INTERNET TECHNOLOGY

INTRODUCTION TO INTERNET TECHNOLOGY

Course Objectives

1. Define the Internet and ways users connect to and use the internet.
2. Define safe computing practices and how to safely navigate internet resources.
3. Define virtual worlds and their impact on identity.
4. Exchange information using various internet methods such as e-mail and file transfer.
5. Understand and define the world wide web including web 2.0 technologies.
6. Understand the uses and the varieties of social/product technologies.

Course Content

1. History of internet and significance of internet in modern world.
2. Overview of various internet technologies from electronic mail to world wide web.
3. Role of the internet in current society and the technologies available on the internet.
4. Internet Security and Online safety.
5. An in-depth introduction to the internet and WWW for more advanced studies in web programming, internet tools, web document publishing such as HTML and so on.
6. Internet design and communication protocols e.g TCP/IP, FTP, HTTP, SMTP, Telnet and the tools that use them.
7. Use of XHTML elements and attributes for the creation of web pages content and cascading style sheet rules to control presentation.
8. Examine the technical requirements for usability and accessibility and explore how different presentational structures have evolved to meet the requirements of specific applications.

INTERNET

Definition The Internet (Interconnection of Networks) is the global system of interconnected computer networks that uses the protocol suite called (TCP/IP) to communicate between networks and devices.

Interconnected → Computer Network Devices→ Internet Protocol Suite (Rules) → Communication

The internet protocol suite, known as TCP/IP, is a framework for organizing a set of communication protocols used in the internet and similar computing networks according to functional criteria. The fundamental protocols in this are

(1) Transmission Control Protocol (TCP)

(2) The User Datagram Protocol (UDP)

(3) The Internet Protocol (IP)

Functions of Internet Protocol Suite (IPS)

The functions of the IPS include and are not limited to:

(1) Provision of end-to-end data communication.

(2) Specifies how data should be packetized, addressed, transmitted, routed and received.

(3) Ability to provide a conducive environment for network and devices to communicate.

Intranet and Extranet

Intranet is a private network that is contained within an organization or enterprise. It is a private computer network that uses internet protocols and network connectivity to securely share part of the information and operations of the organization with employees. Intranet is considered the private version of the internet. It is an internet confined to an organization. The main purpose of an intranet is

1. to share company information and computing resources amongst employees,
2. to facilitate working in groups, and for teleconferences
3. To maintain company security and resources

Advantages of Internet

1. It improves workforce productivity of employees and users, providing data held in a database of an organization.

2. It makes information available timely to employees.
3. Internet serves as a powerful tool for communication within an organization either vertically or horizontally.
4. It is used as a platform for developing and deploying applications to support business operations and decisions across intranet networks.
5. Provides access to users to view information and data via a web browser rather than physical documents.
6. Ability to view the same information within the internet by users.
7. Provision of cross-platform capability as a web browser for Windows, Mac, UNIX,2ENIX and LINUX.

EXTRANET

Extranet

An Extranet is a private network that uses internet protocols, network connectivity, and public telecommunication systems to securely share part of an organization's information or operations with consumers, vendors, suppliers, partners, or other businesses through telecommunication systems.

The extranet is a part of companies' intranet that is extended to users outside the company.

When part of an intranet is made accessible to suppliers, customers, partners, and others outside the company, that part becomes part of an extranet.

Advantages of Extranet

1. It allows the exchange of large volumes of data through electronic data interchange (EDI).
2. Collaborates with other companies on joint development efforts.
3. Provides or accesses services provided by one company to a group of other companies.
4. Shares news of common interest exclusively.

Disadvantages of Extranet

1. Expensive to maintain and implement within an organization.
2. Security of extranet is a problem when dealing with valuable information.

