PHP

Ch-1 : Web Programming & Web Services

Prepared By :

Ms. Kakadiya Jainam A.

WHAT IS WEBSITE ?

- A set of related web pages will create a website.

- The web pages which are created and accessed using a simple Uniform Resource Locator (URL) is known as web address.

- Any website can be categorized as per the requirement. Such categories like,

  - Educational,
  - Social networking site,
  - Informational site,
  - Organization site,
  - Search engine, etc.

WEBPAGE

- Webpage can categorised as :
  - 1) Static Web Page
  - 2) Dynamic Web Page

- (1) Static Web Page :

  - Static web page are the html document which works only with client.Static web pages are also known as flat page.

  - Any static web page consists of only HTML, CSS and JavaScript.

Conn..

- 2) Dynamic Webpage

  - A dynamic web-page contains three things:

  - 1. Client
    - Which is useful and the necessary part to send the request to get the required information.

  - 2. Server
    - Whose work is to process the request sent by the client.

  - 3. Database
    - Where there is the permanent storage of all the information of the client.

CLIENT SIDE SCRIPTING LANGUAGE.

o Client side scripting is the language which can be understood only by the client.

o Generally, the client is used to send the request.

o Examples of Client side scripting are HTML, JavaScript, VBScript, etc.

ADVANTAGES OF CLIENT SIDE SCRIPTING LANGUAGE.

- There are various advantage of client-side as given.

  - Validations can be provided, so that the page is no need to refreshed.

  - The web-pages developed are static pages, so they cannot store the information into the database.

DISADVANTAGES OF CLIENT SIDE SCRIPTING LANGUAGE.

- There are some of disadvantage of client-side as given.

  - The coding of HTML cannot be made hidden to the user.

  - One cannot access the files and directories using HTML.

  - Interaction with database and other user is not possible with client side scripting language.

PHP AS SERVER SIDE SCRIPTING LANGUAGE

- Server side scripting, is the language that can be understood by the server only.

- The work of the server is to process the request which is sent by the client.

- After the completion of the process servers gives back the response to the client.

CONN..

- There are many **web-servers** which can understand the server side codes. Example of Servers are Apache, IIS, etc.

- Examples of Server side scripting languages are PHP, ASP.Net, etc.

- Hence, PHP is a Server Side Scripting Language.

INTERNET INFORMATION SERVICES (IIS) AND APACHE

- **Internet Information Services (IIS)** is a flexible, general-purpose web server from Microsoft that runs on Windows systems to serve requested HTML pages or files.

- **Apache** Web Server is an open-source web server creation, deployment and management software. Initially developed by a group of software programmers, it is now maintained by the Apache Software Foundation.

ADVANTAGES OF SERVER SIDE SCRIPTING LANGUAGE.

- There are various advantage of server-side scripting as given.

  - Server side code is executed before the HTML is sent to the browser and the code is hidden.

  - Server side code is browser independent. And also the dynamic web-pages are created, so that it can deal with database.

Disadvantages of Server Side Scripting language.

- There are some of disadvantage of server-side scripting as given :

  - The server refreshes the page whenever the client sends any request.

  - If the validations are given using server side scripting then the whole page is again refreshed.

  - Sometimes the heavy code may slow down the web-sites.

ZEND ENGINE

- Zend Engine procedure is given below.:

