('$file');
    }
}
?>
<form method="post" enctype="multipart/form-data">
    <input type="file" name="doc[]" multiple/>
    <input type="submit" name="submit"/>
</form>
```

PHP oops file upload

upload.php

```
<?php
class upload{
    public $src = "./upload/";
    public $tmp;
    public $filename;
    public $type;
    public $uploadfile;

    public function startupload(){
        $this -> filename = $_FILES["file"]["name"];
        $this -> tmp = $_FILES["file"]["tmp_name"];
        $this -> uploadfile = $src . basename($this -> name);
    }
    public function uploadfile(){
        if(move_uploaded_file($this -> tmp, $this ->
uploadFile)){
            return true;
        }
    }


}

?>
```

index.php

```
<?php
require_once('./lib/upload.php');
?>
<?php
if(isset($_POST['file'])){
    $fileupload = new upload();
    if($fileupload -> uploadfile()){
        echo 'Success';
    }
}
?>

<html>
```

```
<head></head>
<body>
<form align="center" enctype="multipart/form-data" action="<?php
echo htmlspecialchars($_SERVER["PHP_SELF"]); ?>" method="post">
Select upload file: <input type="file" name="file"
required="yes"  />
<input type="submit" value="Submit" />
<p>
</form>
</body>
</html>
```

Upload Multiple file

https://www.studentstutorial.com/php/file-upload-in-php-mysql

```
<!DOCTYPE html>
<html>
<head>
<title>File Upload</title>
</head>
<body>
<form action="upload.php" method="post" enctype="multipart/form-
data">
<input type="file" name="file" />
<button type="submit" name="upload">upload</button>
</form>
</body>
</html>
```

upload.php

```
<?php
include_once 'database.php';
if(isset($_POST['upload']))
{

 $file = rand(1000,100000)."-".$_FILES['file']['name'];
    $file_loc = $_FILES['file']['tmp_name'];
 $file_size = $_FILES['file']['size'];
 $file_type = $_FILES['file']['type'];
 $folder="upload/";

 /* new file size in KB */
 $new_size = $file_size/1024;
```

```
 /* new file size in KB */

 /* make file name in lower case */
 $new_file_name = strtolower($file);
 /* make file name in lower case */

 $final_file=str_replace(' ','-',$new_file_name);

 if(move_uploaded_file($file_loc,$folder.$final_file))
 {
  $sql="INSERT INTO image(file,type,size)
VALUES('$final_file','$file_type','$new_size')";
  mysqli_query($conn,$sql);


  echo "File sucessfully upload";


 }
 else
 {

  echo "Error.Please try again";

             }
      }
?>
```

For Multiple File

```
<!DOCTYPE html>
<html lang="en" >
<head>
  <meta charset="UTF-8">
  <title>Multiple image upload</title>
  </head>
  <body>
 <form method="post" action="process.php">
 <input type="file" name="image[]" multiple="multiple" >
 <p align="center"><button type="submit" class="btn btn-warning"
id="butsave">Submit<span class="glyphicon glyphicon-
send"></span></button></p>
 </form>
 </body>
 </html>
```

process.php

```
<?php
 $output_dir = "upload/";/* Path for file upload */
    $fileCount = count($_FILES["image"]['name']);
      for($i=0; $i < $fileCount; $i++)

             {
            $RandomNum   = time();

            $ImageName      = str_replace(' ','-
',strtolower($_FILES['image']['name'][$i]));
            $ImageType      = $_FILES['image']['type'][$i];
/*"image/png", image/jpeg etc.*/

            $ImageExt = substr($ImageName, strrpos($ImageName,
'.'));
            $ImageExt       = str_replace('.','',$ImageExt);
            $ImageName      = preg_replace("/\.[^.\s]{3,4}$/",
"", $ImageName);
            $NewImageName = $ImageName.'-
'.$RandomNum.'.'.$ImageExt;

            $ret[$NewImageName]= $output_dir.$NewImageName;

            /* Try to create the directory if it does not exist
*/
                  if (!file_exists($output_dir . $last_id))
                  {
                        @mkdir($output_dir . $last_id, 0777);
                  }


move_uploaded_file($_FILES["image"]["tmp_name"][$i],$output_dir.
$last_id."/".$NewImageName );

             /*$insert_img = "insert into `category_images` SET
`category_ads_id`='".$category_ads_id_image."',
`image`='".$NewImageName."'";
              $result = $dbobj->query($insert_img);*/
               }

        echo "Image Uploaded Successfully";
        ?>
```

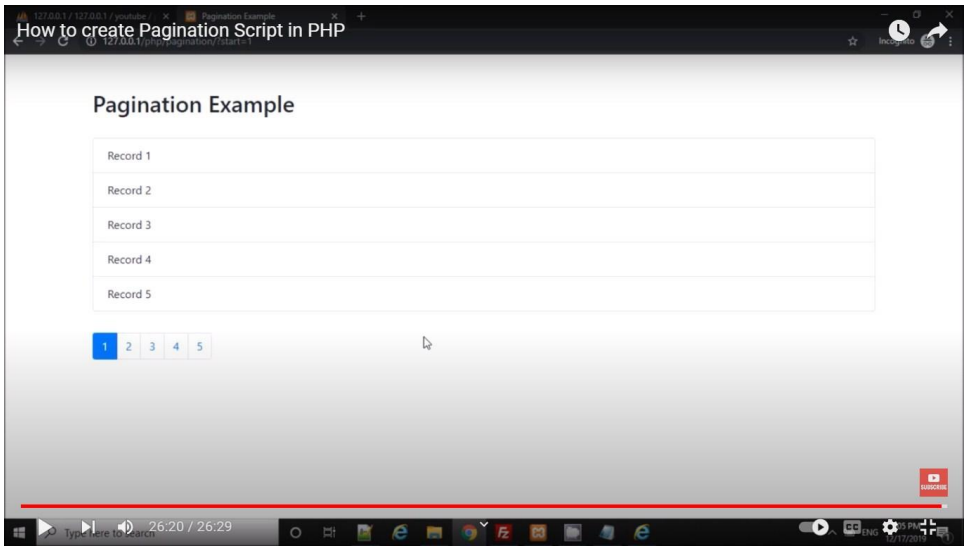
Pagination Vishal

```php
<?php
$con=mysqli_connect('localhost','root','','youtube');


$per_page=5;
$start=0;

if(isset($_GET['start'])){
    $start=$_GET['start'];
    $start--;
    $start=$start*$per_page;
}
$record=mysqli_num_rows(mysqli_query($con,"select id,title from page"));
$pagi=ceil($record/$per_page);

$sql="select id,title from page limit $start,$per_page";
$res=mysqli_query($con,$sql);
?>
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Pagination Example</title>
```

```php
<div class="container mt-100">
  <h2 class="mb-30">Pagination Example</h2>
  <ul class="list-group">
    <?php while($row=mysqli_fetch_assoc($res)){?>
        <li class="list-group-item"><?php echo $row['title']?></li>
    <?php } ?>
  </ul>
  <ul class="pagination mt-30">
    <?php for($i=1;$i<=$pagi;$i++){?>
    <li class="page-item"><a class="page-link" href="?start=<?php echo $i?>"><?php echo $i?></a></li>
    <?php } ?>
  </ul>
</div>
```

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Pagination Example</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet" href="css/bootstrap.min.css">
  <script src="js/jquery.min.js"></script>
  <script src="js/bootstrap.min.js"></script>
  <style>
  .mt-100{margin-top:50px;} .mt-30{margin-top:30px;}.mb-30{margin-bottom:30px;}
  </style>
  <?php
$con=mysqli_connect('localhost','root','','youtube');
$per_page=5;
$start=0;
$current_page=1;
if(isset($_GET['start'])){
    $start=$_GET['start'];
    if($start<=0){
        $start=0;
        $current_page=1;
    }else{
        $current_page=$start;
        $start--;
        $start=$start*$per_page;
    }
}
$record=mysqli_num_rows(mysqli_query($con,"select id,title from page"));
$pagi=ceil($record/$per_page);

$sql="select id,title from page limit $start,$per_page";
$res=mysqli_query($con,$sql);
?>
```

```
</head> <body>
<div class="container mt-100">
  <h2 class="mb-30">Pagination Example</h2>
  <ul class="list-group">
    <?php
    if(mysqli_num_rows($res)>0){
    while($row=mysqli_fetch_assoc($res)){?>
        <li class="list-group-item"><?php echo $row['title']?></li>
    <?php } } else {?>
    No records
    <?php } ?>
  </ul>
  <ul class="pagination mt-30">
    <?php
    for($i=1;$i<=$pagi;$i++){
    $class='';
    if($current_page==$i){
        ?><li class="page-item active"><a class="page-link" href="javascript:void(0)">
        <?php echo $i?></a></li>
    <?php
    }else{
    ?>
        <li class="page-item"><a class="page-link" href="?start=<?php echo $i?>">
        <?php echo $i?></a></li>
    <?php
    }
    ?>
    <?php } ?>
  </ul>
</div> </body> </html>
```



https://www.youtube.com/watch?v=t0gBYc7QEU8

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Pagination Example</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet" href="css/bootstrap.min.css">
  <script src="js/jquery.min.js"></script>
  <script src="js/bootstrap.min.js"></script>
  <style>
  .mt-100{margin-top:50px;} .mt-30{margin-top:30px;}.mb-30{margin-bottom:30px;}
  </style>
  <?php
$con=mysqli_connect('localhost','root','','youtube');

$per_page=5;
$start=0;
$current_page=1;
if(isset($_GET['start'])){
    $start=$_GET['start'];
    if($start<=0){
        $start=0;
        $current_page=1;
    }else{
        $current_page=$start;
        $start--;
        $start=$start*$per_page;
    }
}
$record=mysqli_num_rows(mysqli_query($con,"select id,title from page"));
$pagi=ceil($record/$per_page);

$sql="select id,title from page limit $start,$per_page";
$res=mysqli_query($con,$sql);
?>
</head>
<body>
<div class="container mt-100">
  <h2 class="mb-30">Pagination Example</h2>
  <ul class="list-group">
    <?php
    if(mysqli_num_rows($res)>0){
    while($row=mysqli_fetch_assoc($res)){?>
```

```
        <li class="list-group-item"><?php echo $row['title']?></li>
    <?php } } else {?>
    No records
    <?php } ?>
  </ul>
  <ul class="pagination mt-30">
    <?php
    for($i=1;$i<=$pagi;$i++){
    $class='';
    if($current_page==$i){
        ?><li class="page-item active"><a class="page-link"
href="javascript:void(0)"><?php echo $i?></a></li><?php
    }else{
    ?>
        <li class="page-item"><a class="page-link" href="?start=<?php echo
$i?>"><?php echo $i?></a></li>
    <?php
    }
    ?>

    <?php } ?>
  </ul>
</div>

</body>
</html>
```

```
1 CREATE TABLE `tbluser` (
2 `id` int(11) NOT NULL,
3 `Name` varchar(120) NOT NULL,
4 `PhoneNumber` int(11) NOT NULL,
5 `Emailid` varchar(150) NOT NULL,
6 `PostingDate` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP
7 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```php
<?php
// Database Configuration file
include('config.php');?>
<html>
<head>
    <title>Pagination</title>
    <!-- Bootstrap CDN -->
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
</head>
<body>
<table class="table">
    <tr>
    <th>#</th>
    <th>Name</th>
    <th>Phone Number</th>
 <th>Email</th>
   <th>Date</th>
    </tr>
    <?php
//Getting default page number
        if (isset($_GET['pageno'])) {
            $pageno = $_GET['pageno'];
        } else {
            $pageno = 1;
        }
// Formula for pagination
        $no_of_records_per_page = 10;
        $offset = ($pageno-1) * $no_of_records_per_page;
// Getting total number of pages
        $total_pages_sql = "SELECT COUNT(*) FROM tbluser";
        $result = mysqli_query($con,$total_pages_sql);
        $total_rows = mysqli_fetch_array($result)[0];
        $total_pages = ceil($total_rows / $no_of_records_per_page);
        $sql = "SELECT * FROM tbluser LIMIT $offset, $no_of_records_per_page";
        $res_data = mysqli_query($con,$sql);
        $cnt=1;
        while($row = mysqli_fetch_array($res_data)){?>
<tr>
    <td><?php echo $cnt;?></td>
    <td><?php echo $row['Name'];?></td>
    <td><?php echo $row['PhoneNumber'];?></td>
    <td><?php echo $row['Emailid'];?></td>
    <td><?php echo $row['PostingDate'];?></td>
</tr>
 <?php
$cnt++;
  }
    ?>
</table>
<div align="center">
    <ul class="pagination" >
        <li><a href="?pageno=1">First</a></li>
        <li class="<?php if($pageno <= 1){ echo 'disabled'; } ?>">
            <a href="<?php if($pageno <= 1){ echo '#'; } else { echo "?pageno=".($pageno - 1); } ?>">Prev</a>
        </li>
        <li class="<?php if($pageno >= $total_pages){ echo 'disabled'; } ?>">
            <a href="<?php if($pageno >= $total_pages){ echo '#'; } else { echo "?pageno=".($pageno + 1); } ?>">Next</a>
        </li>
        <li><a href="?pageno=<?php echo $total_pages; ?>">Last</a></li>
    </ul>
</div>
```

Paypal Integration in PHP

Step 1: Create a PayPal Business Account

If you don't already have a PayPal business account, you need to create one. This account will allow you to receive payments.

Step 2: Get PayPal API Credentials

PayPal API Username

PayPal API Password

PayPal API Signature

Step 3: Set Up Your PHP Application

In your PHP application, create a form to collect payment information from users. Here's a simplified example of a payment form:

```
<!DOCTYPE html>
<html>
<head>
    <title>Pay with PayPal</title>
</head>
<body>
    <h2>Pay with PayPal</h2>
    <form action="process_payment.php" method="post">
        <input type="hidden" name="cmd" value="_xclick">
        <input type="hidden" name="business" value="your-paypal-
email@example.com">
        <input type="hidden" name="item_name" value="Product Name">
        <input type="hidden" name="item_number" value="123">
        <input type="hidden" name="amount" value="10.00">
        <input type="hidden" name="currency_code" value="USD">
        <input type="hidden" name="return" value="http://your-
website.com/thank-you.php">
        <input type="submit" name="submit" value="Pay with PayPal">
    </form>
</body>
</html>
```

Step 4: Create a PHP Script to Process Payments (process_payment.php)

```php
<?php
$paypal_url = 'https://www.sandbox.paypal.com/cgi-bin/webscr'; // Use the
sandbox URL for testing

// PayPal API credentials
$paypal_email = 'your-paypal-email@example.com'; // Your PayPal business
email
$paypal_currency = 'USD';

// Collect payment data from the form
$item_name = $_POST['item_name'];
$item_number = $_POST['item_number'];
$amount = $_POST['amount'];

// Build PayPal request parameters
$fields = [
    'cmd' => '_xclick',
    'business' => $paypal_email,
    'item_name' => $item_name,
    'item_number' => $item_number,
    'amount' => $amount,
    'currency_code' => $paypal_currency,
    'return' => 'http://your-website.com/thank-you.php', // Redirect URL
after payment
];

// Prepare the query string
$query_string = http_build_query($fields);