3. Reduce personal contact with customers and business partners.

Differences Between Internet, Intranet, and Extranet

CRITERIA	INTERNET	INTRANET	EXTRANET
1. Accessibility	Publicly accessible worldwide	Within an organization	Requires authentication, available to partners, suppliers, and customers
2. Privacy	Limited Privacy	No privacy	Provides privacy
3. Simplicity	Very Complex	Requires only a network cable	Complex, requires routers and switches
4. Ease of Setup	Not applicable	Very easy to setup	Difficult to setup
5. Cost	Not applicable	Inexpensive	Expensive
6. Security	Limited	Minimal	Maintained
7. Maintenance	Not applicable	Easy to maintain	Expert needed
8. Size	Global	Small in scope	Larger in scope

DAY TO DAY APPLICATIONS OF THE INTERNET

The Internet is used in:

1. **Electronic Email**
2. **Information Cruising**
3. **Downloading and uploading of files**
4. **Electronic transactions (E-commerce)**
5. **Distance Learning**
6. **Low-cost telephoning**
7. **Video Conferencing**

8. Radio broadcasting (Skype)
9. Television Broadcasting (web tv)

INTERNET'S ADVANTAGES

1. Availability of information on almost every subject.
2. Existence of powerful search engines.
3. Ability to do research anywhere and anytime.
4. Provision of message box bots where people can discuss any related topic.
5. The Internet provides the ability to send messages across the globe.
6. Provision of platforms for products, e.g., Skype, which allows for holding video conferences with anyone across the world.
7. Availability of instantaneous news of all kinds from one site.
8. Data can be transferred across the internet at any time using File Transfer Protocols (FTP).
9. Provision of telnet facilities, which enables a user on one computer to become a user of another computer across the networks

Disadvantages of the Internet

1. There is a lot of wrong information in the public domain.
2. Predators hang out on the internet to lure innocent people into dangerous situations.
3. Many unscrupulous businesses have sprung up on the internet to take advantage of people.
4. Hackers can create viruses that can get into one's personal computer and corrupt valuable data.
5. Pornography can easily fall into the hands of young children.
6. Crimes, including spam, cyberbullying, viruses, hacking, and data theft, are increasing day by day.
7. The internet is associated with health-related issues.

Internet Protocols

A protocol is a system of rules that allows two or more entities of a communication system to communicate between them in order to transmit

information via any kind of variation of physical quantity. It's the agreed rules of communication between computers and networks.

Commonly Used Internet Protocols

1. Hypertext Transfer Protocol (HTTP)
2. Transmission Control Protocol/Internet Protocol (TCP/IP)
3. File Transfer Protocol (FTP)
4. Telnet
5. Simple Mail Transfer Protocol (SMTP)
6. Post Office Protocol (POP3)
7. Internet Message Access Protocol (IMAP)
8. Border Gateway Protocol (BGP)
9. Dynamic Host Configuration Protocol (DHCP)

Methods of Connecting to the Internet

The methods of connecting to the internet include:

1. Dial-up (Connecting phone line to the computer system)
2. Broadband (This applies to high-speed internet connection using optic fiber system)
3. Wireless Connection (This connectivity is made possible by radio waves, e.g., WiFi. Consist of a wireless internet connectivity, mobile phone, satellite communication, Integrated Service Digital Network (ISDN))

Benefits of Internet

The benefits of the internet can be classified into 5 areas:

1. Economic benefits
2. Social benefits
3. Educational benefits
4. Cultural benefits
5. Political benefits

INTERNET PROTOCOL

1. Protocols exist at several levels of telecommunication network.

2. There are protocols for data exchanging at the hardware level.
3. Protocols also exist for data exchanging at the application level.
4. Protocols are developed to identify and functionally connect devices.

PROPERTIES OF PROTOCOL

Protocols program different functions because it is important to generalize the properties of protocols. The basic properties are:

(a) The protocol must connect.
(b) Establish the physical connectivity of devices connected.
(c) Establish activity amongst devices. They must be able to send and receive messages.
(d) Provision of methods on how to send and receive messages.
(e) They also establish regulation on the entire connection.
(f) Correction of the accepted improperly formatted messages and the protocol terminates the connection.