PHP Script

→ PHP Compiles script

Zend Opcode

→ Opcode is executed

HTML

→ HTML sent to browser

Web Browser
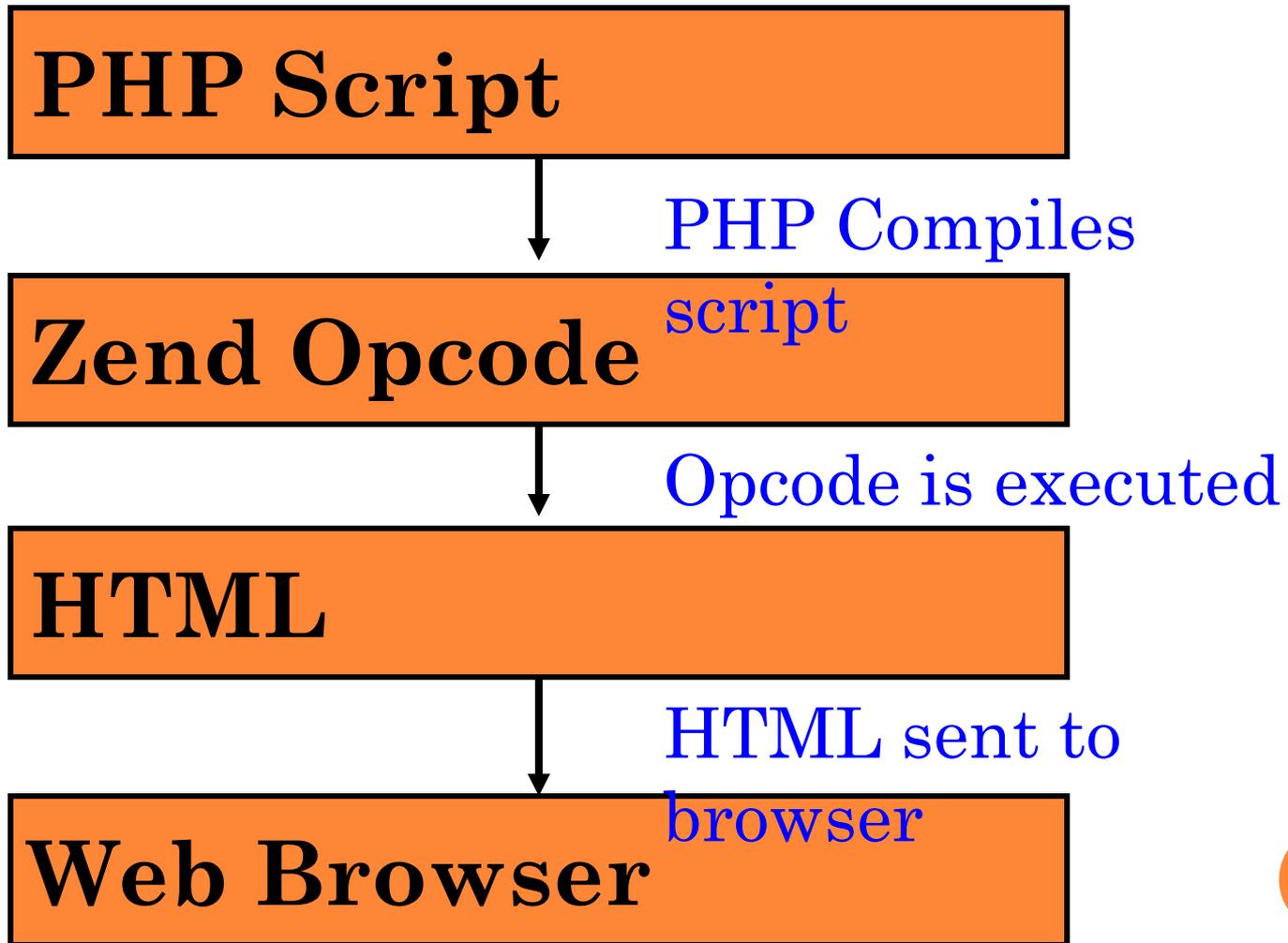
CONN..

○ As there is a JVM (Java Virtual Machine) for executing the Java Programs, similarly the Zend Engine is a virtual machine for scripting language like PHP.

○ Zend is an open source scripting engine.

○ Zend was designed by two software engineers name **Andi Gutmans** and **Zeev Suraski.**

○ Zend was first introduced in the PHP version 4.

○ New in PHP version 5 it is referred to as Zend Engine II which supports the OOP (Object Oriented Programming) concept.

CONN..

- The Zend Engine is the internal compiler and runtime engine used by PHP 4.

- PHP scripts are loaded into memory and compiled into Zend opcodes.

- Opcodes stands for operation codes which are low level binary instructions.

- Then this opcodes are executed and the HTML generated script is returned back to the client.

HTTP PROTOCOL:

- HTTP means Hyper Text Transfer Protocol which is also known as Request/Response protocol.

  - Protocol is a one kind of language for understand the request.

- Generally HTTP is used Client/Server Architecture.

- It is a language through which the client can send the request and the server can process it.

HTTPS PROTOCOL

- https stands for HTTP Secure.

- Its syntax is similar to that of the http://

- This system was designed by Netscape Communications Corporation to provide World Wide Web with security.

- Generally HTTPS are used in websites for payment transactions.

Client/Server Architecture

- The Client are all the different kind of browsers like Internet Explorer, Mozila Firefox, Opera, Netscape Navigator, etc.

- The responsibility of Client is to send the request to the server and display the designing part.

- The Server's work is to process the request given by the client and give the response back to the client.