// Redirect to PayPal to complete the payment
header("location:$paypal_url?$query_string");
exit();
?>
```

Step 5: Handle the PayPal Response

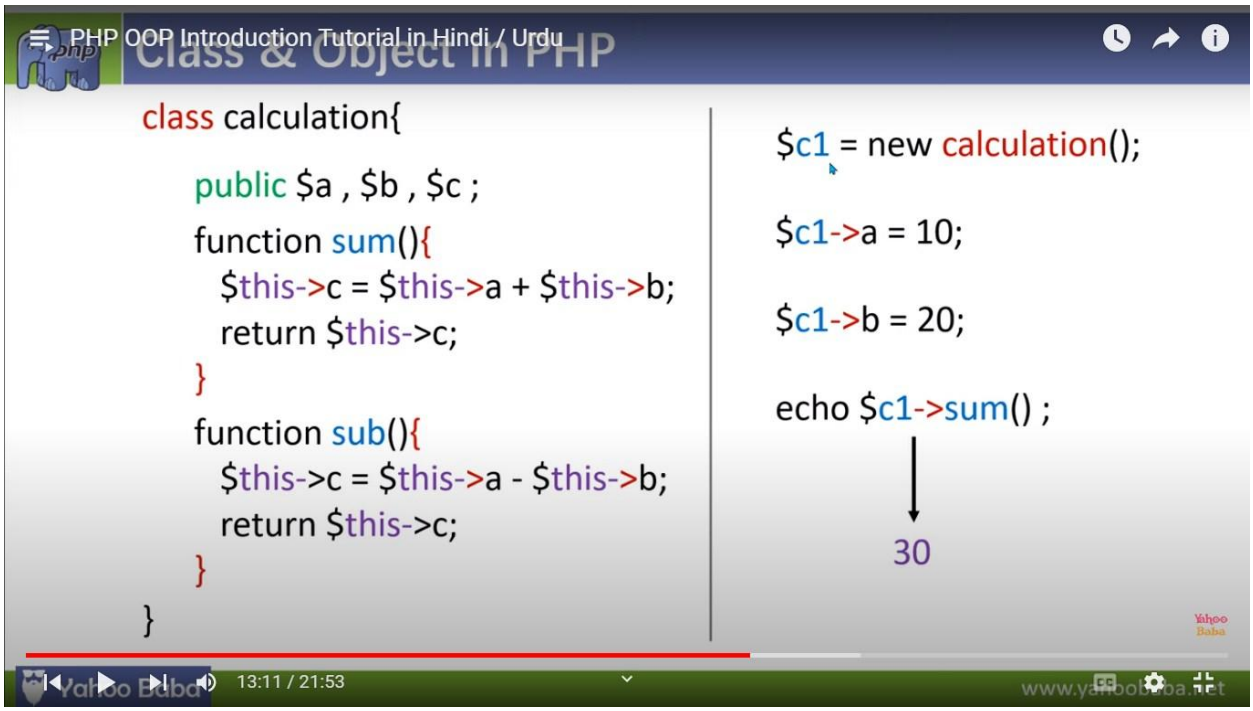
Step 6: Test in the PayPal Sandbox

PHP program with a trait and a class that uses that trait:

```php
<?php
// Define a trait called Logger
trait Logger {
    public function log($message) {
        echo "Logging: $message\n";
    }
}

// Create a class that uses the Logger trait
class MyClass {
    use Logger;

    public function someMethod() {
        $this->log("This is a log message from MyClass");
    }
}

// Create another class that uses the Logger trait
class AnotherClass {
    use Logger;

    public function anotherMethod() {
        $this->log("This is a log message from AnotherClass");
    }
}

// Create instances of MyClass and AnotherClass
$obj1 = new MyClass();
$obj2 = new AnotherClass();

// Call methods that use the log method from the trait
$obj1->someMethod();
$obj2->anotherMethod();
?>
```

```php
<?php
class class1{
    function __construct(){
        echo "start";
    }

    function fun1(){
        echo "Hello";
    }

    function __destruct(){
        echo "end";
    }
}

$obj1=new class1();
$obj1->fun1();
?>
```

```php
<?php
class class1{
    function fun1(){
        echo "Hello";
    }

    function __construct(){
        echo "start";
    }

    function __destruct(){
        echo "end";
    }
}

$obj1=new class1();
$obj1->fun1();
?>
```



constructor.php

```php
<?php

class person{
  public $name = "No Name";
  public $age = 0;

  function __construct($name , $age){
    $this->name = $name;
    $this->age = $age;
  }

  function show(){
    echo $this->name . " - " . $this->age;
  }
}

$p1 = new person("Yahoo Baba",20);

// $p1->name = "Yahoo Baba";
// $p1->age = 20;

$p1->show();
```



```php
class employee{
  public $name;
  public $age;
  public $salary;

  function __construct($n, $a, $s){
    $this->name = $n;
    $this->age = $a;
    $this->salary = $s;
  }

  function info(){
    echo "<h3>Employee Profile</h3>";
    echo "Employee Name : " . $this->name . "<br>";
    echo "Employee Age : " . $this->age . "<br>";
    echo "Employee Salary : " . $this->salary . "<br>";
  }

}

$e1 = new employee("Ram", 25, 2000);

$e1->info();
?>
```

Overriding Methods

```
class A{
    public $name;
    public function show(){
        echo "My Name" . $this->name;
    }
}
class B extends class A{
    public function show(){
        echo "Your Name" . $this->name;
    }
}
```


Abstract Class

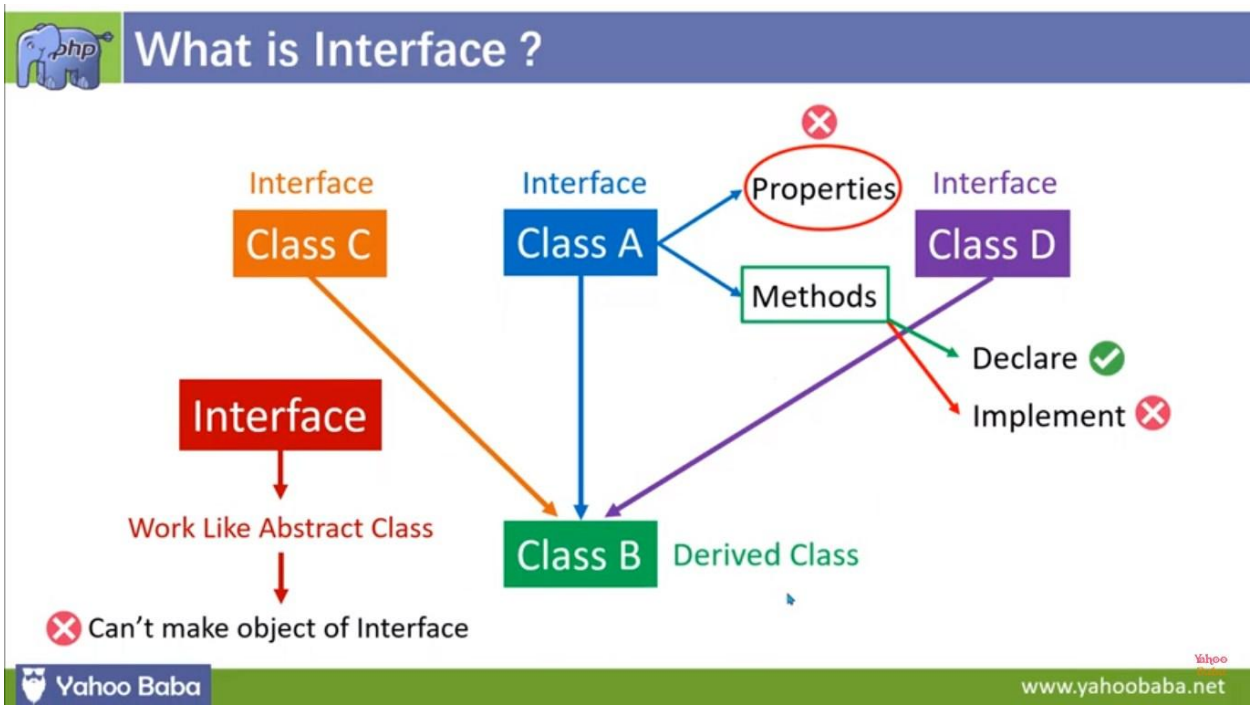
```
1 → abstract class A{
        protected $name;
        protected function __construct($n){
            $this->name = $n;
        }
2 →     abstract protected function show();
    }
    class B extends class A{
3 →     public function show(){
            echo $this->name;
        }
    }
```

Declare ✓

Implement ✗

abstract.php

```php
<?php

abstract class parentClass{

  public $name;

  abstract protected function calc($a, $b);

}

class childClass extends parentClass{

  public function calc($c, $d){
    echo $c + $d;
  }

}

$test = new childClass();

$test->calc(10, 20);
```



Interface

1 → interface A{
    function hello($n);
}

interface C{
2 → function hi($n);
    function bye();
}

3 → $test = new A(); ⊗

4 → class B implements A , C{

```
public function hello($n){
    echo “Hello “ . $n;
}

public function hi($n){
    echo “Hi “ . $n;
}

public function bye(){
    echo “Bye“;
}
```

}

Static Members in PHP

```
class personal{
    public static $name = "Yahoo Baba" ;
    public static function show(){
      echo self::$name;
    }
}

personal::$name;
personal::show();
```

Static Class

Static Members in PHP

```
class personal{
    public static $name = "Yahoo Baba" ;
}

class personal extends accounts{
    public function show(){
      echo parent::$name;
    }
}
```

```
$test = new accounts();
$test->show();
```


Late Static Binding in PHP

```
class personal{
    protected static $name = "Yahoo" ;
    public function show(){
      echo static::name;
    }
}

class personal extends accounts{
    protected static $name = "Baba" ;
}
```

```
$test = new accounts();
$test->show();
```

Baba

Traits in PHP

```
trait test{
    public function hello(){
      echo "Say Hello";
    }
}

class A{
    use test;
}

class B{
    use test;
}
```

```
$obj = new A();
$obj->hello();
```


What is Type Hinting ?

```
function sum(int $value){
  echo $value + 10;
}

sum(10);

sum("Hey");
```

Type declaration

Valid DataTypes

- Int
- Float
- String
- Bool
- Array
- Class / Interface Name
- Object

Namespace

First.php

```
namespace first;
class test{

}
```

Second.php

```
namespace second;
class test{

}
```

Third.php

```
require First.php;
require second.php;

$obj = new first\test();
```


Method Chaining

```
class personal{
    public function first(){
      echo "This is first function";
    }

    public function second(){
      echo "This is second function";
    }

    public function third(){
      echo "This is third function";
    }

}
```

```
$test = new personal();
$test->first();
$test->second();
$test->third();
```

```
$test->first()->second()->third();
```

Magic Methods in PHP

- __construct()
- __destruct()
- __get()
- __set()
- __isset()
- __unset()
- __autoload()
- __clone()
- __sleep()
- __wakeup()
- __call()
- __callStatic()
- __toString()
- __invoke

PHP : List of Magic Constants

- __LINE__
- __FILE__
- __DIR__
- __FUNCTION__
- __CLASS__
- __METHOD__
- __NAMESPACE__
- __TRAIT__

PHP : List of Conditional Functions

- class_exists()
- interface_exists()
- method_exists()
- trait_exists()
- property_exists()
- is_a()
- is_subclass_of()

PHP : List of Get Functions

- get_class
- get_parent_class
- get_class_methods
- get_class_vars
- get_object_vars
- get_called_class
- get_declared_classes
- get_declared_interfaces
- get_declared_traits
- class_alias

Magic Method

```php
<?php
class UserProfile {
    private $data = [];

    public function __construct($name, $email) {
        $this->data['name'] = $name;
        $this->data['email'] = $email;
    }

    public function __get($property) {
        if (array_key_exists($property, $this->data)) {
            return $this->data[$property];
        }
        return null;
    }

    public function __set($property, $value) {
        $this->data[$property] = $value;
    }

    public function __toString() {
        return "Name: {$this->data['name']}, Email: {$this->data['email']}";
    }
}

// Create an instance of UserProfile
$user = new UserProfile("John Doe", "johndoe@example.com");

// Access and modify properties using magic methods
echo "Name: " . $user->name . "\n"; // __get is called
$user->name = "Jane Doe"; // __set is called
echo "Updated Name: " . $user->name . "\n";

// Convert the object to a string using __toString
echo "User Profile: " . $user . "\n";
?>
```

1.We have a UserProfile class that stores user data in a private $data array.

2.The __construct method is called when an object of the class is created, initializing the name and email properties.

3.The __get method is used to retrieve property values. If a property doesn't exist, it returns null.

4.The __set method allows us to set or modify property values.

5.The __toString method customizes how the object is converted to a string when we use it in a string context, like echo.

```php
<?php
class MagicDemo {
    private $data = [];

    public function __construct() {
        echo "An instance of MagicDemo has been created.\n";
    }

    public function __destruct() {
        echo "An instance of MagicDemo is being destroyed.\n";
    }

    public function __get($property) {
        echo "Getting property '$property': ";
        if (array_key_exists($property, $this->data)) {
            return $this->data[$property];
        } else {
            return "Property does not exist.\n";
        }
    }

    public function __set($property, $value) {
        echo "Setting property '$property' to '$value'.\n";
        $this->data[$property] = $value;
    }

    public function __isset($property) {
        echo "Checking if property '$property' is set: ";
        return isset($this->data[$property]);
    }

    public function __unset($property) {
        echo "Unsetting property '$property'.\n";
        unset($this->data[$property]);
    }

    public function __call($method, $arguments) {
        echo "Calling method '$method' with arguments: ";
        print_r($arguments);
```

```php
    }

    public function __toString() {
        return "This is a MagicDemo object.";
    }
}

// Create an instance of MagicDemo
$obj = new MagicDemo();

// Access properties using magic __get and __set
$obj->name = "John";
echo "Name: " . $obj->name . "\n";

// Check property existence using __isset
echo isset($obj->age) ? "Age is set.\n" : "Age is not set.\n";

// Unset property using __unset
unset($obj->name);

// Call undefined method using __call
$obj->doSomething(42, "Hello");

// Convert object to string using __toString
echo $obj;
?>
```

ALL php magic constant uses one program

1. `__LINE__`: Returns the current line number of the file.
2. `__FILE__`: Returns the full path and filename of the file.
3. `__DIR__`: Returns the directory of the file.
4. `__FUNCTION__`: Returns the name of the current function.
5. `__CLASS__`: Returns the name of the current class.
6. `__METHOD__`: Returns the name of the current class method.
7. `__NAMESPACE__`: Returns the current namespace name

```php
<?php
class MyClass {
    public function __construct() {
        echo "Inside " . __METHOD__ . " in " . __CLASS__ . " within namespace
" . __NAMESPACE__ . "\n";
    }

    public function showFilePath() {
        echo "Current file: " . __FILE__ . "\n";
        echo "Current directory: " . __DIR__ . "\n";
    }
}

echo "Current line number: " . __LINE__ . "\n";

$obj = new MyClass();
$obj->showFilePath();
?>
```

1. `__LINE__` is used to display the current line number.
2. `__FILE__` and `__DIR__` are used within the `showFilePath` method of the `MyClass` class to display the current file and directory.
3. `__METHOD__`, `__CLASS__`, and `__NAMESPACE__` are used within the constructor of the `MyClass` class to display information about the method, class, and namespace.