Examples of Internet Protocols

1. **Hypertext Transfer Protocol (HTTP)** This protocol is used to transfer files that make up the pages of the World Wide Web. It is also used to respond to browser requests.
2. **Transmission Control Protocol / Internet Protocol (TCP/IP)** This protocol consists of two parts: the TCP and the IP. The TCP is a connection-oriented protocol that guarantees the delivery of data sent out for acknowledgment and fixes erroneous data. The TCP also manages the packet beginning and error issues. The IP part manages the addressing of how data is addressed from a source to a destination.
3. **File Transfer Protocol (FTP)** This is a protocol for copying files from one computer to another.
4. **Telnet** This protocol is used for remote logins to a network, allowing one computer to connect to another.
5. **Simple Mail Transfer Protocol (SMTP)** Used to transfer emails, messages, and attachments.

World Wide Web

This is an application that makes use of the internet. It is a global hypertext system based on linking, browsing, and navigation. Provides a graphical easy-to-use interface for looking at documents on the internet. It can support mixed media, such as text, graphics, videos, and audios.

The web is made up of a series of servers connected together to support special formatted documents in a language called Hypertext Markup Language (HTML). The web pages are accessed or linked together using a hyperlink. A hyperlink is a reference from one webpage to another.

Accessing the Web

The main components for accessing the web are:

1. Web browser
2. Web server

Web Browser

A web browser is a software application used to locate and display web pages.

Examples of Web Browsers

(a) Firefox
(b) Opera Mini
(c) Chrome
(d) Mozilla
(e) Samsung Internet
(f) Bing

A WEB browser acts as an interface between the user and the various websites on the internet.

WEB Server A WEB Server is a software that delivers web pages. It monitors a number of websites that are a group of hypertext documents.

DIFFERENCE BETWEEN BROWSE R AND SERVER

Aspect/Category	Browser	Server
Role	To browse and display pages available on the internet	Provide document when requested by web browser
Function	Sends request to server for required document/service	Approves and browsing and sends the document in response
Means	Send HTTP request and receive response	Receive HTTP request and send the HTTP response
Processing Model	None	Uses a single processing model which can process multiple requests at a time
Responsibility	Responsible for request for webpage on the internet	For hosting websites, processing the web requests and sends document to the client
Act as	Anticipate browser service the client	Process web request for the browser and return document in the web
Reinstallation	Installed on the server side	Can be restarted anytime but it may be on another local or another computer
Storage	Store user data in server or local machine	Provide accurate data the user wants
Examples		Apache Tomcat Server, Apache HTTP server, Internet Information Server (IIS), Nginx, Lite speed web server

Server Operating System

Examples of Server operating systems are:

1. Ubuntu Server
    - This server is particularly secure and open source.
2. Windows Server - Conducted by Microsoft
    - Windows Server is widely used.
3. Cent OS -> by Red Hat Enterprise Linux
    - Open source & free.
4. Debian - Linux & an open source.
5. SUSE Linux Enterprise Server (SLES) a commercial server
    - A bit costly.
6. Fedora Server - by Linux
    - A strong & open source.
7. Oracle Linux
8. Free BSD Unix (OS) - Free & open source.
9. Solaris - Sun Micro Systems (now maintained by Oracle & IBM)
    - An enterprise system.

SAFE COMPUTER PRACTICES

Computer safety practices focus on measures that protect users from potential risks associated with computer use, including biomechanical hazard and cybersecurity threats. The key aspects of these practices include:

1. Maintaining proper posture to prevent repetitive strain injuries.
2. Ensuring secure data and link to avoid breaches.
3. Follow safety protocols to prevent accidents while using computing devices.