CLIENT SERVER ARCHITECTURE WORK LIKE :
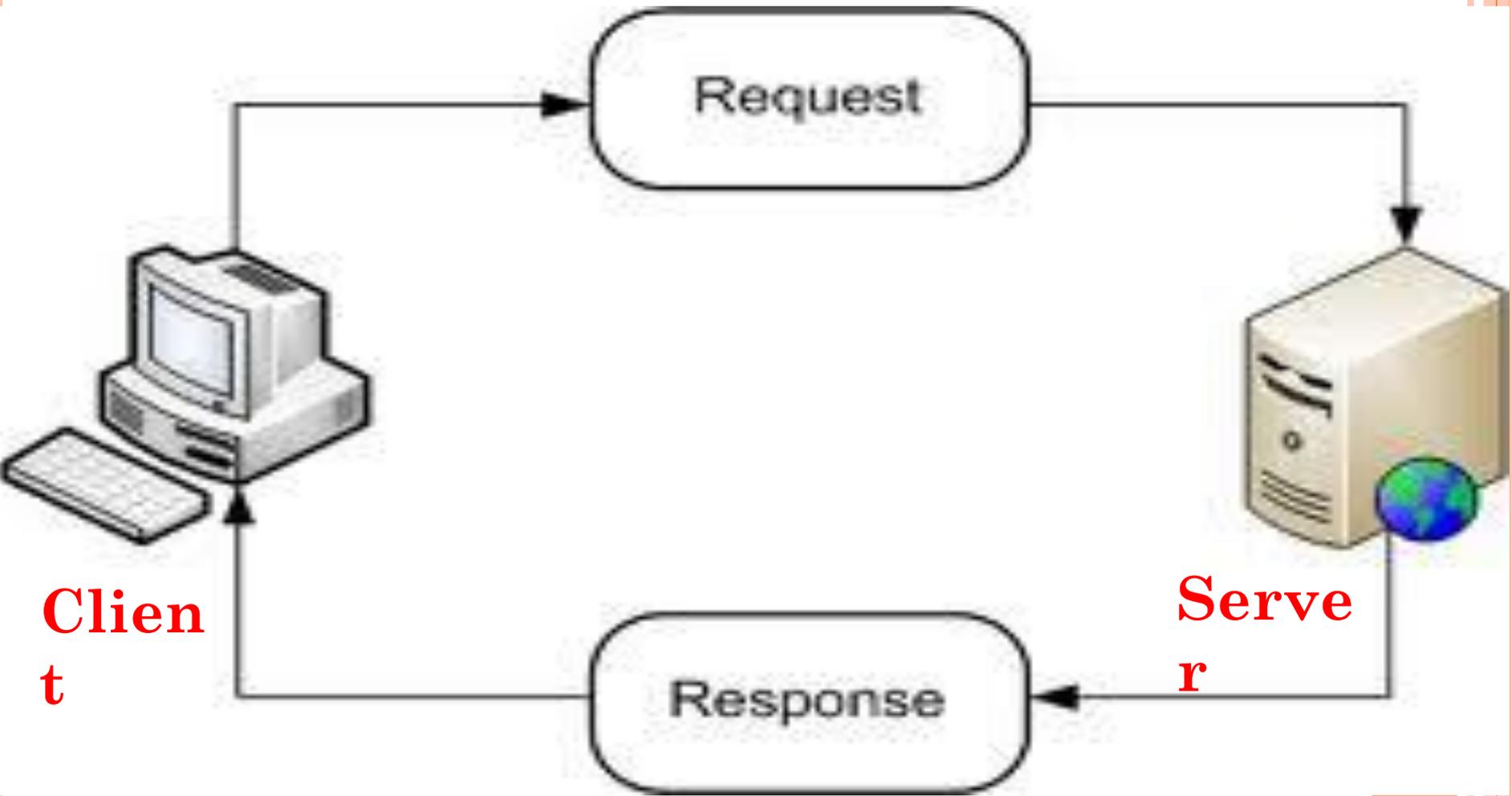
TYPE OF REQUEST METHODS

- There are basically two types of request methods used by http which are as given.

  - **1) Get Method**

  - **2) Post Method**

(1) Get Method

- When information is to be merged in the URL at that time this get method use.

- It is the common method which is used when client sends some request.

- All the values as well the controls can be seen in the URL.

- By sending this method all the values are joined with "?" symbol in get method.

- This method cannot be used when password or private information are defined in the form. This is disadvantage of using get method.

(2) Post Method

- Post Method is also as same as GET method but, it is used when the form is processed and some securities are required for the client.

- This kind of method hides all the information in the URL.

- The disadvantage of using this type of method is that the user thinks that a new web-page is opened.

ERROR NUMBERS

- The error can be identified by different error numbers.