```php
<?php
namespace MyNamespace;

class MyClass {
    private $property;

    public function __construct($value) {
        $this->property = $value;
    }

    public function displayInfo() {
        echo "Inside " . __METHOD__ . " in " . __CLASS__ . " within namespace
" . __NAMESPACE__ . "\n";
    }

    public function showFilePath() {
        echo "Current file: " . __FILE__ . "\n";
        echo "Current directory: " . __DIR__ . "\n";
    }

    public function getProperty() {
        return $this->property;
    }
}

// Use __LINE__ to display the current line number
echo "Current line number: " . __LINE__ . "\n";

// Create an instance of MyClass and use various magic constants
$obj = new MyClass(42);
$obj->displayInfo();
$obj->showFilePath();

// Access class property and display it along with magic constants
echo "Property value: " . $obj->getProperty() . "\n";
?>
```

1. `__LINE__` is used to display the current line number.
2. `__METHOD__`, `__CLASS__`, and `__NAMESPACE__` are used within the `MyClass` class to display information about the method, class, and namespace.
3. `__FILE__` and `__DIR__` are used within the `showFilePath` method of the `MyClass` class to display the current file and directory.
4. Magic constants are used to display information within the main part of the script.

let var const in js program example

```
// Using var
function varExample() {
    var x = 10;
    if (true) {
        var x = 20; // This reassigns the same variable x
    }
    console.log("Var Example:", x); // Outputs 20
}
varExample();

// Using let
function letExample() {
    let y = 10;
    if (true) {
        let y = 20; // This creates a new variable y within the block
    }
    console.log("Let Example:", y); // Outputs 10
}
letExample();

// Using const
function constExample() {
    const z = 10;
    // z = 20; // This will result in an error (assignment to a constant
variable)
    console.log("Const Example:", z);
}
constExample();
```

1.The varExample function uses var to declare a variable x. It reassigns x within an if block, and the modified value is reflected outside the block.

2.The letExample function uses let to declare a variable y. It creates a new variable y within the if block, and the original value remains unchanged outside the block.

3.The constExample function uses const to declare a constant variable z. An attempt to reassign z to a different value would result in an error.

Calling parent constructors

```php
class ParentClass {
    public function __construct() {
        echo "ParentClass constructor called<br>";
    }
}

class ChildClass extends ParentClass {
    public function __construct() {
        parent::__construct(); // Calling the parent class constructor
        echo "ChildClass constructor called<br>";
    }
}

$child = new ChildClass();
```

```php
class Name {
   var $_firstName;
   var $_lastName;

   function Name($first_name, $last_name) {
      $this->_firstName = $first_name;
      $this->_lastName = $last_name;
   }

   function toString() {
      return($this->_lastName .", " .$this->_firstName);
   }
}
class NameSub1 extends Name {
   var $_middleInitial;

   function NameSub1($first_name, $middle_initial, $last_name) {
      Name::Name($first_name, $last_name);
      $this->_middleInitial = $middle_initial;
   }

   function toString() {
      return(Name::toString() . " " . $this->_middleInitial);
   }
}
```

Calling Parent Constructor

```
class DatabaseConnection {
    protected $host;
    protected $username;
    protected $password;
    protected $database;
    protected $connection;

    public function __construct($host, $username, $password, $database) {
        $this->host = $host;
        $this->username = $username;
        $this->password = $password;
        $this->database = $database;
    }

    public function connect() {
        // Generic database connection logic
        $this->connection = new mysqli($this->host, $this->username, $this-
>password, $this->database);
        if ($this->connection->connect_error) {
            die("Database Connection Error: " . $this->connection-
>connect_error);
        }
        echo "Connected to the database<br>";
    }
}

class MySQLDatabaseConnection extends DatabaseConnection {
    public function __construct($host, $username, $password, $database) {
        parent::__construct($host, $username, $password, $database);
    }

    // Additional methods and MySQL-specific logic can be added here
}

// Example usage
$mysqlDb = new MySQLDatabaseConnection('localhost', 'mysqluser', 'mysqlpass',
'mysqldb');
$mysqlDb->connect();
```

static Keyword

```php
<?php
  class Foo {
    public static $my_static = 'foo';

    public function staticValue() {
      return self::$my_static;
    }
  }

  print Foo::$my_static . "\n";
  $foo = new Foo();

  print $foo->staticValue() . "\n";
?>
```

late static binding

```php
class ParentClass {
    public static function whoAmI() {
        echo "I am from " . static::class . "<br>";
    }
}

class ChildClass extends ParentClass {
}

class AnotherChildClass extends ParentClass {
}

ParentClass::whoAmI();        // Output: I am from ParentClass
ChildClass::whoAmI();         // Output: I am from ChildClass
AnotherChildClass::whoAmI(); // Output: I am from AnotherChildClass
```

Realworld example

```php
class Shape {
    protected $area;

    public function getArea() {
        return $this->area;
    }

    public static function create($type, $params) {
        switch ($type) {
            case 'circle':
                return Circle::createCircle($params);
            case 'rectangle':
                return Rectangle::createRectangle($params);
            default:
                throw new InvalidArgumentException("Invalid shape type: $type");
        }
    }
}

class Circle extends Shape {
    protected $radius;

    public function __construct($radius) {
        $this->radius = $radius;
        $this->area = $this->calculateArea();
    }

    public function calculateArea() {
        return pi() * $this->radius * $this->radius;
    }

    public static function createCircle($params) {
        return new static($params['radius']);
    }
}

class Rectangle extends Shape {
    protected $width;
    protected $height;

    public function __construct($width, $height) {
        $this->width = $width;
        $this->height = $height;
```

```
        $this->area = $this->calculateArea();
    }

    public function calculateArea() {
        return $this->width * $this->height;
    }

    public static function createRectangle($params) {
        return new static($params['width'], $params['height']);
    }
}

// Create a circle and a rectangle using the factory method
$circle = Shape::create('circle', ['radius' => 5]);
$rectangle = Shape::create('rectangle', ['width' => 4, 'height' => 6]);

// Display the areas of the shapes
echo "Circle Area: " . $circle->getArea() . "<br>";
echo "Rectangle Area: " . $rectangle->getArea() . "<br>";
```

parent Keword

```
class ParentClass {
    protected $property = "I am a property in the parent class";

    public function printProperty() {
        echo $this->property . "<br>";
    }
}

class ChildClass extends ParentClass {
    protected $property = "I am a property in the child class";

    public function printParentProperty() {
        // Access the parent class property using the parent keyword
        echo parent::property . "<br>";

        // Call the parent class method using the parent keyword
        parent::printProperty();
    }
}

$child = new ChildClass();
$child->printParentProperty();
```

final

- **final** keyword is used to create final method or final class.
- A final method cannot be overridden in child class
- A final class cannot be inherited It means we can not create sub class of a final class.

```
Class Father {
        function display(){
            echo "You can override me becoz I am not final";
        }
        final function show(){
            echo "I am final so you cannot override me";
        }
}
class Son extends Father {
        function display(){
            echo "Yea I overrided";
        }
}
```

Final Class

```
final class Father {
        function display(){
            echo "Final";
        }
}
```

Final Keword (method)

```php
class ParentClass {
    final protected function getProperty() {
        return "This is a final property.";
    }
}

class ChildClass extends ParentClass {
    public function getProperty() {
        return parent::getProperty();
    }
}

$child = new ChildClass();
echo $child->getProperty(); // Output: This is a final property.
```

Final Keword (class)

```php
final class FinalClass {
    public function sayHello() {
        echo "Hello from FinalClass!<br>";
    }
}

// Attempting to extend a final class will result in an error
class ChildClass extends FinalClass {
    // This will cause a fatal error
}

$finalObj = new FinalClass();
$finalObj->sayHello();
```

Abstract class and method

```php
// Abstract class for PaymentGateway
abstract class PaymentGateway {
    protected $apiKey;

    public function __construct($apiKey) {
        $this->apiKey = $apiKey;
    }

    // Abstract method for processing payment
    abstract public function processPayment($amount);
}

// Concrete class for PayPal payment gateway
class PayPalGateway extends PaymentGateway {
    public function processPayment($amount) {
        // Implement the PayPal-specific payment processing logic here
        // Use $this->apiKey to authenticate with PayPal API
        // Process the payment and return the result
        echo "Processing payment of $amount USD using PayPal.<br>";
    }
}

// Concrete class for Stripe payment gateway
class StripeGateway extends PaymentGateway {
    public function processPayment($amount) {
        // Implement the Stripe-specific payment processing logic here
        // Use $this->apiKey to authenticate with Stripe API
        // Process the payment and return the result
        echo "Processing payment of $amount USD using Stripe.<br>";
    }
}

// Usage
$paypalGateway = new PayPalGateway('your_paypal_api_key');
$stripeGateway = new StripeGateway('your_stripe_api_key');

$paypalGateway->processPayment(100);
$stripeGateway->processPayment(75);
```

Other example

```php
abstract class PaymentGateway {
    abstract public function processPayment($amount);
}

class PayPalGateway extends PaymentGateway {
    public function processPayment($amount) {
        // Process payment using PayPal API
        echo "Processing payment of $amount via PayPal.<br>";
    }
}

class StripeGateway extends PaymentGateway {
    public function processPayment($amount) {
        // Process payment using Stripe API
        echo "Processing payment of $amount via Stripe.<br>";
    }
}

// Example usage
$paypalGateway = new PayPalGateway();
$paypalGateway->processPayment(100);

$stripeGateway = new StripeGateway();
$stripeGateway->processPayment(150);
```

Interface Example

```
Interface

=> Interface resamble abstract classes
=> Interface contains abstract function like abstract classes
=> Interface can't be instantiated like abstract classes
=> Interface can not contain concrete methods like abstract classes
=> Interface contains only public methods not private or protected
=> An abstract can only extends by 1 abstract class
=> An class can implements more than 1 interface
=> Multiple inheritance can be achived through interfaces
=> Interface can not contains constructor
=> Interface can not contains data members


```

```php
<?php

interface demo
{

    public function test1();
    public function test2();
}

interface demo2
{
    public function test3();
}

class childClass implements demo,demo2
{
    public function test1(){}
    public function test2(){}
}
```

```php
interface DatabaseInterface {
    public function connect($host, $username, $password, $database);
    public function query($sql);
    public function close();
}

class MySQLDatabase implements DatabaseInterface {
    private $connection;

    public function connect($host, $username, $password, $database) {
        // Implement the connection logic for MySQL
        $this->connection = mysqli_connect($host, $username, $password,
$database);
        if (!$this->connection) {
            die("MySQL Connection Error: " . mysqli_connect_error());
        }
    }

    public function query($sql) {
        // Implement the query execution logic for MySQL
        $result = mysqli_query($this->connection, $sql);
        return $result;
    }

    public function close() {
        // Implement the connection closing logic for MySQL
        mysqli_close($this->connection);
    }
}

class PostgreSQLDatabase implements DatabaseInterface {
    private $connection;

    public function connect($host, $username, $password, $database) {
        // Implement the connection logic for PostgreSQL
        $this->connection = pg_connect("host=$host dbname=$database
user=$username password=$password");
        if (!$this->connection) {
            die("PostgreSQL Connection Error: " . pg_last_error());
        }
    }

    public function query($sql) {
        // Implement the query execution logic for PostgreSQL
        $result = pg_query($this->connection, $sql);
```

```
        return $result;
    }

    public function close() {
        // Implement the connection closing logic for PostgreSQL
        pg_close($this->connection);
    }
}

// Example usage
$mysqlDB = new MySQLDatabase();
$mysqlDB->connect('localhost', 'user', 'password', 'mydb');
$result = $mysqlDB->query('SELECT * FROM mytable');
$mysqlDB->close();

$postgresDB = new PostgreSQLDatabase();
$postgresDB->connect('localhost', 'user', 'password', 'mydb');
$result = $postgresDB->query('SELECT * FROM mytable');
$postgresDB->close();
```

Another Example Interface

```
interface ContentElement {
    public function render();
    public function getMetadata();
}

class Article implements ContentElement {
    private $title;
    private $content;

    public function __construct($title, $content) {
        $this->title = $title;
        $this->content = $content;
    }

    public function render() {
        // Implement rendering logic for an article
        return "<h1>{$this->title}</h1><p>{$this->content}</p>";
    }

    public function getMetadata() {
```

```
        // Implement metadata retrieval logic for an article
        return "Title: {$this->title}";
    }
}

class Image implements ContentElement {
    private $src;
    private $alt;

    public function __construct($src, $alt) {
        $this->src = $src;
        $this->alt = $alt;
    }

    public function render() {
        // Implement rendering logic for an image
        return "<img src='{$this->src}' alt='{$this->alt}'>";
    }

    public function getMetadata() {
        // Implement metadata retrieval logic for an image
        return "Alt Text: {$this->alt}";
    }
}

// Example usage
$article = new Article("Sample Article", "This is a sample article
content.");
$image = new Image("image.jpg", "Sample Image Alt Text");

echo $article->render();
echo $article->getMetadata();

echo $image->render();
echo $image->getMetadata();
```

PHP interface example code in details in

In PHP, an interface is a contract that defines a set of methods a class must implement. Interfaces allow you to define a common set of methods that multiple classes can adhere to. Here's an example of a PHP interface along with a class that implements it:

```php
<?php
// Define an interface
interface Shape {
    public function getArea();
    public function getPerimeter();
}

// Create a class that implements the interface
class Circle implements Shape {
    private $radius;

    public function __construct($radius) {
        $this->radius = $radius;
    }

    public function getArea() {
        return pi() * pow($this->radius, 2);
    }

    public function getPerimeter() {
        return 2 * pi() * $this->radius;
    }
}

// Create another class that implements the interface
class Rectangle implements Shape {
    private $width;
    private $height;

    public function __construct($width, $height) {
        $this->width = $width;
        $this->height = $height;
    }

    public function getArea() {
        return $this->width * $this->height;
    }

    public function getPerimeter() {
```

```
        return 2 * ($this->width + $this->height);
    }
}

// Create instances of the classes and use the interface methods
$circle = new Circle(5);
echo "Circle Area: " . $circle->getArea() . "\n";
echo "Circle Perimeter: " . $circle->getPerimeter() . "\n";

$rectangle = new Rectangle(4, 6);
echo "Rectangle Area: " . $rectangle->getArea() . "\n";
echo "Rectangle Perimeter: " . $rectangle->getPerimeter() . "\n";
?>
```

Overloading in php

```
class Calculator {
    public function calculate($a, $b = null, $c = null) {
        if ($c !== null) {
            // Three arguments provided, perform a three-operand calculation
            return $a + $b + $c;
        } elseif ($b !== null) {
            // Two arguments provided, perform a two-operand calculation
            return $a + $b;
        } else {
            // Only one argument provided, return the argument itself
            return $a;
        }
    }
}

$calculator = new Calculator();

// Example usages of method "calculate"
$result1 = $calculator->calculate(5);           // Returns 5
$result2 = $calculator->calculate(5, 3);        // Returns 8
$result3 = $calculator->calculate(5, 3, 2);     // Returns 10

echo "Result 1: $result1<br>";
echo "Result 2: $result2<br>";
echo "Result 3: $result3<br>";
```

Another eample

```
class Database {
    private $connection;

    public function __construct($host, $username, $password, $database) {
        // Establish a database connection (you would use your preferred
database extension)
        $this->connection = new mysqli($host, $username, $password,
$database);
        if ($this->connection->connect_error) {
            die("Database Connection Error: " . $this->connection-
>connect_error);
        }
    }

    public function query($sql, $operation = 'SELECT', $params = []) {
        switch ($operation) {
            case 'SELECT':
                return $this->selectQuery($sql, $params);
            case 'INSERT':
                return $this->insertQuery($sql, $params);
            case 'UPDATE':
                return $this->updateQuery($sql, $params);
            default:
                throw new InvalidArgumentException("Unsupported database
operation: $operation");
        }
    }

    private function selectQuery($sql, $params) {
        // Implement SELECT query logic with prepared statement
        // Execute the query, bind parameters, fetch results, etc.
        return "SELECT result for query: $sql";
    }

    private function insertQuery($sql, $params) {
        // Implement INSERT query logic with prepared statement
        // Execute the query, bind parameters, handle insert IDs, etc.
        return "INSERT result for query: $sql";
    }

    private function updateQuery($sql, $params) {
        // Implement UPDATE query logic with prepared statement
```