MEASURES FOR SAFETY COMPUTING PRACTICES

The following measures can be adopted for safety computing practices:

1. Understand the laws of health and safety.
2. These laws and regulations include health and safety display screen equipment regulations 1992.
    - Management of health and safety at work regulation 1992.
    - Provision and use of work equipment regulations 1992.
    - Workplace (Health, Safety and Welfare) Regulations 1992.
3. Health Risk Awareness
4. Risk Assessment
5. Steps to minimize the risk.
6. Training on how to recognize the risk.
7. Assessment of user's review.

Risk Associated with Computing Devices

1. **Musculo-skeletal Problems** - Back pain, trauma stress, headache, neck pain, upper limb disorder.

How to Avoid Musculo-skeletal Problems:

1. Take regular breaks.
2. Alternate work tasks.
3. Regular stretching to relax your body.
4. Keep mouse and keyboard at the same level.
5. Familiarize yourself with keyboard shortcuts.

6. Use equipment such as foot/wrist rest and document holder.
7. **Eye Strain and Eye Problems** - Visual fatigue, blurred/double vision, burning and watery eyes, frequent changes in prescription glasses.

How to Avoid Eye Strain:

1. Blink regularly.
2. Adjust screen height.
3. Adjust contrast.
4. Use keyboard, maintain eye contact.
5. Adjust monitor brightness.
6. Keep monitor screen clean.
7. Use a screensaver or replace monitor.

INTERNET RESOURCE NAVIGATION

Navigating the Internet means finding appropriate text, files, ideas, or any resources on the internet. To navigate the internet requires tools for browsing and searching. A number of tools are now widely used for using internet resources, and more are being developed. Getting the right information is very difficult because there is a need to have adequate knowledge on internet navigation. Internet navigation tools are tools with the ability to search, locate, and retrieve information from the internet.

Internet Navigation Tools

The core essentials for browsing, searching, and navigating online include:

1. **Web Browsers** These are software programs that allow users to view internet content and navigate the World Wide Web. Examples include:

- Chrome
- Samsung Internet
- Opera
- UC Browser
- Firefox
- Phoenix
- Microsoft Bing
- Safari
- Omni
- MS Edge

2. **Search Engines** Software programs that enable users to access and interact with websites. Examples include:

- Brave Search
- Google
- Bing
- StartPage
- Yahoo Search

3. **Web-based Navigation System** This is a system that helps users navigate a website by organizing its pages and content. Examples include:

- Navigation Bar
- Vertical Navigation
- Vertical Sidebar Navigation

4. **Bookmark Manager** This allows users to save and organize webpages for easy access later. Examples include:

- Pocket
- Raindrop 10
- Bookmarks Sidebar

5. Extensions and Add-ons These tools enable the functionality of web browsers. Examples include:

- Adblock Plus - Used for a cleaner browsing experience.
- LastPass - Password manager that saves and auto-fills login credentials.
- Grammarly - Checks grammar and spelling in real-time while writing online.

6. Tabs and Window Management These tools help users navigate multiple webpages simultaneously. Examples include OneTab, TabGroups, and TabStack.

7. Privacy and Security Tools These tools protect users' online activities and data. Examples include Virtual Private Network (VPN) and HTTPS.

Virtual Worlds and Their Impact

A virtual world is a computer-simulated environment populated by many simultaneous users who can create personal avatars and independently explore the virtual world, participate in its activities, and communicate with others.

- This avatar can be textual, graphical (representation), or live video.
- Communication between users can be in the form of text, graphical icons, visual gestures, sound, and voice commands and so on

  text, sound, graphical icons, visual gestures, voice commands, video, and so on

  IMPACT OF VIRTUAL WORLDS

Virtual Worlds can have both positive and negative impacts on users.

Positive Impact of Virtual Worlds

(1) Education and training

Virtual world provides a safe and flexible environment to learn by combining real world scenarios with hands-on experience.

(2) Design

Virtual world helps architects and clients to visualize project and informed decisions.

(3) Healthcare

Virtual world help children to learn how to manage anxiety and develop their identity. They are also used for therapy, rehabilitation, and medical training.