100 to 199	These are informational codes which are used to identify that the request is processing.
200 to 299	It denotes success that the server received and carried out the request successfully.
300 to 399	It tells that the page is moved temporary or permanently.
400 to 499	It is a client error which means the request URL is not correct URL.
500 to 599	It is a server error which is either logical mistake or syntax error.

URL Types

- There are two types of URL available

- Absolute Path

  - The full path is known as the absolute path.
  - For example,
    - http://www.computerhope.com/**index.htm**

- Relative Path

  - An indirect path is known as relative path.
  - It uses the reference of the current directory where we are working.
  - For example,
    - "index.html"

WHAT IS PROTOCOL

o When a computer communicates with each other, there are set of rules and instruction that each computer follows.

o Such set of set of Rules and instruction for communication is known as "**Protocol**".

o There are various kinds of protocol like TCP/IP, FTP, SMTP, etc..

FTP (FILE TRANSFER PROTOCOL)

- FTP is referred as "File Transfer Protocol". It is network protocol used to transfer file from one host to another host over network like internet.

- FTP is based on client server architecture where client and server both are use individual control and data connection.

- Every website create has FTP creation to upload all the files created on local machine to make website live. To connect to FTP use as below: ftp://www.websitename.com .

CONN..

- There are different application software used to connect to FTP. Most widely used is Filezilla, CuteFTP, SmartFTP , etc...

- FTP is an utilizes two port, a "data" port and a "command" port.

- There are Two Types of FTP :
  - 1) Active FTP
  - 2) Passive FTP

- **Advantage :**

  - FTP is the fast and efficient way of transferring bulk of data across the internet.

  - FTP has automatic backup.

  - FTP give you control over transfer.

Disadvantage :

- FTP was not designed to be a secure protocol.

- FTP causes the following attacks during the transfer of data.

  - Bounce attacks
  - Spoof attacks
  - Brute attacks
  - User name protection.

ISP (INTERNET SERVICE PROVIDER)

- ISP refers to that provides internet services.

- ISP support one or more forms of internet access.

- There are various kind of ISP based on services provided as below :
  - 1) Home ISP service.
  - 2) Dial-up Service
  - 3) DSL Service
  - 4) Cable Service

WEB HOSTING

- A web hosting service is a kind of Internet hosting service which allows organizations , companies and individuals to make their website live via the World Wide Web.

- Web hosting companies provide some space on owned or server to their clients.

- The server for web hosting is referred to as hardware(Computer) with a very large apace and configuration.

CONN..

- A customer may also choose hosting platform. Like PHP , Perl , Asp etc...

- There are different types of Hosting server of which are listed below:

  - (1) Free Web Hosting
  - (2) Shared Web Hosting
  - (3) Reseller Web Hosting
  - (4) Virtual Dedicated Server
  - (5) Dedicated Hosting Service

VIRTUAL HOST

- The term Virtual Hosting refers to running more than one web site on a single machine.

- There are generally **two** types of virtual host configuration :

  - **[1] IP-Based Virtual Host :**
    - For this type of configuration where more than one website reffering the server that runs with different IP-Address, the server should have respectively different IP-Address cinfiguration.

[2] Name-Based Virtual Host :

- In this configuration, when Apache web server receives a requests, it looks for the hostname in the HTTP header, and depending on the hostname, it serves different website.

MULTI- HOMING

- Multi-Homing describe a computer host that has multiple IP address to connected networks.

- A multihomed host is physically connected to multiple data link that can be on same or different network.

- Multihoming means that redundant local area networks(LANs) can be used to support local access.

DISTRIBUTED SERVER

- Large networks have multiple server. The server are often distributed around the network on server on every subnet.

- The client server model is a distributed application structure in computing.

- The distributed server work like Peer-to-Peer (P2P) model.

DOCUMENT ROOT

- The Document root informs where all PHP script runs from. Many pages scripted using PHP seem to assume that the script is running under Apache.

- Apache provides an environment variable called DOCUMENT_ROOT while IIS does not.

- This variable tells the code about where the web pages are delivered like :

Usr/local/apache/share/htdocs
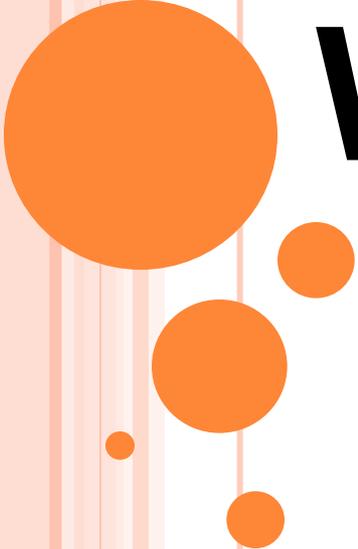
WHAT IS WEB SERVICE

- Web service can convert application into web-application. They can communicate with open protocols like HTTP, FTP, etc.