```
        // Execute the query, bind parameters, handle affected rows, etc.
        return "UPDATE result for query: $sql";
    }

    public function close() {
        // Close the database connection
        $this->connection->close();
    }
}

// Example usage
$db = new Database('localhost', 'username', 'password', 'mydb');

$selectResult = $db->query('SELECT * FROM users WHERE id = ?', 'SELECT',
[1]);
$insertResult = $db->query('INSERT INTO orders (product, quantity) VALUES (?,
?)', 'INSERT', ['Widget', 5]);
$updateResult = $db->query('UPDATE products SET price = ? WHERE id = ?',
'UPDATE', [19.99, 123]);

$db->close();

echo $selectResult . "<br>";
echo $insertResult . "<br>";
echo $updateResult . "<br>";
```

Another example

```php
class Calculator {
    public function calculate($operation, ...$operands) {
        switch ($operation) {
            case 'add':
                return $this->add(...$operands);
            case 'subtract':
                return $this->subtract(...$operands);
            case 'multiply':
                return $this->multiply(...$operands);
            default:
                throw new InvalidArgumentException("Unsupported operation: $operation");
        }
    }

    private function add($a, $b) {
        return $a + $b;
    }

    private function subtract($a, $b) {
        return $a - $b;
    }

    private function multiply($a, $b) {
        return $a * $b;
    }
}

$calculator = new Calculator();

// Example usages
$result1 = $calculator->calculate('add', 5, 3);
$result2 = $calculator->calculate('subtract', 10, 2);
$result3 = $calculator->calculate('multiply', 4, 6);

echo "Addition result: $result1<br>";
echo "Subtraction result: $result2<br>";
echo "Multiplication result: $result3<br>";
```

Overriding example

```php
class Content {
    protected $title;
    protected $content;

    public function __construct($title, $content) {
        $this->title = $title;
        $this->content = $content;
    }

    public function display() {
        // Generic content display
        echo "<h2>{$this->title}</h2>";
        echo "<p>{$this->content}</p>";
    }
}

class Article extends Content {
    private $author;

    public function __construct($title, $content, $author) {
        parent::__construct($title, $content);
        $this->author = $author;
    }

    public function display() {
        // Display article-specific content
        echo "<h2>{$this->title}</h2>";
        echo "<p>{$this->content}</p>";
        echo "<p>Author: {$this->author}</p>";
    }
}

class Image extends Content {
    private $imagePath;

    public function __construct($title, $content, $imagePath) {
        parent::__construct($title, $content);
        $this->imagePath = $imagePath;
    }

    public function display() {
        // Display image-specific content
```

```
        echo "<h2>{$this->title}</h2>";
        echo "<img src='{$this->imagePath}' alt='{$this->title}'><br>";
        echo "<p>{$this->content}</p>";
    }
}

// Example usage
$article = new Article("Sample Article", "This is a sample article content.",
"John Doe");
$image = new Image("Sample Image", "This is a sample image description.",
"image.jpg");

$article->display();
$image->display();
```

Another Example

```
class DatabaseConnection {
    protected $host;
    protected $username;
    protected $password;
    protected $database;

    public function __construct($host, $username, $password, $database) {
        $this->host = $host;
        $this->username = $username;
        $this->password = $password;
        $this->database = $database;
    }

    public function connect() {
        // Generic database connection logic
        $this->connection = new mysqli($this->host, $this->username, $this-
>password, $this->database);
        if ($this->connection->connect_error) {
            die("Database Connection Error: " . $this->connection-
>connect_error);
        }
        echo "Connected to the database using generic driver<br>";
    }
}
```

```php
class MySQLDatabaseConnection extends DatabaseConnection {
    public function connect() {
        // MySQL-specific database connection logic
        parent::connect(); // Call the parent class's connect method first
        echo "Connected to the MySQL database using MySQLi driver<br>";
    }
}

// Example usage
$mysqlDb = new MySQLDatabaseConnection('localhost', 'mysqluser', 'mysqlpass',
'mysqldb');
$mysqlDb->connect();
```

Overriding very sample example

```php
class Animal {
    public function speak() {
        echo "Animal speaks!";
    }
}

class Dog extends Animal {
    public function speak() {
        echo "Dog barks!";
    }
}

$animal = new Animal();
$dog = new Dog();

$animal->speak(); // Output: Animal speaks!
$dog->speak();    // Output: Dog barks!
```

Error handling in php

```php
// Define a custom error handler function
function customErrorHandler($errno, $errstr, $errfile, $errline) {
    echo "Custom Error Handler: [$errno] $errstr\n";
    echo "Error on line $errline in $errfile\n";
}

// Set the custom error handler
set_error_handler("customErrorHandler");

try {
    // Simulate a division by zero error
    $result = 10 / 0;
} catch (Exception $e) {
    // This block will not be executed for PHP errors, only for exceptions
    echo "Caught Exception: " . $e->getMessage() . "\n";
} finally {
    // This block will always be executed, whether there was an error or not
    echo "Finally block executed\n";
}

// Attempt to open a non-existent file
$file = fopen("nonexistent.txt", "r");
if ($file === false) {
    echo "Error: Failed to open the file.\n";
}

// Trigger a user-defined error
trigger_error("This is a custom error message.", E_USER_WARNING);

// Attempt to call a non-existent function
nonExistentFunction();

// Restore the default error handler
restore_error_handler();
```

Error handling example

```
class DatabaseConnection {
    protected $host;
    protected $username;
    protected $password;
    protected $database;
    protected $connection;

    public function __construct($host, $username, $password, $database) {
        $this->host = $host;
        $this->username = $username;
        $this->password = $password;
        $this->database = $database;

        // Attempt to establish a database connection
        $this->connect();
    }

    private function connect() {
        // Establish the database connection
        $this->connection = new mysqli($this->host, $this->username, $this-
>password, $this->database);

        // Check for connection errors
        if ($this->connection->connect_error) {
            throw new Exception("Database Connection Error: " . $this-
>connection->connect_error);
        }
    }

    public function query($sql) {
        // Perform a database query
        $result = $this->connection->query($sql);

        // Check for query errors
        if ($result === false) {
            throw new Exception("Database Query Error: " . $this->connection-
>error);
        }

        return $result;
    }
```

```
    public function close() {
        // Close the database connection
        $this->connection->close();
    }
}

// Example usage with error handling
try {
    $db = new DatabaseConnection('localhost', 'username', 'password',
'mydb');

    // Example query with an error (table doesn't exist)
    $result = $db->query('SELECT * FROM non_existing_table');

    // Close the database connection
    $db->close();
} catch (Exception $e) {
    // Handle database-related exceptions
    echo "Caught exception: " . $e->getMessage();
}
```

Another Example

```
class DatabaseConnection {
    protected $host;
    protected $username;
    protected $password;
    protected $database;
    protected $connection;

    public function __construct($host, $username, $password, $database) {
        $this->host = $host;
        $this->username = $username;
        $this->password = $password;
        $this->database = $database;

        // Attempt to establish a database connection
        $this->connect();
    }

    private function connect() {
        // Establish the database connection
        $this->connection = new mysqli($this->host, $this->username, $this-
>password, $this->database);
```

```
        // Check for connection errors
        if ($this->connection->connect_error) {
            throw new Exception("Database Connection Error: " . $this->connection->connect_error);
        }
    }

    public function executeQuery($sql) {
        // Execute a database query and return the result
        return $this->connection->query($sql);
    }

    public function getLastInsertId() {
        // Get the last auto-generated ID from an INSERT query
        return $this->connection->insert_id;
    }

    public function close() {
        // Close the database connection
        $this->connection->close();
    }
}

class User {
    private $db;

    public function __construct(DatabaseConnection $db) {
        $this->db = $db;
    }

    public function addUser($username, $email, $password) {
        $username = $this->db->connection->real_escape_string($username);
        $email = $this->db->connection->real_escape_string($email);
        $password = $this->db->connection->real_escape_string($password);

        $sql = "INSERT INTO users (username, email, password) VALUES ('$username', '$email', '$password')";

        $result = $this->db->executeQuery($sql);

        if ($result) {
            echo "User added successfully with ID: " . $this->db->getLastInsertId();
        } else {
```

```
            throw new Exception("Error adding user: " . $this->db-
>connection->error);
        }
    }
}

// Example usage
try {
    $db = new DatabaseConnection('localhost', 'username', 'password',
'mydb');
    $user = new User($db);

    $user->addUser('john_doe', 'john@example.com', 'password123');

    // Close the database connection
    $db->close();
} catch (Exception $e) {
    // Handle exceptions, e.g., display an error message
    echo "Caught exception: " . $e->getMessage();
}
```

Exeception handling in php

```
class DatabaseConnectionException extends Exception {
    public function errorMessage() {
        return "Database Connection Error: " . $this->getMessage();
    }
}

class Database {
    private $connection;

    public function __construct($host, $username, $password, $database) {
        try {
            $this->connection = new mysqli($host, $username, $password,
$database);

            if ($this->connection->connect_error) {
                throw new DatabaseConnectionException($this->connection-
>connect_error);
            }
        } catch (DatabaseConnectionException $e) {
            // Handle the exception
```

```
            die($e->errorMessage());
        }
    }

    public function query($sql) {
        try {
            if (!$this->connection) {
                throw new DatabaseConnectionException("No database
connection.");
            }

            $result = $this->connection->query($sql);

            if ($result === false) {
                throw new Exception("Database query error: " . $this-
>connection->error);
            }

            return $result;
        } catch (Exception $e) {
            // Handle the exception
            die("Error: " . $e->getMessage());
        }
    }

    public function close() {
        if ($this->connection) {
            $this->connection->close();
        }
    }
}

// Example usage
try {
    $db = new Database("localhost", "username", "password", "mydb");
    $result = $db->query("SELECT * FROM non_existing_table");
    $db->close();
} catch (Exception $e) {
    // Handle any exception thrown during database connection or query
    echo "Caught exception: " . $e->getMessage();
}
```

Indexing in Database

1. **Fast Data Retrieval:** Indexes speed up data retrieval operations, such as SELECT queries, by reducing the number of rows that need to be scanned in a table. Instead of scanning the entire table, the database engine uses the index to locate the relevant rows more efficiently.
2. **Structure:** An index is a separate data structure that contains a copy of selected columns from a table, along with a reference to the corresponding rows in the table. This structure allows for quick lookups.
3. **Columns Selection:** You can create indexes on one or more columns of a table. Commonly indexed columns include primary keys, foreign keys, frequently searched columns, and columns used in JOIN and WHERE clauses.
4. **Types of Indexes:** Various types of indexes exist, including primary indexes, secondary indexes, clustered indexes, non-clustered indexes, and full-text indexes. Each type has specific use cases and characteristics.
    - **Primary Index:** A primary index uniquely identifies each row in a table and enforces data integrity. There can be only one primary index per table.
    - **Secondary Index:** A secondary index is created on columns other than the primary key. It helps optimize search queries.
    - **Clustered Index:** In some database systems (e.g., SQL Server), a table can have only one clustered index, which determines the physical order of rows in the table. It is usually created on the primary key or another unique column.
    - **Non-Clustered Index:** A non-clustered index provides an alternative path to access data rows and includes a pointer to the actual data row.
5. **Trade-offs:** While indexing can significantly improve read performance, it comes with trade-offs. Indexes consume storage space and can slow down write operations (INSERT, UPDATE, DELETE) because each modification must also update the corresponding index entries. Therefore, it's important to strike a balance between read and write performance.
6. **Maintenance:** Indexes require regular maintenance to keep them efficient. Database systems may automatically update and reorganize indexes, but it's essential to monitor index performance and occasionally rebuild or defragment them if needed.
7. **Query Optimization:** The query optimizer in a database management system uses indexes to determine the most efficient execution plan for queries. Properly designed indexes can lead to faster query execution.

In summary, indexing is a crucial database optimization technique that improves the speed and efficiency of data retrieval operations while carefully considering the trade-offs associated with storage and write performance. Effective indexing is a fundamental aspect of database design and query performance tuning.

Indexing Procedure

Indexing in MySQL, when combined with PHP, can significantly improve the performance of your database-driven web applications. Here are the steps to create and utilize indexes effectively with MySQL and PHP:

Step 1: Design Your Database Schema

The first step in effective indexing is to design your database schema correctly. Identify the columns that are frequently used in WHERE clauses, JOIN operations, and ORDER BY clauses in your SQL queries. These are the columns that should be considered for indexing.

Step 2: Choose the Right Index Types

MySQL supports various index types, including PRIMARY KEY, UNIQUE, INDEX, and FULLTEXT. Choose the appropriate index type based on your data and query requirements. Common choices include:

- **PRIMARY KEY:** Used for uniquely identifying rows in a table.
- **INDEX:** Used for non-unique indexing of columns.
- **UNIQUE:** Ensures that all values in the indexed column(s) are unique.
- **FULLTEXT:** Used for full-text searches in text-based columns.

Step 3: Create Indexes

You can create indexes using SQL statements in MySQL. For example, to create an index on the `email` column of a `users` table:

```
CREATE INDEX idx_email ON users (email);
```

Alternatively, you can define indexes when creating tables:

```
CREATE TABLE users (
    id INT PRIMARY KEY,
    username VARCHAR(255) UNIQUE,
    email VARCHAR(255) INDEX,
    -- other columns...
);
```

Step 4: Monitor Query Performance

Once indexes are created, monitor the performance of your SQL queries using the MySQL query analyzer or other performance profiling tools. Identify queries that benefit from indexes and those that need optimization.

Step 5: Utilize EXPLAIN

Use the `EXPLAIN` statement to analyze query execution plans. For example:

```
EXPLAIN SELECT * FROM users WHERE email = 'user@example.com';
```

`EXPLAIN` will provide insight into how MySQL is executing the query and whether it's using indexes efficiently.

Step 6: Adjust Indexes

Based on query performance analysis, you may need to adjust your indexes. You might need to add additional indexes, remove redundant indexes, or modify existing indexes.

Step 7: Regularly Optimize Indexes

Periodically check the fragmentation and efficiency of your indexes. MySQL provides tools like `OPTIMIZE TABLE` and `ANALYZE TABLE` to maintain and optimize your indexes.

Step 8: Leverage PHP for Query Optimization

While most of the index creation and maintenance tasks are performed in MySQL, PHP can also play a role in query optimization. Ensure your PHP code uses parameterized queries to prevent SQL injection and leverages caching mechanisms for frequently used query results.

Step 9: Test at Scale

Finally, test your application and database performance at scale to ensure that the indexing strategy remains effective as your data grows and user traffic increases.

Remember that indexing is not a one-size-fits-all solution. The effectiveness of indexes depends on your specific application and query patterns. Regular monitoring and adjustments are essential for maintaining optimal performance.

Caching

Caching in a server context refers to the process of storing and reusing previously generated data or responses to reduce the time and resources required to fulfill subsequent requests. Caching is a critical technique for improving the performance and responsiveness of web servers and applications. There are several types of caching that can be implemented on a server:

1. **Page Caching:** Page caching stores entire HTML pages as static files. When a user requests a page that has been cached, the server can serve the cached page directly without processing PHP scripts or querying a database. Popular tools like Varnish and WP Super Cache for WordPress offer page caching capabilities.
2. **Object Caching:** Object caching stores frequently used data objects, such as database query results or API responses, in memory. This reduces the need to repeatedly fetch the same data from slow data sources. Memcached and Redis are commonly used object caching solutions.
3. **Opcode Caching:** Opcode caching stores compiled PHP code in memory so that it can be reused for subsequent PHP script executions. This significantly speeds up the execution of PHP scripts. Popular opcode caching tools include APCu, OPcache (built-in to PHP), and XCache.
4. **CDN (Content Delivery Network) Caching:** CDNs cache static assets like images, stylesheets, and JavaScript files on geographically distributed servers. This reduces the latency and load on your web server and speeds up the delivery of content to users.

5. **Database Query Caching:** Database query caching stores the results of database queries in memory, reducing the need to re-execute the same queries. Many database systems, such as MySQL and PostgreSQL, have built-in query caching features.
6. **Reverse Proxy Caching:** A reverse proxy server like Nginx or Apache can cache responses from your application server. This is often used in combination with load balancing and SSL termination to improve performance and security.
7. **Browser Caching:** In addition to server-side caching, instructing web browsers to cache static assets (e.g., images, CSS, JavaScript) can reduce the need for repeated downloads when users revisit your site.

Implementing caching effectively requires a good understanding of your application's architecture and performance bottlenecks. You'll need to decide what should be cached, how long data should be cached, and which caching technologies are most appropriate for your specific use case. Caching can significantly improve the speed and efficiency of your server but should be used judiciously to avoid serving outdated or stale data to users.

Enabling caching on a server can significantly improve the performance and responsiveness of websites and web applications. Caching reduces the need to regenerate or fetch data for each user request by storing and serving previously generated content. There are several ways to enable caching on a server, and the specific method you choose depends on your server setup and requirements. Here are some common caching techniques and how to enable them:

1. **Browser Caching:**
    - Browser caching instructs web browsers to store static assets (such as images, stylesheets, and JavaScript files) locally on the user's device. This reduces the need to re-download these assets on subsequent visits.
    - To enable browser caching, add cache-control headers to your web server's configuration or within your application code. For Apache, you can use `.htaccess` files, and for Nginx, you can configure it in the server block.

Example (Apache):