(4) Entertainment

Virtual world offer interactive entertainment experience in video games, virtual arcade, and sports.

(5) Social Interaction

They provide platforms for people to connect, socialize and collaborate regardless of physical distance.

(6) Economic Opportunity
(7) Virtual worlds create new markets for virtual goods and services. They enable income generation and provide employment opportunities.

Negative Impact

1. **Addiction**
    - The excessive use of virtual worlds can lead to addiction, which negatively affects mental health and daily activities.
2. **Social Isolation**
    - It reduces face-to-face interaction, leading to social isolation.
3. **Cyberbullying**
    - Virtual worlds create grounds for cyberbullying and harassment.
4. **Physical Health Issues**
    - The prolonged usage of virtual worlds can cause health issues such as eye strain, headaches, motion sickness, and so on.
5. Privacy Concerns
    - Virtual worlds collect personal data and information, causing online privacy and data security problems.

Internet Tools for Communication and Collaboration

Organizations are increasingly adopting virtual communication and collaboration tools to enhance productivity and minimize dependence on physical workspaces. Below are some key tools, their features, advantages, and uses:

1. **Google Docs**: An online word processing and collaboration tool allowing real-time document creation, editing, and sharing.
    - **Key Features**: Automatic saving, easy integration with other Google tools, collaborative editing, and comment leaving.
    - **Advantages**: Free to use, efficient collaboration, compatibility with Google Drive, Google Sheets, and Google Slides.
    - **Disadvantages**: Limited formatting options, compatibility issues with other software, no desktop or mobile app (only usable in the browser).
2. **Filestage**: A workflow management platform for digital content review and approval.
    - **Key Features**: Automation, in-context comments, visual annotations, version history, review steps, project dashboards, and 256-bit SSL file encryption.
    - **Advantages**: Easy to use, friendly customer support, streamlined process automation, flexibility, time-stamped feedback.
    - **Disadvantages**: None mentioned.
3. **Canva**: A web-based design tool for creating graphics, presentations, and visual content.
    - **Key Features**: Drag-and-drop interface, extensive library of templates, images, graphics, and customization.
    - **Advantages**: User-friendly, cost-effective, wide variety of templates, integration with social media platforms.
    - **Disadvantages**: Limited advanced design features, large files can slow down the platform, some design elements and templates require a premium subscription.
4. **Zoom**: A cloud-based video conferencing platform used for virtual meetings.

- **Key Features**: High-quality video and audio conferencing, screen sharing, recording, virtual backgrounds, messaging, and file sharing.
- **Advantages**: High-quality video/audio even with low bandwidth, wide range of security features, integration with other tools.
- **Disadvantages**: Can be resource-intensive, limited advanced features for larger organizations, expensive pricing plans for larger teams.

5. **Dropbox**: A cloud-based file hosting service for storing and sharing files.
    - **Key Features**: File syncing, automatic file backup, mobile app access, integration with third-party apps, advanced security.
    - **Advantages**: User-friendly, wide range of integrations, supports multiple operating systems, reliable file sharing.
    - **Disadvantages**: Limited storage space in free plan, concerns about data privacy, file size limitations in paid plans, expensive paid plans.
6. **GitHub**: A platform for software developers to collaborate and share code.
    - **Key Features**: Version control, code review, collaborative features, community engagement.
    - **Advantages**: Version control, large community, collaborative review, integration with other tools.
    - **Disadvantages**: Potential for data breaches, limited options for private repositories in free plans, expensive paid plans for individuals and small teams.
7. **Microsoft Teams**: A communication and collaboration platform integrating with Microsoft Office 365.
    - **Key Features**: Chat, audio and video conferencing, file sharing, integration with Microsoft apps, customizable channels.
    - **Advantages**: Extensive security and compliance features, seamless integration with Microsoft tools, customizable channels.
    - **Disadvantages**: Resource-intensive, limited customization options, limited integrations with non-Microsoft tools, expensive pricing options for smaller teams.

