**MODULE – 1**

**Overview of IT Industry**

**QUESTION). Research and create a diagram of how data is transmitted from a client to a server over the internet.**

INTERNET PROCESS

USER

SERVER DATABASE

HTTP/HTTPS SEARCH RESPONSE

SEARCH DOMAIN NAME

HTTP/HTTPS SEARCH IN DOMAIN

DOMAIN NAME RESPONCE

EXPLAINING:

* The user, such as a web browser or an application, starts the communication by sending a request to the server. , ex..search domain name like google.com.
* The server receives requests from the USER and processes them..
* The client sends HTTP/HTTPS requests (e.g., requesting a webpage) to a web server.
* The server receives client requests via protocols like HTTP.
* Once the server responds, the client processes the data (HTML, CSS, images, etc.). The client requests specific resources or services from the server, like a webpage, data, or a file. The server stores and manages the resources (like webpages, data, or files) that clients request. It retrieves information from databases or generates responses dynamically.
* After receiving a response from the server, the client displays the requested content to the user. Web browsers render the webpage for users to view and interact with.

**QUESTION).Research different types of internet connections (e.g., broadband, fiber, satellite) and list their pros and cons.**

**1. Broadband (DSL/Cable)**

**🔹 DSL (Digital Subscriber Line)**

**Advantages :**

* + Widely available (uses existing telephone lines)
  + Affordable for most households

**Disadvantages :**

* + Slower speeds than fiber or cable
  + Speed depends on distance from provider

**🔹 Cable**

**Advantages :**

* + Faster than DSL
  + Suitable for streaming and gaming

**Disadvantages :**

* + Speeds can drop during peak times (shared bandwidth)
  + Slightly more expensive than DSL

**2. Fiber Optic**

**Advantages :**

* + Extremely fast (up to 1 Gbps and more)
  + Highly reliable and low latency
  + Not affected by electrical interference

**Disadvantages :**

* + Limited availability (mostly urban areas)
  + More expensive to install and maintain

**3. Satellite**

**Advantages :**

* + Available in remote and rural areas
  + Doesn't require physical infrastructure on-site

**Disadvantages :**

* + High latency (signal travels to space and back)
  + Weather can affect performance
  + More expensive with data caps

**4. Dial-Up**

**Advantages :**

* + Very low cost
  + Accessible anywhere with a landline

**Disadvantages :**

* + Very slow (max ~56 kbps)
  + Ties up phone line
  + Not suitable for modern internet needs

**5. Mobile (4G/5G LTE)**

**Advantages :**

* + Portable and wireless
  + Fast speeds with 4G/5G (suitable for HD streaming)
  + Good coverage in populated areas

**Disadvantages :**

* + Data caps and throttling
  + Signal strength varies by location
  + Can be expensive without a good plan

**6. Fixed Wireless**

**Advantages :**

* + Good for rural areas
  + Faster than satellite and dial-up

**Disadvantages :**

* + Needs a line-of-sight to the tower
  + Susceptible to interference and weather

**QUESTION). Identify and classify 5 applications you use daily as either system software or application software.**

| Application or software | Type | Classification |
| --- | --- | --- |
| Windows OS / macOS | Operating System | System Software |
| Google Chrome | Web Browser | Application Software |
| Microsoft Word | Word Processor | Application Software |
| Android | Operating System | System Software |
| Samsung music | Music App | Application Software |

**QUESTION). Create a list of software you use regularly and classify them into the following categories: system, application, and utility software.**

**1. System Software :**

| **Software Name** | **Function** |
| --- | --- |
| **Windows 11 / macOS** | **Operating System** |
| **Linux (Ubuntu)** | **Open-source OS** |
| **Device Drivers** | **Hardware managmesnt system** |
| **Android** | **Operating System** |

**2. Application Software :**

| **Software Name** | **Function** |
| --- | --- |
| **Google Chrome** | **Web browsing** |
| **Microsoft Word** | **Document creation** |
| **Zoom / Teams** | **Video communication** |
| **Samsung music** | **Music app** |
| **VLC** | **Media player** |
| **Adobe scan** | **Document scanner** |

**3. Utility Software :**

| **Software Name** | **Function** |
| --- | --- |
| **Windows Defender** | **Virus and threat protection** |
| **CCleaner** | **System cleanup** |
| **7-Zip / WinRAR** | **File compression/decompression** |
| **Backup Tools** | **Data backup and restore** |
| **Disk Management** | **Manages partitions and storage** |

**QUESTION). Create a flowchart representing the Software Development Life Cycle (SDLC).**

SDLC :

PLANNING

ANALYSIS

DESIGN

IMPLEMENTATION

TESTING

DEPLOYMENT

MAINTENANCE

**QUESTION). Create a DFD for a hospital management system.**

DFD for a hospital management system :

LOGIN

HOSPITAL STAFF

START

IF NO THEN GO BACK

ADD PATIENT

ADD DOCTOR

ADD ROOM

IF YES

DATA STORAGE OF INFORMATION

PATIENT BILL

DOCTOR BILL

ROOM BILL

REPORT BILL

GENERATE BILL

REPORTS

PAY BILL

IF YES

DISCHARGE PATIENT

IF NO THEN GO BACK

STOP

**QUESTION). Draw a flowchart representing the logic of a basic online registration system**

flowchart representing the logic of a basic online registration system :

USER FILLS FORM

DISPLAY REGISTRATIONFORM

Start

VALIDATE INPUT FIELDS

IF INVALID GO BACK TO FORM

IF VALID THEN CONTINUE

IF VALID THEN CONTINUE

END

SHOW SUCCESS MESSAGE

SEND CONFIRMATION MAIL

SAVE USER DATA TO DATABASE