- Web service are application components which are self contained and self describing.

- These services created can be used by other application. For creating web services XML base is required. To create web services one should have knowledge of HTML as well as XML.

- **Three roles are invoked in web services :**

  - 1) Provider
  - 2) Consumer
  - 3) Directory

  - A consumer looks up a service in a directory. A provider publish information about a service this directory. Then, a consumer may request information from the provider, who happily complies.

- The basic web services platform is XML + HTTP, XML provides a language which can be used between different platform.

- The protocol is the most used Internet protocol :

  - **SOAP** (Simple Object Access Protocol)
  - **JSON** (JavaScript Object Notation)
  - **UDDI** (Universal Description, Discovery and Integration)
  - **WSDL** (Web Service Description Language)

WHY WEB SERVICES IS IMPORTANT, HERE ARE SOME REASONES

- **1) Interoperability : T**his is the most important benefit of Web Service. Web service typically work outside of private network, offering developers a non-proprietary route to their solutions. Web services let developer use their preferred programming language. They are virtually platform-independent.

- **2) Usability :** web services allow the business logic of many different system to be exposed over the web.

3) Reusability :

- Web service provides not a component-based model of application development, but the closest thing possible to zero- coding deployment of such service.

4) Low Cost Of Communication :

- Web services uses SOAP over HTTP protocol for the communication, so you can use your existing low cost internet for implementing web services.

WHAT IS JSON

- JSON stand for JavaScript Object Notation. It is a lightweight data-interchange format.

- It is based on a subset of the JavaScript Programming Language, standard ECMA-262 3rd Edition – December 1999.

- JSON is a text format that is completely language independent but uses conventions that are familiar to programmers of the C – family of languages, including C,C++, C#, Java,JavaScript, Perl ,Python, and many others.

- **JSON is built on two structure :**

- **1) A collection of name/value pairs :**
  - In various language, this is realized as an object, record, struct, dictionary, hash table, keyed list, or associative array.

  - Example : An object with three properties named "a","b",and "c"
  - {"a":1,"b":2,"c":3}

- **2) An ordered list of values**
  - In most languages, this is realized as an array, vector, list or sequence.

  - **Example :**
    - An array of three integer and one string value :
      - [1,2,3, "value #4 with"]

  - **Lets see feature of JSON :**
    - JSON is plain text
    - JSON human readable
    - JSON can be parsed by JavaScript
    - JSON data can be transported using AJAX

RESOURCE TYPES

- A resource accessed through this convention is represented as a JSON value with an "application/json" internet media type. It is also referred to as MIME(Multipurpose Internet Mail Extensions).

- An accessible resource is a member of a collection of resources.

- Each resource must have a unique identifier within a collection.

JSON Serializable

- JsonSerializable::jsonSerializable – specify data which should be serialized to JSON. It is an interface of JSON Serializable.

- Syntax :
  - Abstract public mixed JsonSerializable::jsonSerialize (void)

- Example :
  - Use of jsonSerialize() which returns array

```php
<?php
  Class ArrayValue implements JsonSerializable
{

  public function _construct(array $array)
  { $this->array=$array; }
  public function jsonSerialize()
  { return $this->array;  }
}
$array=[1,2,3];
echo json_encode(new
   ArrayValue($array),JSON_PRETTY_PRINT);
?>
```

Output :
[
    1,
    2,
    3
]

- **json_encode()**

  o json_encode is used to encode a JSON string.

  o **Syntax**:

    o String json_encode (mixed $value)

    o Return a string that contains JSON representation of $value.

    o $value : the value begin encode. Can be any type except a resource.

- Example :

```php
<?php
$arr=array('a'=>1,'b'=>2,'c'=>3);
echo json_encode($arr);
$arr= array(1,2,3);
echo json_encode($arr);
?>
```

Output :
{"a":1,"b":2,"c":3}
[1,2,3]

json_decode()

- json_encode is used to decode a JSON string.

- Syntax:
  - String json_decode (string $json ,bool $assoc)

  - It accepts a JSON encoded string and converts it into a PHP value.

  - $json : the JSON string begin decoded

  - $assoc : return true false Boolean value.

- Example :

```php
<?php
$json = {"a":1,"b":2,"c":3} ;
Var_dump(json_decode($json));
Var_dump(json_decode(json,true));
?>
```

Output :
["a"] =>int(1)
["b"] =>int(2)
["c"]=>int(3)