**WEB TECHNOLOGY**

**Day one assignment and project**

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1. **BRIEFLY EXPLAIN WHAT THE INTERNET IS?**

The internet is a worldwide system of computer networks or a global communication system including the hardware and infrastructure in which users at any one computers given the permission can access information from any other computer

1. **DESCRIBE THE PROTOCOLS OF THE INTERNET**

Internet protocols is the specification of a set of rules for a particular type of communication.

Different protocols often describe different aspects of a single communication

**Common Internet protocols include:-**

1. TCP/IP (Transmission Control Protocol/Internet Protocol) - TCP/IP is a stream protocol. This means that a connection is negotiated between a client and a server. Any data transmitted between these two endpoints is guaranteed to arrive, thus it is a so-called lossless protocol. Since the TCP protocol can only connect two endpoints, it is also called a peer-to-peer protocol.
2. UDP/IP (User Datagram Protocol/Internet Protocol) – **User Datagram Protocol (UDP)** is a Transport Layer protocol. UDP is a part of the Internet Protocol suite, referred to as UDP/IP suite. Unlike TCP, it is an **unreliable and connectionless protocol.** So, there is no need to establish a connection prior to data transfer.
3. HTTP (HyperText Transfer Protocol) - HTTP is the protocol used to transmit all data present on the World Wide Web. This includes text, multimedia and graphics. It is the protocol used to transmit HTML, the language that makes all the fancy decorations in your browser. It works upon TCP/IP.
4. FTP (File Transfer Protocol) - FTP is the protocol used to transmit files between computers connected to each other by a TCP/IP network, such as the Internet.
5. **EXPLAIN THE INTERNET ADDRESSING MODES**

The addressing mode is the method to specify the operand of an instruction. The job of a microprocessor is to execute a set of instructions stored in memory to perform a specific task. Operations require the following:

1. The operator or opcode which determines what will be done
2. The operands which define the data to be used in the operation

**Types of addressing mode**

1. **Immediate**

The **immediate addressing** mode, the actual data to be used as the operand is included in the instruction itself. Let's say we want to store operand 1 into a register and then add operand 2. With immediate addressing mode, the data values 1 and 2 would be part of the instruction itself

For example

|  |
| --- |
| Immediate addressing mode |

1. **Direct Addressing**

When using **direct addressing** mode, the address of the operand is specified in the instruction. The processor will retrieve the data directly from the address specified in the instruction. The example below shows how the instruction tells the processor where to get the data from in memory. The variable *addr\_of\_2* is a pointer to the effective address of the operand.

direct addressing

1. **Register Addressing**

**Register addressing** mode indicates the operand data is stored in the register itself, so the instruction contains the address of the register. The data would be retrieved from the register. Here's how this would work:

Retrieving data from the register is fast and the instructions are shorter because no memory is involved.

Register addressing mode

1. **DISCUS THE VARIOUS TYPES OF SERVERS**

Servers are large data storage and processing devices that exist either as hardware or as virtual storehouses located on the internet. Computers or software systems act as servers that connect to a network.

A server can be any type of device that shares and saves information. Servers can both store and process information within their own system or request it from another.

Servers began as small devices that simply transferred data to a more functional computer then grew in size and ability to perform more complex functions. Now, virtual servers exist within cloud computing platforms that are housed on the internet.

1. **Web server**

An open-source web server is used for accessing the World Wide Web through public domain software. These servers connect stored information from an internet website to your own computer. Web servers store information for the internet that is retrieved via "HTTP" code and sent to your web browser. This is one of the most widely used types of servers.

1. **Proxy server**

Proxy servers act as a bridge between a host server and a client server. A proxy sends data from a website to your computer IP address after it passes through the proxy's server. This practice adds a layer of security since the information is requested then transferred from the source to the proxy server and never directly from a client to another user. A proxy server can filter out various harmful internet entities

**3. Virtual machine (VM)**

As their name suggests, virtual machines store and connect data strictly through virtual space. To create a virtual machine, IT teams use a hypervisor, also known as a virtual machine monitor (VMM), which is software that can run thousands of virtual machines through only one piece of physical hardware. This method of server virtualization is widely used for data transfer and storage because they are the most cost-effective type of server to run.

**4. File transfer protocol (FTP) server**

FTP servers are used to relocate files from one computer to another. Uploaded files move from your computer to the server while downloaded files are extracted from the server onto your device. File transfer protocol also refers to the method of using a server to connect one computer to another in order to share data safely.

**5. Application server**

These servers connect clients to software applications through virtual server connections. This allows users to bypass downloading data to their own hardware in order to access applications. Application servers can effectively host large amounts of application data to many users at once, making them ideal for businesses.

**6. File server**

A file server stores data files for multiple users. They allow for faster data retrieval and saving or writing files to a computer. This is a basic type of server used commonly by organizations where lots of users need access to files that are more conveniently and safely stored on a server than a personal computer.

**7. Database server**

Database servers function as large storage spaces that organizations use and access to run multiple programs to meet their needs. A database server can run independently of any database architecture.

**8. Mail server**

A mail server stores and delivers mail for clients through email service platforms. Because mail servers are set up to continually connect to a network, individual users can access their email without running any systems through their own devices.

**9. Print server**

A print server connects remotely to local computers to print through a network. These servers give businesses the ability to use a single printer to serve an entire department. Some printers even come with their own built-in server ready to join a network once they're installed in an office area.

**10. Domain name system (DNS) server**

These servers transform readable computer domain names into computer language IP addresses. The DNS server takes search data from a user and finds the requested address to deliver to the client device.

**11. Collaboration server**

When work needs to be shared across multiple users, a collaboration server makes it easy to connect. These servers allow you to share and store files, applications and other large amounts of data.

**12. Gaming server**

Large gaming networks use servers to connect users from around the world. These servers host multi-player online games.

**13. Monitoring and management server**

Monitoring and management servers function in several capacities. First, they record and track digital transactions and receive user requests. Others simply monitor and don't actively participate in user operations. Monitoring servers are responsive to network administrators who survey network health to check for threats or bugs in the system.