```
<FilesMatch "\.(jpg|jpeg|png|gif|js|css)$">
    Header set Cache-Control "max-age=31536000, public"
</FilesMatch>
```

Opcode Caching (PHP):

- Opcode caching stores compiled PHP code in memory to avoid recompilation for each request. This can significantly improve the execution speed of PHP scripts.
- Popular PHP opcode caching tools include APCu, OPcache (included in PHP by default), and XCache. To enable opcode caching, you typically need to install the appropriate extension and configure it in your `php.ini` file.

Example (php.ini for OPcache):

```
zend_extension=opcache.so
opcache.enable=1
```

1. **Object Caching (PHP and Database):**
   - Object caching stores frequently used data objects, such as database query results or API responses, in memory. This reduces the need to repeatedly fetch the same data from a slow data source.
   - You can use caching libraries like Memcached or Redis for object caching in PHP. Additionally, some database systems have built-in query caching mechanisms.
2. **Content Delivery Network (CDN) Caching:**
   - CDNs cache static assets and deliver them from geographically distributed servers. This reduces latency and load on your web server.
   - To enable CDN caching, sign up for a CDN service, configure your CDN settings, and update your DNS records to point to the CDN.
3. **Page Caching (WordPress and CMS):**
   - Content management systems (CMS) like WordPress often have built-in page caching plugins. Enable and configure these plugins to cache full HTML pages.
   - For WordPress, popular caching plugins include W3 Total Cache and WP Super Cache.
4. **Reverse Proxy Caching (Nginx and Varnish):**
   - Reverse proxy servers like Nginx and Varnish can cache responses from your application server. This is often used in combination with load balancing and SSL termination.
   - Configure reverse proxy caching in your server configuration files.

Remember to test your caching setup thoroughly to ensure that it improves performance without causing issues like serving stale content to users. Additionally, monitor cache performance and adjust settings as needed, especially as your website or application evolves.

Google login API

Google Sign-In with PHP using Google API Client Library:

1. **Create a Project in Google Cloud Console:**
   - Go to the Google Cloud Console.
   - Create a new project or select an existing one.
   - Enable the "Google+ API" for your project.
2. **Create OAuth 2.0 Credentials:**
   - In the Cloud Console, navigate to "APIs & Services" > "Credentials."
   - Click on "Create Credentials" and choose "OAuth client ID."
   - Select "Web application" as the application type.
   - Configure the authorized JavaScript origins and redirect URIs. For local development, you can use "http://localhost" as the origin.
   - Click "Create" to generate your OAuth client ID and client secret.
3. **Install Google API Client Library for PHP:**
   - You can install the Google API Client Library for PHP using Composer:

composer require google/apiclient:"^2.0"

4. **Set Up the PHP Code:**
   - Create a PHP file (e.g., `google_login.php`) and add the following code:

```
<?php
require_once 'vendor/autoload.php';

$client = new Google_Client();
$client->setClientId('YOUR_CLIENT_ID');
$client->setClientSecret('YOUR_CLIENT_SECRET');
$client->setRedirectUri('YOUR_REDIRECT_URI');
$client->addScope('email');
$client->addScope('profile');

if (isset($_GET['code'])) {
    $token = $client->fetchAccessTokenWithAuthCode($_GET['code']);
    $client->setAccessToken($token);

    $oauth2Service = new Google_Service_Oauth2($client);
    $userInfo = $oauth2Service->userinfo->get();

    // Now, you can use $userInfo to access user data (e.g., $userInfo-
>getEmail(), $userInfo->getGivenName()).
```

```php
    echo "Welcome, " . $userInfo->getName();
} else {
    $authUrl = $client->createAuthUrl();
    echo "<a href='$authUrl'>Login with Google</a>";
}
?>
```

For insert data in MySQL first we have to create a table in data base.

Here we using 3 file for insert data in MySQL:

```
CREATE TABLE `employee` (
       `userid` int(8) NOT NULL AUTO_INCREMENT,
       `first_name` varchar(55) NOT NULL,
       `last_name` varchar(55) NOT NULL,
       `city_name` varchar(55) NOT NULL,
       `email` varchar(50) NOT NULL,
       `datetime` datetime NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

index.php:for getting the values from the user

```
<!DOCTYPE html>
<html>
  <body>
    <form method="post" action="process.php">
        First name:<br>
        <input type="text" name="first_name">
        <br>
        Last name:<br>
        <input type="text" name="last_name">
        <br>
        City name:<br>
        <input type="text" name="city_name">
        <br>
        Email Id:<br>
        <input type="email" name="email">
        <br><br>
        <input type="submit" name="submit" value="submit">
    </form>
  </body>
</html>
```

Crud.php: For connecting data base and function

```php
<?php
    class Crud
    {
        private $servername = "localhost";
        private $username   = "root";
        private $password   = "";
        private $dbname = "oops_db";
        public $con;
        public $employeeTable = "employee";
        public function __construct()
        {
            try {
                $this->con = new mysqli($this->servername, $this->username,
$this->password, $this->dbname);
            } catch (Exception $e) {
                echo $e->getMessage();
            }
        }
        public function save($first_name, $last_name, $city_name, $email,
$insertdate)
        {
            $sql = "INSERT INTO $this-
>employeeTable(first_name,last_name,city_name,email,datetime)
VALUES('$first_name', '$last_name','$city_name','$email','$insertdate')";
            $query = $this->con->query($sql);
            if ($query) {
                return true;
            }else{
                return false;
            }
        }

    }
?>
```

process.php:A PHP file that process the request

```php
<?php
	include_once("Crud.php");
	$insertdata=new Crud();
		if(isset($_POST['submit']))
		{
		    $first_name = $_POST['first_name'];
		    $last_name = $_POST['last_name'];
		    $city_name = $_POST['city_name'];
		    $email = $_POST['email'];
		    date_default_timezone_set("Asia/Calcutta");
		    $insertdate = date("Y-m-d H:i:s");
		    $sql=$insertdata->save($first_name,
		$last_name,$city_name,$email,$insertdate);
		    if($sql)
		    {
		       echo "Data inserted successfully !";
		    }
		    else
		    {
		        echo "Data inserted error !";
		    }
		}
 ?>
```

For retrieve data from MySQL first we have to create a table in data base.

```
CREATE TABLE `employee` (
    `userid` int(8) NOT NULL AUTO_INCREMENT,
    `first_name` varchar(55) NOT NULL,
    `last_name` varchar(55) NOT NULL,
    `city_name` varchar(55) NOT NULL,
    `email` varchar(50) NOT NULL,
    `datetime` datetime NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

crud.php

```php
<?php
    class Crud
    {
        private $servername = "localhost";
        private $username   = "root";
        private $password   = "";
        private $dbname = "oops_db";
        public $con;
        public $employeeTable = "employee";
        public function __construct()
        {
            try {
                $this->con = new mysqli($this->servername, $this->username,
$this->password, $this->dbname);
            } catch (Exception $e) {
                echo $e->getMessage();
            }
        }
        /* Fetch employee records for show listing */
        public function displayRecord()
        {
            $sql = "SELECT * FROM $this->employeeTable";
            $query = $this->con->query($sql);
            $data = array();
            if ($query->num_rows > 0) {
                while ($row = $query->fetch_assoc()) {
                    $data[] = $row;
                }
                return $data;
            }else{
                return false;
            }
        }

    }
?>
```

view.php

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Bootstrap Example</title>
    <meta charset="utf-8">
```

```
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">
    <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"><
/script>
    <script
src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></scrip
t>
</head>
<body>
<?php
include_once("Crud.php");
$viewdata=new Crud();
$customers = $viewdata->displayRecord();
$output ="";
$output .="<table class='table table-striped table-hover'>
            <thead>
                <tr>
                    <th>Id</th>
                    <th>First Name</th>
                    <th>Last Name</th>
                    <th>City Name</th>
                    <th>Email</th>

                </tr>
            </thead>
            <tbody>";
    foreach ($customers as $customer) {
            $output.="<tr>
                <td>".$customer['userid']."</td>
                <td>".$customer['first_name']."</td>
                <td>".$customer['last_name']."</td>
                <td>".$customer['city_name']."</td>
                <td>".$customer['email']."</td>

            </tr>";
        }
$output .= "</tbody>
</table>";
echo $output;
?>
</body></html>
```

PHP oops update data

crud.php

```
<?php

        class Crud
        {
            private $servername = "localhost";
    private $username   = "root";
    private $password   = "";
    private $dbname = "oops_db";
            public $con;
            public $employeeTable = "employee";
    public function __construct()
    {
    try {
    $this->con = new mysqli($this->servername, $this->username, $this->password,
$this->dbname);
    } catch (Exception $e) {
    echo $e->getMessage();
    }
    }

    public function update($userid,$first_name,
$last_name,$city_name,$email,$insertdate)
            {
            echo  $sql = "UPDATE $this->employeeTable SET
first_name='$first_name',last_name='$last_name',city_name='$city_name',email='$em
ail' where userid=$userid";
                $query = $this->con->query($sql);
    if ($query) {
    return true;
    }else{
    return false;
    }
            }


        }
    ?>
```

update.php

```
<?php
    include_once("Crud.php");
    $userid=$_GET['userid'];
    $viewdata=new Crud();
    $employee = $viewdata->displayRecordbyid($userid);
    ?>
    <!DOCTYPE html>
    <html>
    <body>
    <form method="post" action="update_process.php">
    First name:<br>
    <input type="text" name="first_name" value="<?php echo
$employee['first_name'];?>">
    <br>
    Last name:<br>
    <input type="text" name="last_name" value="<?php echo
$employee['last_name'];?>">
    <br>
    City name:<br>
    <input type="text" name="city_name" value="<?php echo
$employee['city_name'];?>">
    <br>
    Email Id:<br>
    <input type="email" name="email" value="<?php echo
$employee['email'];?>">
    <br><br>
    <input type="hidden" name="userid" value="<?php echo
$employee['userid'];?>">
    <input type="submit" name="submit" value="submit">
    </form>
    </body>
    </html>
```

update_process.php

```
<?php
    include_once("Crud.php");
    $insertdata=new Crud();
    if(isset($_POST['submit']))
    {
    $userid = $_POST['userid'];
        $first_name = $_POST['first_name'];
        $last_name = $_POST['last_name'];
```

```
        $city_name = $_POST['city_name'];
        $email = $_POST['email'];
        date_default_timezone_set("Asia/Calcutta");
        $insertdate = date("Y-m-d H:i:s");
        $sql=$insertdata->update($userid,$first_name,
$last_name,$city_name,$email,$insertdate);
        if($sql)
        {
        echo "Data inserted successfully !";
        }
        else
        {
            echo "Data inserted error !";
        }
    }
    ?>
```

For delete data from MySQL first we have to create a table in data base.

*delete_process.php:**For Delete process in backend***

```
CREATE TABLE `employee` (
       `userid` int(8) NOT NULL AUTO_INCREMENT,
       `first_name` varchar(55) NOT NULL,
       `last_name` varchar(55) NOT NULL,
       `city_name` varchar(55) NOT NULL,
       `email` varchar(50) NOT NULL,
    `datetime` datetime NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

crud.php

```
<?php
    class Crud
    {
        private $servername = "localhost";
             private $username   = "root";
             private $password   = "";
```

```
            private $dbname = "oops_db";
        public $con;
        public $employeeTable = "employee";
            public function __construct()
            {
                  try {
                        $this->con = new mysqli($this-
>servername, $this->username, $this->password, $this->dbname);
                  } catch (Exception $e) {
                        echo $e->getMessage();
                  }
            }
        /* Fetch employee records for show listing */
            public function displayRecord()
            {
                  $sql = "SELECT * FROM $this->employeeTable";
                  $query = $this->con->query($sql);
                  $data = array();
                  if ($query->num_rows > 0) {
                        while ($row = $query->fetch_assoc()) {
                              $data[] = $row;
                        }
                        return $data;
                  }else{
                        return false;
                  }
        }
        public function deleteRecord($id)
            {
                  $sql = "DELETE from $this->employeeTable
where userid=$id";
                  $query = $this->con->query($sql);
                  $data = array();
                  if ($query) {
                        return true;
                  }else{
                        return false;
                  }
            }

