**Week2**

**PORTFOLIO**

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Description automatically generated**

**Assessment Weightage & Type:**

**60% Portfolio Coursework**

**Year:2024**

* Student Name: Pratha Sharma
* UWE ID: 24030176
* Module code: **UFCFL1-15-0**
* Level: **Level 3)**
* Faculty: **Faculty of Internet & Technology**
* Department: **FET Department of Computer Science & Creative**

**Technology**

Week 2: TCP/IP, Search engine & Web hosting.

Name: Pratha Sharma

Date: 1st May

List of contents:

* Introduction
* Overview
* TCP/IP
* Search Engine
* Web hosting
* Conclusion.

1. Introduction:

During week 2, we were introduced to the concept of TCP/IP and its 4 different layers with their relationship to OSI models, webhosting and its various purposes and search engine and its many functions.

Transmission Control Protocol/ Internet protocol was developed by DARPA, it is a highly standardized protocol used widely on the internet.

A search engine is software, usually accessed on the Internet, that searches a database of information according to the user's query. The engine provides a list of results that best match what the user is trying to find.

Web hosting is a service that allows organizations and individuals to post a website or web page onto the Internet.

These topics helped us delve deeper into the complex working of internet.

1. Overview:

In Week 2, we explored foundational concepts crucial to understanding the internet's functionality: TCP/IP, search engines, and web hosting.

TCP/IP: its 4 fundamental layers

Search engine: accessing search engine and its functions

Webhosting: - Domain Name Registration

-DNS (Domain Name System)

-Web Server Space

-Email Services

1. TCP/IP:

Layers of TCP/IP Reference Model:

* There are 4 layers of TCP/IP reference model where as iso/osi has 7 layers:

Layers of TCP/IP are:

* Network interface layer
* Internet layer
* Host-to-host transport layer
* Application layer

Application layer:

* This is the top-most layer, The application layer maintains a smooth connection between the application and user for data exchange and offers various features as remote handling of the system, e-mail services, etc.
* Protocols used: HTTP, SMTP, FTP.

Host-to-host transport layer:

* This layer establishes a connection between the sender and receiver devices and breaks down the data from application layer into packets. It performs the task of transport layer and some tasks of session layer from OSI model.
* It ensures smooth flow of data without any error.
* Protocols: TCP, UDP, etc.

Internet layer:

* This layer controls the transmission of data along the layers, it is related to network layer in OSI model.
* It specifies the path that the data packets will use for transmission.
* This layer provides IP addresses to the system for the identification over the network channel.
* Protocols: IP, ARP, etc.

Network interface layer:

* This layer is a combination of data link and physical layer, it is responsible for sending and receiving data in the form of raw binary bits through a physical network medium.
* It uses the physical address of the system for mapping the path

1. Search Engine:

Accessing search engine:

Search engine can be accessed through computer, smartphone, tablet, or omnibox, which allows us to type in a URL or search query.

After searching, results are displayed in a hierarchy of importance which is determined by ***algorithm***.

three primary functions of search engine are:

* Crawl
* Index
* Rank
* Crawl: Crawling is the process of discovering information in which search engines sends out a team of robots (known as crawlers or spiders) to find new and updated content which can be in the form of image, audio, video, webpages, pdf, etc.
* Index: Once a page is crawled, Search engines process and store information they find in an index, a huge database of all the content they’ve discovered and deem good enough to serve up to searchers.
* Rank: When someone performs a search, search engines scour their index for highly relevant content and then orders that content in the hopes of solving the searcher's query. This ordering of search results by relevance is known as ranking.

**The most popular search engines are**: Google, Baidu, Bing, Yahoo!, Yandex, Ask, DuckDuckGo

1. Web hosting:

Purposes of web hosting:

* Registering a domain name
* Building a website
* Using email addresses with a customer’s own
* domain name
* Web hosting consists of the following:
* Domain names
* DNS
* Web server space
* E-mail service

You get a ***domain name***, then you get ***hosting,*** then you build a ***website***/create email address.

Domain Name Registration:

* Essential for Web Hosting:
* Needed to find a website
* Format: [name].[TLD] (e.g., domain.com).

gTLDs: .com, .net, .org

ccTLDs: .us, .uk, .ca

DNS – Domain Name System:

* Converts domain names to IP addresses.

Process:

* DNS Query: Enter domain name.
* DNS Resolver: Finds IP address.
* Response: Returns IP address.
* Connection: Browser connects using IP address.

Web Host Manager (WHM)

* Web Host Manager, or WHM, is a powerful program that allows administrative access to the back end of cPanel.
* From WHM you can create accounts having separate cPanel access for you clients under your reseller account. You can terminate, suspend, check bandwidth and disk space usage of your clients and lot more.

cPanel

* Control panel is the administration web interface of your webhosting account.
* cPanel allows you to publish websites, manage domains, organize web files, create email accounts, and more.

To use cPanel:

* Accessing cPanel

URL: Go to yourdomain.com/cPanel.

Enter the username and password provided by your hosting company.

* Navigating the cPanel Dashboard

Displays username, domain name, home directory, and IP address.

Shows databases used, email accounts, and add-on domains.

* Managing Files

Upload/download and manage website files.

Create/manage FTP users for file transfers.

Download full or partial website backups.

* Managing Databases

Manage databases, edit/add/truncate tables.

MySQL Databases: Create/delete databases and users.

MySQL Database Wizard: Step-by-step database setup.

* Managing Email Accounts

Create/manage email accounts associated with your domain.

1. Conclusion:

In Week 2, we learned about the key components of the internet: TCP/IP, search engines, and web hosting. TCP/IP enables data communication, search engines help find information, and web hosting makes websites accessible. These concepts are fundamental to understanding how the internet works and how we interact with it daily. This knowledge is essential for anyone looking to delve deeper into web technologies and development.