Other Notable Tools

1. **Trello**: A project management tool that organizes tasks and projects visually.
    - **Uses**: Project management and task organization.
2. **Slack**: A communication tool that streamlines workplace collaboration with dedicated channels.
    - **Uses**: Team communication and collaboration.
3. **Miro**: A cloud-based platform for real-time collaboration on projects, brainstorming, and workflows.
    - **Uses**: Real-time team collaboration.

Internet Protocols

Internet protocols are sets of rules that allow devices to communicate over the Internet, ensuring data is sent, received, and understood correctly. Each protocol serves a specific purpose like transferring files, sending emails, or securing data. Here's an overview of some key internet protocols:

1. **IP Addressing**:
    - Unique addresses identify devices over a network, helping to distinguish between routers, computers, and websites.
2. **Work of Internet Protocol**:
    - Data is divided into packets, addressed, routed, reassembled, and any missing packets are handled efficiently to ensure complete data transfer.
3. **Need for Internet Protocols**:
    - They manage data flow control and access control, preventing data loss during transmission and avoiding collisions when multiple devices use the same link.

Types of Internet Protocols

1. **TCP/IP (Transmission Control Protocol/Internet Protocol)**:
    - Ensures data is broken into packets, provides source and destination information, reassembles data, and checks for errors.
    - Connection-oriented, used in email protocols.
2. **FTP (File Transfer Protocol)**:
    - Transfers files between systems using a client-server model with authentication.
3. **SFTP (Secure File Transfer Protocol)**:
    - Encrypts commands and data for secure file transfer over SSH.
4. **HTTP (HyperText Transfer Protocol)**:
    - Transfers hypertext over the internet, defining how information is formatted and transmitted.
5. **HTTPS (HyperText Transfer Protocol Secure)**:
    - An extension of HTTP using SSL/TLS for encryption and authentication, securing sensitive information.

6. **TELNET (Terminal Network)**:
    - Provides virtual terminal service for connecting local and remote computers.
7. **IPv4**:
    - 32-bit addressing with a maximum of 4.3 billion unique addresses, uses dotted decimal notation.
8. **IPv6**:
    - 128-bit addressing with a larger address space, built-in security features, and better support for mobile devices.
9. **UDP (User Datagram Protocol)**:
    - Connectionless, unreliable protocol for real-time applications like streaming and online gaming.
10. **SMTP (Simple Mail Transfer Protocol)**:
    - Used for sending and distributing outgoing emails.
11. **PPP (Point-to-Point Protocol)**:
    - Creates direct connections between devices, defining authentication and information exchange rules.
12. **POP3 (Post Office Protocol 3)**:
    - Retrieves and manages emails from the server to the receiver's computer.
13. **ICMP (Internet Control Message Protocol)**:
    - Sends error messages and operational information about network conditions, used for diagnostics and troubleshooting.
14. **IMAP (Internet Message Access Protocol)**:
    - Allows users to access and manage emails on the server from multiple devices.
15. **SSH (Secure Shell)**:
    - Provides secure remote login and network services, using encryption for data transmission.
16. **Gopher**:
    - An older file retrieval protocol, not widely used today.

Differences Between IPv4 and IPv6

- **Address Length**: IPv4 uses 32-bit addresses, IPv6 uses 128-bit addresses.
- **Configuration**: IPv4 supports manual and DHCP configuration, IPv6 supports auto and renumbering configuration.
- **Security**: IPv4's security is application-dependent, IPv6 has inbuilt IPSEC.
- **Address Representation**: IPv4 uses decimal, IPv6 uses hexadecimal.
- **Fragmentation**: IPv4 allows sender and routers to fragment, IPv6 allows only the sender to fragment.
- **Packet Flow Identification**: Available in IPv6, not in IPv4.
- **Message Transmission**: IPv4 uses broadcast, IPv6 uses multicast and anycast.
- **Header Size**: IPv4 has a variable header size (20-60 bytes), IPv6 has a fixed header size (40 bytes).