    }
?>
\
```

view.php

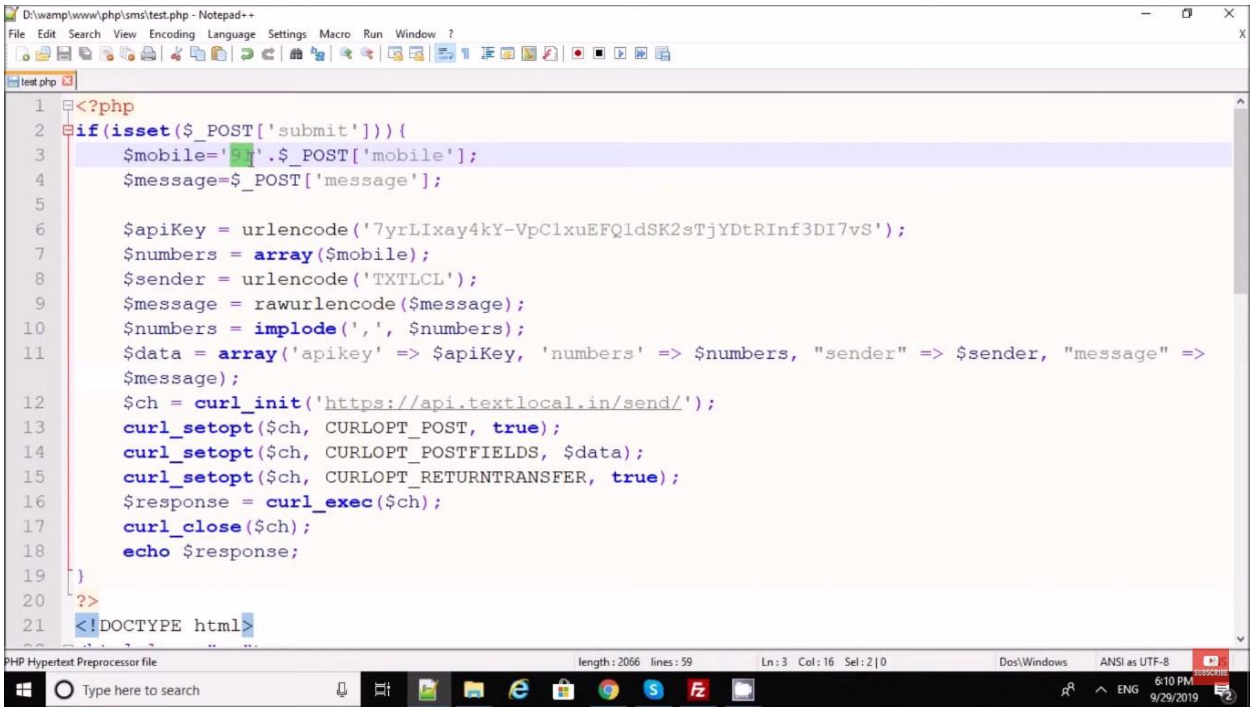
```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Bootstrap Example</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1">
    <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootst
rap.min.css">
    <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.m
in.js"></script>
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd
/popper.min.js"></script>
    <script
src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstra
p.min.js"></script>
</head>
<body>
<?php
include_once("Crud.php");
$viewdata=new Crud();
$customers = $viewdata->displayRecord();
$output ="";
$output .="<table class='table table-striped table-hover'>
            <thead>
                <tr>
                    <th>Id</th>
                    <th>First Name</th>
                    <th>Last Name</th>
                    <th>City Name</th>
                    <th>Email</th>
                    <th>Action</th>
                </tr>
            </thead>
            <tbody>";
    foreach ($customers as $customer) {
            $output.="<tr>
                <td>".$customer['userid']."</td>
                <td>".$customer['first_name']."</td>
                <td>".$customer['last_name']."</td>
                <td>".$customer['city_name']."</td>
                <td>".$customer['email']."</td>
```

```
                <td><a
href='delete_process.php?id=".$customer['userid']."'>Delete</a><
/td>
            </tr>";
        }
$output .= "</tbody>
</table>";
echo $output;
?>
</body>
</html>
```

crud.php

```
<?php
include_once("Crud.php");
$insertdata=new Crud();
$id = $_GET['id'];
$sql=$insertdata->deleteRecord($id);
if($sql)
{
    echo "Data deleted successfully !";
}
else
{
    echo "Error ! Please try again";
}
```

How to send message or sms in PHP



index.php

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Send Message</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-
scale=1">
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.1.3/css/bootst
rap.min.css">
  <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.m
in.js"></script>
  <script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.3/umd
/popper.min.js"></script>
  <script
src="https://maxcdn.bootstrapcdn.com/bootstrap/4.1.3/js/bootstra
p.min.js"></script>
```

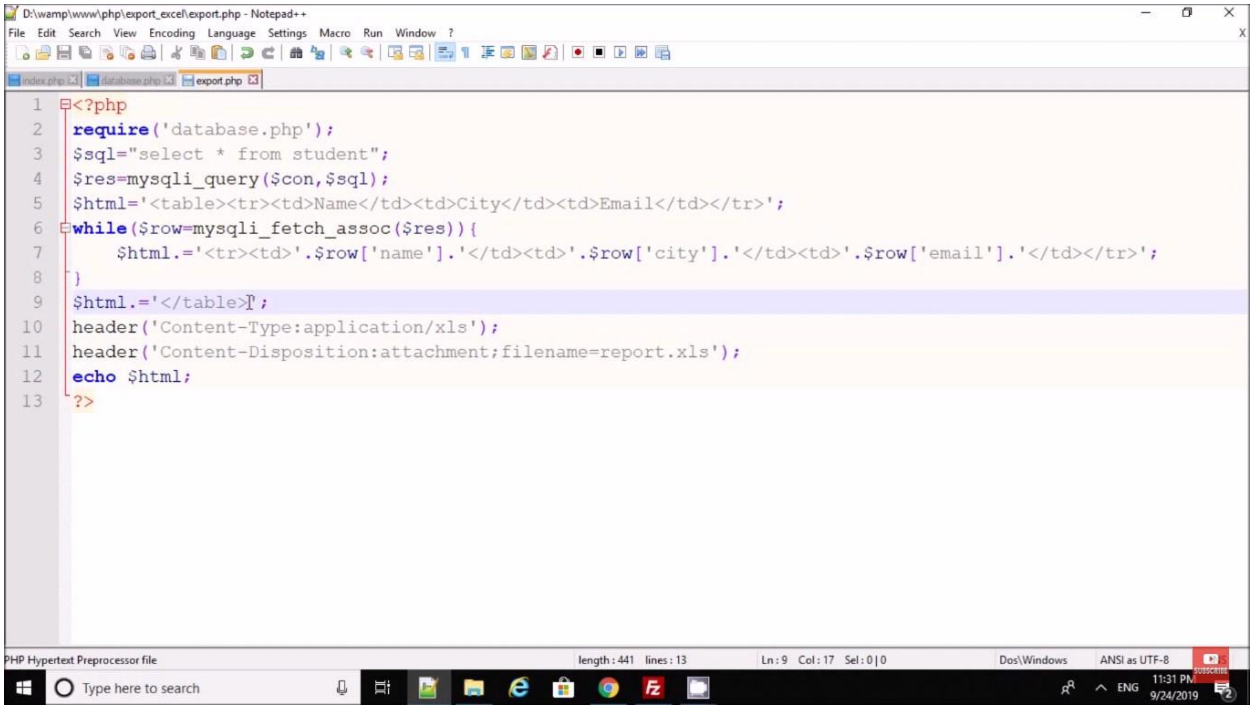
```
</head>
<body>

<div class="container">
  <h2>Send Message</h2>
  <p id="message"></p>
       <div class="form-group">
        <label for="email">Sender ID:</label>
        <input type="email" class="form-control" id="senderid"
placeholder="Enter Sender ID" name="senderid">
    </div>
    <div class="form-group">
             <label for="pwd">Mobile No.:</label>
             <input type="text" class="form-control" id="mobile"
placeholder="Enter Mobile No" name="mobile">
    </div>
    <div class="form-group">
             <label for="comment">Message:</label>
             <textarea class="form-control" rows="5" id="message"
name="Message" placeholder="Write Your Message
Here...."></textarea>
      </div>
    <button type="submit" class="btn btn-primary" id="send">Send
Message</button>

</div>
<script>
      $("#send").click(function(){
             $.ajax({
                                 type: "POST",
                                 url: "process.php",
                                 data:{
                                       senderid:
$('#senderid').val(),
                                       mobile:
$('#mobile').val(),
                                       message:
$('#message').val()
                                 },
                                 success: function(data){
                                             var objJSON =
JSON.parse(data);

      $('#message').html(objJSON.message);
                                 }
             });
      });
```

```
</script>
</body>
</html>
```

process.php

```
<?php
$senderID = $_POST['senderid'];
$mobile = $_POST['mobile'];
$message = $_POST['message'];
	/*MESSAGE CODE*/
	/* Your authentication key */
	$authKey = "234557688009432n";
	/* Multiple mobiles numbers separated by comma */
	$mobileNumber = $mobile;
	/* Sender ID,While using route4 sender id should be 6
characters long. */
	$senderId = $senderID;
	/* Your message to send, Add URL encoding here. */

	$message = urlencode($message);
	/* Define route */
	$route = "route=4";
	/* Prepare you post parameters */
	$postData = array(
		'authkey' => $authKey,
		'mobiles' => $mobileNumber,
		'message' => $message,
		'sender' => $senderId,
		'route' => $route
	);
	/* API URL*/
	$url="https://www.fast2sms.com/dev/bulk";
	/* init the resource */
	$ch = curl_init();
	curl_setopt_array($ch, array(
		CURLOPT_URL => $url,
		CURLOPT_RETURNTRANSFER => true,
		CURLOPT_POST => true,
		CURLOPT_POSTFIELDS => $postData
		/*,CURLOPT_FOLLOWLOCATION => true */
	));
	/* Ignore SSL certificate verification */
	curl_setopt($ch, CURLOPT_SSL_VERIFYHOST, 0);
	curl_setopt($ch, CURLOPT_SSL_VERIFYPEER, 0);
	/* get response */
	$output = curl_exec($ch);
```

```php
        /* Print error if any */
        if(curl_errno($ch))
        {
                echo 'error:' . curl_error($ch);
        }
        else{
                $array = array(
                        "message"     => $output
                );
        }
        curl_close($ch);
        //MESSAGE CODE END
        print json_encode($array);
?>
```



PHP oops login

```
CREATE TABLE `users` (
  `id` int(11) NOT NULL,
  `username` varchar(30) NOT NULL AUTO_INCREMENT,
  `password` varchar(30) NOT NULL,
  `fname` varchar(100) NOT NULL,
PRIMARY KEY(`id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;


INSERT INTO `users` (`id`, `username`, `password`, `fname`)
VALUES
(1, 'neovic', 'devierte', 'Neovic Devierte'),
(2, 'gemalyn', 'cepe', 'Gemalyn Cepe');
```

connection.php

```
<?php
class DbConnection{

    private $host = 'localhost';
    private $username = 'root';
    private $password = '';
    private $database = 'test';

    protected $connection;

    public function __construct(){

        if (!isset($this->connection)) {

            $this->connection = new mysqli($this->host, $this-
>username, $this->password, $this->database);

            if (!$this->connection) {
                echo 'Cannot connect to database server';
                exit;
            }
        }

        return $this->connection;
    }
}
?>
```

user.php

```php
<?php
include_once('DbConnection.php');

class User extends DbConnection{

    public function __construct(){

        parent::__construct();
    }

    public function check_login($username, $password){

        $sql = "SELECT * FROM users WHERE username = '$username'
AND password = '$password'";
        $query = $this->connection->query($sql);

        if($query->num_rows > 0){
            $row = $query->fetch_array();
            return $row['id'];
        }
        else{
            return false;
        }
    }

    public function details($sql){

        $query = $this->connection->query($sql);

        $row = $query->fetch_array();

        return $row;
    }

    public function escape_string($value){

        return $this->connection->real_escape_string($value);
    }
}
```

index.php

```
<?php

	session_start();


	if(isset($_SESSION['user'])){
		header('location:home.php');
	}
?>
<!DOCTYPE html>
<html>
<head>
	<title>PHP oops login</title>
	<link
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootst
rap.min.css" rel="stylesheet">
</head>
<body>
<div class="container">
	<h1 class="page-header text-center">PHP oops login</h1>
	<div class="row">
		<div class="col-md-4 col-md-offset-4">
		    <div class="login-panel panel panel-primary">
		        <div class="panel-heading">
		            <h3 class="panel-title"><span
class="glyphicon glyphicon-lock"></span> Login
		            </h3>
		        </div>
		      <div class="panel-body">
		            <form method="POST" action="login.php">
		            <fieldset>
		                <div class="form-group">
		                    <input class="form-
control" placeholder="Username" type="text" name="username"
autofocus required>
		                </div>
		                <div class="form-group">
		                    <input class="form-
control" placeholder="Password" type="password" name="password"
required>
		                </div>
```

```
                                    <button type="submit"
name="login" class="btn btn-lg btn-primary btn-block"><span
class="glyphicon glyphicon-log-in"></span> Login</button>
                            </fieldset>
                            </form>
                        </div>
                    </div>
                    <?php
                        if(isset($_SESSION['message'])){
                            ?>
                                    <div class="alert alert-info
text-center">
                                            <?php echo
$_SESSION['message']; ?>
                                    </div>
                            <?php

                            unset($_SESSION['message']);
                        }
                    ?>
                </div>
        </div>
</div>
</body>
</html>
```

login.php

```
<?php

session_start();

include_once('User.php');

$user = new User();

if(isset($_POST['login'])){
        $username = $user->escape_string($_POST['username']);
        $password = $user->escape_string($_POST['password']);

        $auth = $user->check_login($username, $password);
```

```
	if(!$auth){
		$_SESSION['message'] = 'Invalid username or
password';
	header('location:index.php');
	}
	else{
		$_SESSION['user'] = $auth;
		header('location:home.php');
	}
}
else{
	$_SESSION['message'] = 'You need to login first';
	header('location:index.php');
}
?>
```

home.php

```
<?php
session_start();

if (!isset($_SESSION['user']) ||(trim ($_SESSION['user']) ==
'')){
	header('location:index.php');
}

include_once('User.php');

$user = new User();


$sql = "SELECT * FROM users WHERE id = '".$_SESSION['user']."'";
$row = $user->details($sql);

?>
<!DOCTYPE html>
<html>
<head>
	<title>PHP OOPS Login</title>
	<link
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootst
rap.min.css" rel="stylesheet">
</head>
<body>
```

```
<div class="container">
	<h1 class="page-header text-center">PHP OOPS Login</h1>
	<div class="row">
		<div class="col-md-4 col-md-offset-4">
			<h2>Welcome to Homepage </h2>
			<h4>User Info: </h4>
			<p>Name: <?php echo $row['fname']; ?></p>
			<p>Username: <?php echo $row['username'];
?></p>
			<p>Password: <?php echo $row['password'];
?></p>
			<a href="logout.php" class="btn btn-
danger"><span class="glyphicon glyphicon-log-out"></span>
Logout</a>
		</div>
	</div>
</div>
</body>
</html>
```

logout.php

```
<?php
	session_start();
	session_destroy();

	header('location:index.php');
?>
```

PHP oops login

```
CREATE TABLE `tblusers` (
  `id` int(11) NOT NULL,
  `FullName` varchar(120) DEFAULT NULL,
  `Username` varchar(120) DEFAULT NULL,
  `UserEmail` varchar(200) DEFAULT NULL,
  `Password` varchar(250) DEFAULT NULL,
  `RegDate` timestamp NULL DEFAULT CURRENT_TIMESTAMP
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

function.php

```
<?php
define('DB_SERVER','localhost');
define('DB_USER','root');
define('DB_PASS' ,'');
define('DB_NAME', 'userdb');
class DB_con
{
function __construct()
{
$con = mysqli_connect(DB_SERVER,DB_USER,DB_PASS,DB_NAME);
$this->dbh=$con;

if (mysqli_connect_errno())
{
echo "Failed to connect to MySQL: " . mysqli_connect_error();
}
}


public function usernameavailblty($uname) {
$result =mysqli_query($this->dbh,"SELECT Username FROM tblusers
WHERE Username='$uname'");
return $result;

}


public function registration($fname,$uname,$uemail,$pasword)
{
$ret=mysqli_query($this->dbh,"insert into
tblusers(FullName,Username,UserEmail,Password)
values('$fname','$uname','$uemail','$pasword')");
return $ret;
}


public function signin($uname,$pasword)
{
$result=mysqli_query($this->dbh,"select id,FullName from
tblusers where Username='$uname' and Password='$password'");
return $result;
}

}
?>
```

Like index.php may be

```php
<?php

include_once('function.php');

$userdata=new DB_con();
if(isset($_POST['submit']))
{

$fname=$_POST['fullname'];
$uname=$_POST['username'];
$uemail=$_POST['email'];
$pasword=md5($_POST['password']);

$sql=$userdata->registration($fname,$uname,$uemail,$pasword);
if($sql)
{

echo "<script>alert('Registration successfull.');</script>";
echo "<script>window.location.href='signin.php'</script>";
}
else
{

echo "<script>alert('Something went wrong. Please try
again');</script>";
echo "<script>window.location.href='signin.php'</script>";
}
}
?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<!-- This file has been downloaded from Bootsnipp.com. Enjoy! --
>
<title>User Registration using PHP OOPs Concept</title>
<meta name="viewport" content="width=device-width, initial-
scale=1">
<link href="assests/style.css" rel="stylesheet">
<script src="assests/jquery-1.11.1.min.js"></script>
<script src="assests/bootstrap.min.js"></script>
<script>
function checkusername(va) {
```

```
$.ajax({
type: "POST",
url: "check_availability.php",
data:'username='+va,
success: function(data){
$("#usernameavailblty").html(data);
}
});

}
</script>
</head>
<body>
<form class="form-horizontal" action='' method="POST">
<fieldset>
<div id="legend" align="center">
<legend class="">User Registration using PHP OOPs
Concept</legend>
</div>

<div class="control-group">
<!-- Fullname -->
<label class="control-label" for="username">Fullname</label>
<div class="controls">
<input type="text" id="username" name="fullname" placeholder=""
class="input-xlarge" required="true">
</div>
</div>


<div class="control-group">
<!-- Username -->
<label class="control-label" for="username">Username</label>
<div class="controls">
<input type="text" id="username" name="username"
onblur="checkusername(this.value)" class="input-xlarge"
required="true">
<span id="usernameavailblty"></span>
</div>
</div>

<div class="control-group">
<!-- E-mail -->
<label class="control-label" for="email">E-mail</label>
<div class="controls">
<input type="email" id="email" name="email" placeholder=""
class="input-xlarge" required="true">
```

```
</div>
</div>

<div class="control-group">
<!-- Password-->
<label class="control-label" for="password">Password</label>
<div class="controls">
<input type="password" id="password" name="password"
placeholder="" class="input-xlarge" required="true">
</div>
</div>

<div class="control-group">
<!-- Button -->
<div class="controls">
<button class="btn btn-success" type="submit" id="submit"
name="submit">Register</button>
</div>
</div>

<div class="control-group">
<div class="controls">
Already registered <a href="#">Signin</a>
</div>
</div>

</fieldset>
</form>
<script >
</script>
</body>
</html>
```

check_availability.php

```
<?php

include_once('function.php');

$uusername=new DB_con();

$uname= $_POST["username"];

$sql=$uusername->usernameavailblty($uname);
$num=mysqli_num_rows($sql);
if($num > 0)
```

```
{
echo "<span style='color:red'> Username already associated with
another account .</span>";
echo "<script>$('#submit').prop('disabled',true);</script>";
} else{

echo "<span style='color:green'> Unsername available for
Registration .</span>";
echo "<script>$('#submit').prop('disabled',false);</script>";
}?>
```

signin.php

```
<?php

include_once('function.php');

$userdata=new DB_con();
if(isset($_POST['submit']))
{

$fname=$_POST['fullname'];
$uname=$_POST['username'];
$uemail=$_POST['email'];
$pasword=md5($_POST['password']);

$sql=$userdata->registration($fname,$uname,$uemail,$pasword);
if($sql)
{

echo "<script>alert('Registration successfull.');</script>";
echo "<script>window.location.href='signin.php'</script>";
}
else
{

echo "<script>alert('Something went wrong. Please try
again');</script>";
echo "<script>window.location.href='signin.php'</script>";
}
}
?>
<!DOCTYPE html>
<html lang="en">
<head>
```

```
<meta charset="utf-8">
<title>User Registration using PHP OOPs Concept</title>
<meta name="viewport" content="width=device-width, initial-
scale=1">
<link href="assests/style.css" rel="stylesheet">
<script src="assests/jquery-1.11.1.min.js"></script>
<script src="assests/bootstrap.min.js"></script>
<script>
function checkusername(va) {
$.ajax({
type: "POST",
url: "check_availability.php",
data:'username='+va,
success: function(data){
$("#usernameavailblty").html(data);
}
});

}
</script>
</head>
<body>
<form class="form-horizontal" action='' method="POST">
<fieldset>
<div id="legend" align="center">
<legend class="">User Registration using PHP OOPs
Concept</legend>
</div>

<div class="control-group">
<!-- Fullname -->
<label class="control-label" for="username">Fullname</label>
<div class="controls">
<input type="text" id="username" name="fullname" placeholder=""
class="input-xlarge" required="true">
</div>
</div>

<div class="control-group">
<!-- Username -->
<label class="control-label" for="username">Username</label>
<div class="controls">
<input type="text" id="username" name="username"
onblur="checkusername(this.value)" class="input-xlarge"
required="true">
<span id="usernameavailblty"></span>
</div>
```

```
</div>

<div class="control-group">
<!-- E-mail -->
<label class="control-label" for="email">E-mail</label>
<div class="controls">
<input type="email" id="email" name="email" placeholder=""
class="input-xlarge" required="true">
</div>
</div>

<div class="control-group">
<!-- Password-->
<label class="control-label" for="password">Password</label>
<div class="controls">
<input type="password" id="password" name="password"
placeholder="" class="input-xlarge" required="true">
</div>
</div>

<div class="control-group">
<!-- Button -->
<div class="controls">
<button class="btn btn-success" type="submit" id="submit"
name="submit">Register</button>
</div>
</div>

<div class="control-group">
<div class="controls">
Already registered <a href="#">Signin</a>
</div>
</div>

</fieldset>
</form>
<script >
</script>
</body>
</html>
```

welcome.php

```
<?php
session_start();
```

```
if(strlen($_SESSION['uid'])=="")
{
header('location:logout.php');
} else {
?><!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>User Registraion using PHP OOPs Concept</title>
<meta name="viewport" content="width=device-width, initial-
scale=1">
<link href="assests/style.css" rel="stylesheet">
<script src="assests/jquery-1.11.1.min.js"></script>
<script src="assests/bootstrap.min.js"></script>
</head>
<body>
<form class="form-horizontal" action='' method="POST">
<fieldset>
<div id="legend">
<legend class="" align="center">Welcome Back : <?php echo
$_SESSION['fname'];?></legend>
</div>

<div class="control-group" align="center">
<!-- Button -->
<div class="controls">
<a href="logout.php" class="btn btn-success" type="submit"
name="signin">Logout</a>
</div>
</div>

</fieldset>
</form>
<script >
</script>
</body>
</html>
<?php } ?>
```

logout.php

```
<?php
session_start();
session_destroy();
header('location:signin.php');
?>
```

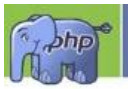
PHP Caching

```php
<?php
//Caching is a temporary storage location, to access data more quickly. Caching is used where the
original data is expensive to fetch.
$start=microtime(true);
$con=new PDO("mysql:host=localhost;dbname=youtube","root","");
$sql="select student.name, city.city, game.game, study.study, teacher.teacher from
student,city,game,study,teacher,fee where student.city=city.id and student.game=game.id and
student.study=study.id and student.teacher=teacher.id and student.id=fee.student_id";
$stmt=$con->prepare($sql);
$stmt->execute();
$arr=$stmt->fetchAll(PDO::FETCH_ASSOC);
$str="<table border='1'>";
    $str.="<tr><td>Name</td><td>City</td><td>Game</td><td>Study</td><td>Teacher</td></tr>";
    foreach($arr as $list){
        $str.="<tr><td>".$list['name']."</td><td>".$list['city']."</td><td>".$list['game']."</td><td>".
        $list['study']."</td><td>".$list['teacher']."</td></tr>";
    }
$str.="</table>";
echo $str;
$end=microtime(true);
echo round($end-$start,4);
?>
```

```php
<?php
//Caching is a temporary storage location, to access data more quickly. Caching is used where the original data is
expensive to fetch.
$start=microtime(true);
$con=new PDO("mysql:host=localhost;dbname=youtube","root","");

$cache_file="cache/index.cache.php";
if(file_exists($cache_file) && filemtime($cache_file) > time()-20){
    echo "From Cache<br/>";
    include($cache_file);
}else{
    $sql="select student.name, city.city, game.game, study.study, teacher.teacher from student,city,game,study,
    teacher,fee where student.city=city.id and student.game=game.id and student.study=study.id and student.
    teacher=teacher.id and student.id=fee.student_id";
    $stmt=$con->prepare($sql);
    $stmt->execute();
    $arr=$stmt->fetchAll(PDO::FETCH_ASSOC);
    $str="<table border='1'>";
        $str.="<tr><td>Name</td><td>City</td><td>Game</td><td>Study</td><td>Teacher</td></tr>";
        foreach($arr as $list){
            $str.="<tr><td>".$list['name']."</td><td>".$list['city']."</td><td>".$list['game']."</td><td>".$list
            ['study']."</td><td>".$list['teacher']."</td></tr>";
        }
    $str.="</table>";
    $handle=fopen($cache_file,'w');
    fwrite($handle,$str);
    fclose($handle);
    echo "Cache Created<br/>";
    echo $str;
}
$end=microtime(true);
echo round($end-$start,4);
?>
```

```php
<?php
//Caching is a temporary storage location, to access data more quickly. Caching
is used where the original data is expensive to fetch.
$start=microtime(true);
$con=new PDO("mysql:host=localhost;dbname=youtube","root","");
$cache_file="cache/index.cache.php";
if(file_exists($cache_file) && filemtime($cache_file) > time()-20){
    echo "From Cache<br/>";
    include($cache_file);
}else{
    $sql="select student.name, city.city, game.game, study.study, teacher.teacher
from student,city,game,study,teacher,fee where student.city=city.id and
student.game=game.id and student.study=study.id and student.teacher=teacher.id
and student.id=fee.student_id";
    $stmt=$con->prepare($sql);
    $stmt->execute();
    $arr=$stmt->fetchAll(PDO::FETCH_ASSOC);
    $str="<table border='1'>";
    $str.="<tr><td>Name</td><td>City</td><td>Game</td><td>Study</td><td>Teacher</
td></tr>";
        foreach($arr as $list){
            $str.="<tr><td>".$list['name']."</td><td>".$list['city']."</td><td>".
$list['game']."</td><td>".$list['study']."</td><td>".$list['teacher']."</td></tr>
";
        }
    $str.="</table>";
    $handle=fopen($cache_file,'w');
    fwrite($handle,$str);
    fclose($handle);
    echo "Cache Created<br/>";
    echo $str;
}
$end=microtime(true);
echo round($end-$start,4);
?>
```

Array



Multidimensional Associative Array :

Name	Physics	Chemistry	Math
Krishana	85	89	78
Salman	68	79	73
Mohan	62	92	67

```
$marks = array (
    “Krishana” => array(“physics“ => 85, “chemistry“ => 89, “math“ => 78),
    “Salman” => array(“physics“ => 68, “chemistry“ => 79, “math“ => 73),
    “Mohan” => array(“physics“ => 62, “chemistry“ => 92, “math“ => 67)
);
```

```
$marks = [
        " Krishana" => [
                "physics" => 85,
                "maths" => 78,
                "chemistry" => 89
        ],
        “Salman" => [
                "physics" => 68,
                "maths" => 73,
                "chemistry" => 79
        ],
        “Mohan" => [
                "physics" => 62,
                "maths" => 67,
                "chemistry" => 92
        ]
];
```

```php
<?php
   /* First method to create array. */
   $numbers = array( 1, 2, 3, 4, 5);

   foreach( $numbers as $value ) {
      echo "Value is $value <br />";
   }

   /* Second method to create array. */
   $numbers[0] = "one";
   $numbers[1] = "two";
   $numbers[2] = "three";
   $numbers[3] = "four";
   $numbers[4] = "five";

   foreach( $numbers as $value ) {
      echo "Value is $value <br />";
   }
?>
```

Loop through and print all the values of an associative array:

```php
<?php
$age=array("Peter"=>"35","Ben"=>"37","Joe"=>"43");

foreach($age as $x=>$x_value)
  {
  echo "Key=" . $x . ", Value=" . $x_value;
  echo "<br>";
  }
?>
```

```php
            "chemistry" => 79
        ],
        "Mohan" => [
            "physics" => 62,
            "maths" => 67,
            "chemistry" => 92
        ]
    ];

foreach($marks as $key => $v1){
    echo $key ;
    foreach($v1 as $v2){
      echo $v2 . " ";
    }
    echo "<br>";
}
```

```
Krishana85 78 89
Salman68 73 79
Mohan62 67 92

Array
(
    [Krishana] => Array
        (
            [physics] => 85
            [maths] => 78
            [chemistry] => 89
        )

    [Salman] => Array
        (
            [physics] => 68
            [maths] => 73
            [chemistry] => 79
        )

    [Mohan] => Array
        (
            [physics] => 62
            [maths] => 67
            [chemistry] => 92
        )

)
```

```php
            "chemistry" => 92
        ]
    ];
echo "<table border='2px' cellpadding='5px'
foreach($marks as $key => $v1){
    echo "<tr>
            <td>$key</td>" ;
            foreach($v1 as $v2){
              echo "<td> $v2 </td>";
            }
    echo "</tr>";
}
echo "</table>";
```

Krishana	85	78	89
Salman	68	73	79
Mohan	62	67	92

```
Array
(
    [Krishana] => Array
        (
            [physics] => 85
            [maths] => 78
            [chemistry] => 89
        )

    [Salman] => Array
        (
            [physics] => 68
            [maths] => 73
            [chemistry] => 79
        )
```

PHP Array Functions

- **count()** - returns the number of elements in an array.
- **in_array()** - checks if a value exists in an array.
- **array_push()** - adds one or more elements to the end of an array.
- **array_pop()** - removes and returns the last element of an array.
- **array_shift()** - removes and returns the first element of an array.
- **array_unshift()** - adds one or more elements to the beginning of an array.
- **array_reverse()** - reverses the order of the elements in an array.
- **array_merge()** - merges two or more arrays into one array.
- **array_slice()** - extracts a slice of an array.
- **array_splice()** - removes and replaces elements from an array.
- **array_keys()** - returns an array of the keys of an array.
- **array_values()** - returns an array of the values of an array.
- **array_flip()** - flips the keys and values of an array.
- **array_unique()** - removes duplicate values from an array.
- **array_search()** - searches for a value in an array and returns its key.
- **array_rand()** - returns one or more random keys from an array.
- **array_walk()** - applies a user-defined function to each element of an array.
- **array_map()** - applies a user-defined function to each element of an array and returns a new array with the results.
- **array_filter()** - filters an array using a user-defined function and returns a new array with the filtered values.
- **array_reduce()** - reduces an array to a single value using a user-defined function.
- **array_column()** - returns an array of values from a single column of a multi-dimensional array.
- **array_intersect()** - returns an array of the values that exist in two or more arrays.
- **array_diff()** - returns an array of the values that exist in one array but not in another.

PHP Array : Extract() Function

```
$color = array('a' => 'red', 'b' => 'green', 'c' => 'blue');
```

$a $b $c

extract(array, extract_rules, prefix)

PHP Array : Compact Function

```
$first = "red";
$second = "green";
$third = "blue";
```

```
Array(
    "first" => "red",
    "second" => "green",
    "third" => "blue",
)
```

compact(var1, var2, var3……)

PHP Array : Range() Function

1 5

array(1, 2, 3, 4 ,5)

range(start, end, step)

```php
<?php

//$food = array('orange', 'banana', 'apple', '55' , 'grapes');

$food = array('a' => 'orange', 'b' => 'banana', 'c' => 'apple', 'd' => 'grapes

echo array_search('apple',$food);


?>
```

PHP Array – Array_Map() Function :

```
$a = array(
    "Bill" => 10,
    "Joe" => 20,
    "Peter" => 30
);
```

```
function myFunction(){

}
```

array_map(function , array)

```
$a = array(
    "Bill" => 10,
    "Joe" => 20,
    "Peter" => 30
);
```

```
function myFunction(){

}
```

Return Array

array_map(function , array , array2 , array3 ….)