Benefits of IPv6 over IPv4

- **Larger Address Space**: More addresses available for expanding devices.
- **Improved Security**: Enhanced security features like data authentication and encryption.
- **Simplified Header Format**: More cost-effective and increases connection speed.
- **Better QoS Support**: Stronger support for traffic prioritization.
- **Improved Mobile Support**: Better and quicker connections for mobile devices.

Why IPv4 is Still in Use

- **Infrastructure Compatibility**: Many systems require significant updates to support IPv6.
- **Cost of Transition**: Expensive and complex process involving hardware and software upgrades.
- **Lack of Immediate Need**: Techniques like NAT extend IPv4's life.
- **Coexistence Strategies**: Technologies allow IPv4 and IPv6 to run simultaneously.
- **Slow Global Adoption**: Variations in adoption rates necessitate continued IPv4 support.

- **Lack of Visible Benefits**: Immediate improvements with IPv6 are not always apparent.

INTRODUCTION TO WEB DESIGN

XHTML (Extensible Hypertext Markup Language) is a stricter form of HTML. It includes both tags and content, and is primarily a means of describing how parts or elements of a document should be laid out. XHTML uses tags within angle brackets, and these tags usually appear in pairs (opening and closing). XHTML documents have a root <html> tag containing two primary sections: <head> for meta information and <body> for content to be displayed in the browser. Compared to HTML, XHTML follows stricter rules, ensuring cleaner and more efficient code.

Key Differences from HTML:

- <!DOCTYPE> is mandatory.
- The xmlns attribute in <html> is mandatory.
- <html>, <head>, <title>, and <body> are mandatory.
- Elements must always be properly nested and closed.
- Element and attribute names must be in lowercase.
- Attribute values must always be quoted.
- Attribute minimization is forbidden.

Examples of XHTML:

1. **Exercise 1 (A simple web page):**

```
<!DOCTYPE html>
<html>
<head>
<title>COS 103 Introduction to Internet Technology</title>
</head>
<body>
<h1>XHTML made easy</h1>
<p>This is not as hard as I thought it would be. I might really like this.</p>
</body>
</html>
```

Introduction to Cascading Style Sheets (CSS) CSS is used to style web pages. It describes how HTML elements are displayed and can control the layout of multiple web pages at once. A CSS rule consists of a selector and a declaration

block. The selector points to the HTML element to be styled, while the declaration block contains one or more declarations separated by semicolons. Each declaration includes a CSS property name and value.

Example of CSS Syntax:

```
h1 {
  color: blue;
  font-size: 12px;
}
```

Examples of CSS:

1. **Exercise 2 (CSS - background, color, fonts):**

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body {
        background-color: lightblue;
      }
      h1 {
        color: white;
        text-align: center;
      }
      p {
        font-family: verdana;
        font-size: 20px;
      }
    </style>
  </head>
  <body>
    <title>COS 103 Introduction to Internet Technology</title>
    <h1>Introducing Cascading Style Sheets</h1>
    <p>Background, Colors and Fonts</p>
  </body>
</html>
```

Exercise 3 (CSS - tables):

```
<!DOCTYPE html>
<html>
 <head>
  <style>
   table, th, td {
    border: 1px solid;
   }
  </style>
 </head>
 <body>
  <title>COS 103 Introduction to Internet Technology</title>
  <h2>Add a border to a table:</h2>
  <table>
   <tr>
    <th>Module no.</th>
    <th>Topic</th>
   </tr>
   <tr>
    <td>One</td>
    <td>Internet tools for communication and collaboration</td>
   </tr>
   <tr>
    <td>Two</td>
    <td>Communication protocols</td>
   </tr>
   <tr>
    <td>Three</td>
    <td>Types of vulnerability and security measures</td>
   </tr>
   <tr>
    <td>Four</td>
    <td>Create a web page using HTML tags</td>
   </tr>
  </table>
 </body>
</html>
```