```php
<?php
function square($n){
  return $n * $n;
}

$a = [1, 2, 3, 4, 5];

$newArray = array_map('square', $a);

echo "<pre>";
print_r($newArray);
echo "</pre>";
```

PHP Array – Merge & Combine Functions :

$a = ["Sanjay","Aman","Rehman"];

$b = ["Karan"];

["Sanjay","Aman","Rehman","Karan"]

- array_merge() Index or Associative Array
- array_merge_recursive() Multidimensional Associative Array
- array_combine() Index Array

```php
<?php
$fruit = ["orange", "banana", "grapes"];

$veggie = ['carrot', 'pea'];

$color = ['red', 'blue'];

$newArray = array_merge($fruit,$veggie,$color);

echo "<pre>";
print_r($newArray);
echo "</pre>";
```

```php
<?php
$fruit = ['a' => "orange", 'b' => "banana", 'c' => "grapes"];

$veggie = ['carrot', 'pea'];

$newArray = array_merge($fruit,$veggie);

echo "<pre>";
print_r($newArray);
echo "</pre>";
```

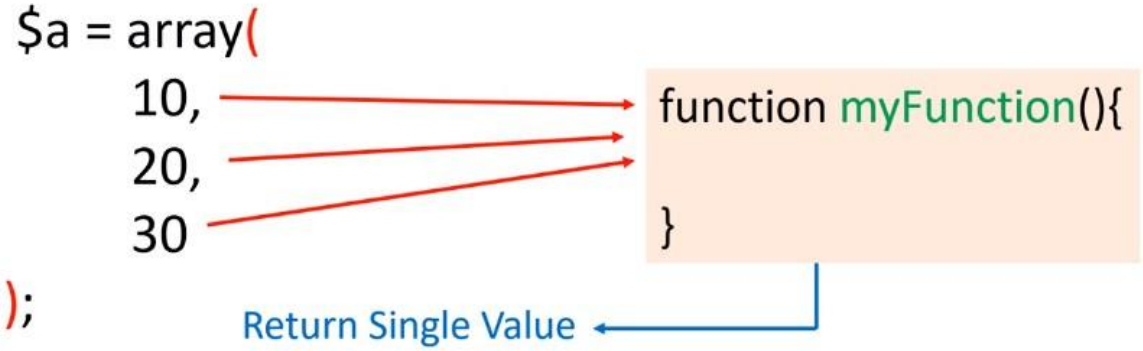
```php
<?php
$name = array("Ram","Mohan","Salman");

$age = array("35","37","43");

$newArray = array_combine($name,$age);

echo "<pre>";
print_r($newArray);
```

PHP Array_fill_keys() Function :

```
$a = ["a", "b", "c", "d"];

Array(
    "a" => "test",
    "b" => "test",
    "c" => "test",
    "d" => "test"
);
```

array_fill_keys(array , value)

PHP Array – Array_Reduce() Function :



array_reduce(array , function , initial)

```php
<?php
$a1 = array("a"=>"red","b"=>"green","c"=>"blue","d"=>"yellow");

$a2 = array("a"=>"red","f"=>"green","d"=>"purple");

$newArray = array_intersect($a1, $a2);

echo "<pre>";
print_r($newArray);
echo "</pre>";
```

```php
<?php
    $values=['Mohammad','',10,0,false,"2020",null,true];
    $filtered = array_filter($values);
    echo "<pre>";
    print_r($values);
    print_r($filtered);
```

PHP Array_fill() Function :

```
Array(
    [0] => "test",
    [1] => "test",
    [2] => "test",
    [3] => "test"
);
```

```
Array(
    [3] => "test",
    [4] => "test",
    [5] => "test"
);
```

array_fill(index , number , value)

PHP Array : Difference Functions

- array_diff
- array_diff_key
- array_diff_assoc
- array_diff_uassoc
- array_diff_ukey
- array_udiff_assoc
- array_udiff_uassoc
- array_udiff

PHP Array : Difference Functions

Different Values

```
$a = ["a" => "Sanjay", "b" => "Aman", "c" => "Mohan"];

$b = ["a" => "Sanjay", "d" => "Mohan"];
```

array_diff

PHP Array : Intersect Functions

Match Keys

```
$a = ["a" => "Sanjay", "b" => "Aman", "c" => "Mohan"];
$b = ["a" => "Sanjay", "d" => "Mohan"];
```

array_intersect_key

PHP Array : Difference Functions

Different Keys

```
$a = ["a" => "Sanjay", "b" => "Aman", "c" => "Mohan"];
$b = ["a" => "Sanjay", "d" => "Mohan"];
```

array_diff_key

PHP Array : Intersect Functions

Match Values

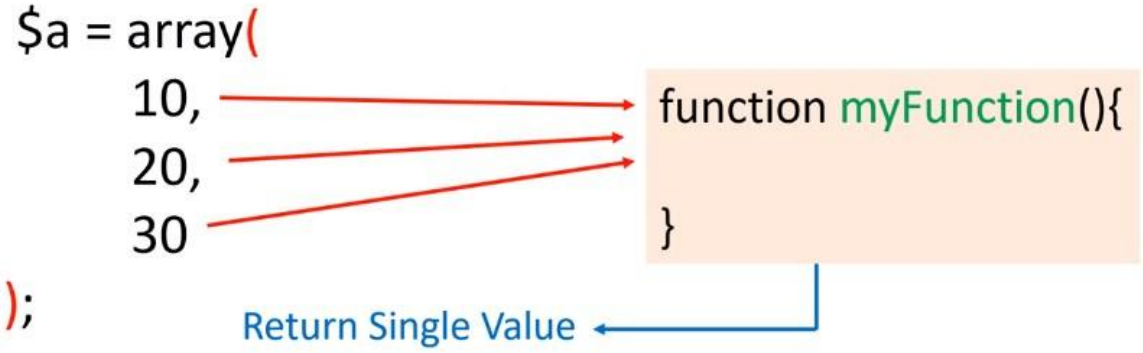
```
$a = ["a" => "Sanjay", "b" => "Aman", "c" => "Mohan"];
$b = ["a" => "Sanjay", "d" => "Mohan"];
```

array_intersect

```php
<?php
$a1 = array("a"=>"red","b"=>"green","c"=>"blue","d"=>"yellow");

$a2 = array("a"=>"red","f"=>"green","d"=>"purple");

$newArray = array_intersect($a1, $a2);

echo "<pre>";
print_r($newArray);
echo "</pre>";
```

```php
<?php
    $values=['Mohammad','',10,0,false,"2020",null,true];
    $filtered = array_filter($values);
    echo "<pre>";
    print_r($values);
    print_r($filtered);
```

PHP Array – Array_Reduce() Function :



array_reduce(array , function , initial)

```php
<?php
function myFunction($n , $m){
  return $n . "-" . $m;
}

$a = ['orange', 'banana', 'apple'];

$newArray = array_reduce($a, 'myFunction', 'lemon');

echo "<pre>";
print_r($newArray);
```

```php
$array = array(
        array(
          'id' => 2201,
          'first_name' => 'Anil',
          'last_name' => 'Kapoor',
        ),
        array(
          'id' => 2202,
          'first_name' => 'Salman',
          'last_name' => 'Khan',
        ),
        array(
          'id' => 2203,
          'first_name' => 'John',
          'last_name' => 'Abraham',
        )
);
```

array_column

```
Array
(
    [0] => Anil
    [1] => Salman
    [2] => John
)
```

```php
$a = ["Red", "Green", "Blue", "Orange", "Brown"];
```

```
Array
(
    [0] => Array(
            [0] => Red
            [1] => Green
        ),
    [1] => Array(
            [2] => Blue
            [3] => Orange
        ),
    [2] => Array (
            [4] => Brown
        )
)
```

array_chunk (array , size)

String Function

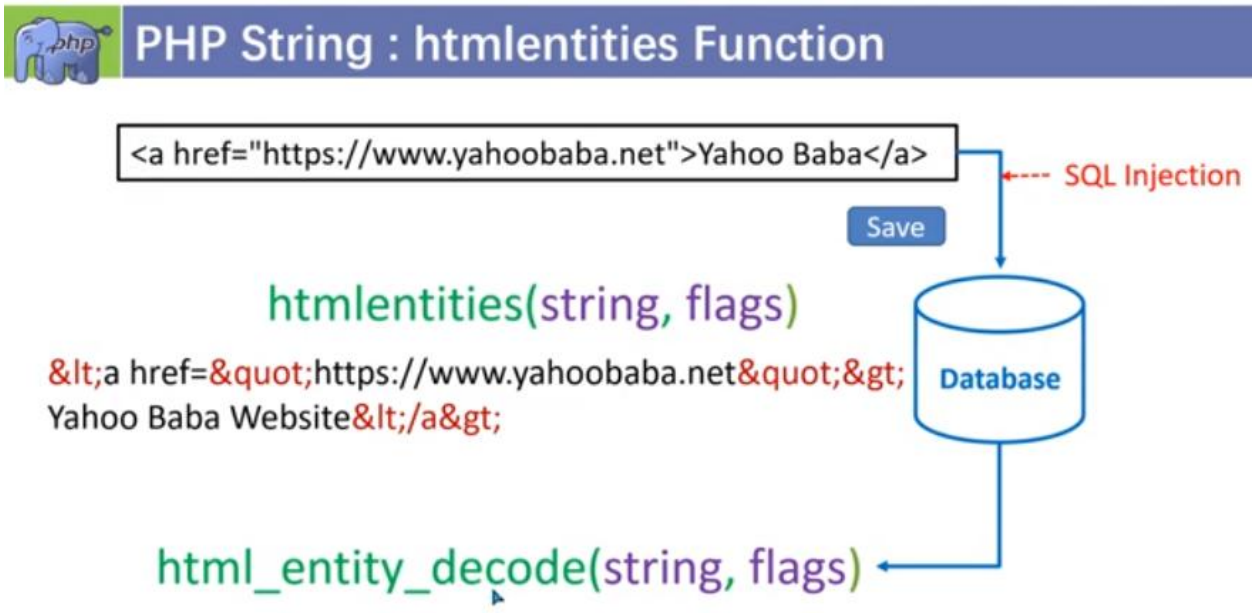
```php
<?php


$data = "12344 $ # % @ ! ^ ' '.'ram' ." ' & ' ' Have a nice day &
    best of luck";

echo "<br/><br/><a href=urlencode0.php?data=".urlencode($data)."
    target='_blank'> click here for send data with urlencode()
    </a>";

echo "<br/><br/><a href=urlencode0.php?data=".$data."
    target='_blank'> click here for send data without
    urlencode() </a>";


?>
```

urlencode($string);

- Letters, numbers, underscores, dashes are unchanged
- Reserved characters become % + 2 digit hexadecimal value
- Spaces become + sign

```php
<html>
    <head>
        <title>First Page</title>
    </head>
    <body>
    <?php $link_name = "Second Page"; ?>
    <?php $id = 2; ?>
    <?php $company = "Johnson & Johnson"; ?>
<a href="second_page.php?id=<?php echo $id; ?>&company=<?php echo urlencode($company); ?>">
<?php echo $link_name; ?></a>

    </body>
</html>
```

1. strlen()
2. str_replace()
3. strstr()
4. substr()
5. strtolower()
6. strtouper()
7. str_word_count()
8. strrev()
9. strpos()
10. ucwords()
11. ucfirst()
12. lcfirst()
13. wordwrap()
14. trim()
15. strip_tags()



PHP String : htmlentities Function

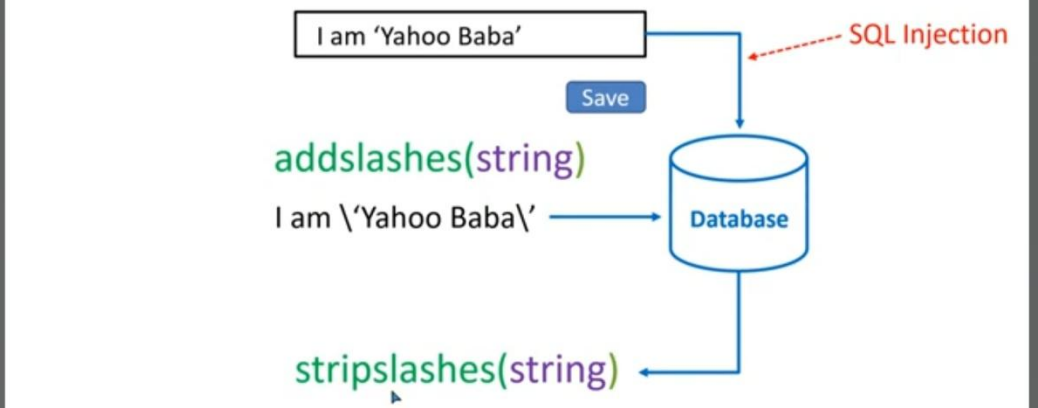
htmlentities(string, flags)

- **ENT_COMPAT** Default. Encodes only double quotes
- **ENT_QUOTES** Encodes double and single quotes
- **ENT_NOQUOTES** Does not encode any quotes

htmlspecialchars(string, flags)

htmlspecialchars_decode(string, flags)

PHP String : Addslashes & Stripslashes Functions



PHP String Length & Count Functions

$a = “Hello World”; ⟶ 11

strlen(string)

$a = “Hello World”; ⟶ 2

str_word_count(string, return)

$a = “Hello World”; ⟶ World

substr_count(string, substring, start, length)

PHP String : Find Position Functions

$a = “I love php, I love php too!”;

strpos(string, find, start) ⟶ 7

strrpos(string, find, start) ⟶ 19

case-sensitive php Php

PHP String : Compare Functions

hello Hello

strcmp(string1, string2) case-sensitive

strncmp(string1, string2, length)

strcasecmp(string1, string2) case-insensitive

strncasecmp(string1, string2 , length)

PHP String : Search String Functions

$a = “I love php, I love php too!”;

strstr(string, search, before_search) → , I love php too!

strchr(string, search, before_search)

strrchr(string, search) → too!

case-sensitive php PHP

PHP String : Substr() Function

$a = “I love php, I love php too!”;

php, I love

substr(string, start, length)

PHP String : Str_replace() Function

$a = “I love php, I love php too!”;

I love python, I love python too!

str_replace(find, replace, string) case-sensitive

PHP

str_ireplace(find, replace, string)

PHP String Reverse Function

hello → olleh

strrev(string)

PHP String Shuffle Function

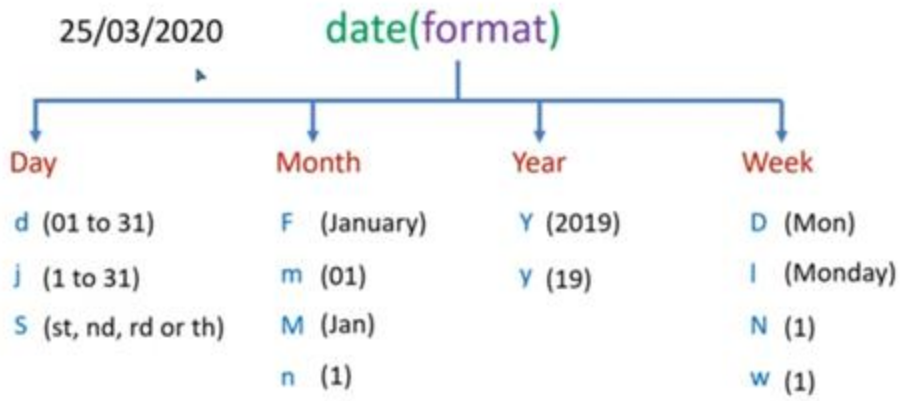
hello → llohe

eohll

lhelo

str_shuffle(string)

PHP String : date() Function



PHP String : date() Function