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Understanding the Role of VPNs in Privacy and Secure Communication

Objective:

Understand the role of VPNs in protecting privacy and secure communication.

Tools Used:

Free VPN client (ProtonVPN free tier, Windscribe free)

Steps Taken:

1. Downloaded and installed the VPN client (ProtonVPN).

2. Launched the VPN client and signed in with a free account.

3. Connected to a VPN server (nearest location).

4. Verified that the IP address changed using whatismyipaddress.com.

5. Opened a website to confirm encrypted traffic and VPN functionality.

6. Disconnected from the VPN and rechecked IP and browsing speed.

7. Researched VPN encryption protocols and privacy features.

VPN Encryption and Privacy Features:

VPNs use encryption protocols such as OpenVPN, IKEv2, and WireGuard to create secure tunnels for data transmission. These protocols ensure that data is protected from eavesdropping and tampering. VPNs also mask the user's IP address, making it difficult to track browsing activity and location.

Connection Status Screenshot:

A screenshot was taken showing the VPN client connected to a server and the changed IP address confirmed via whatismyipaddress.com.

Browser connected to Tor :
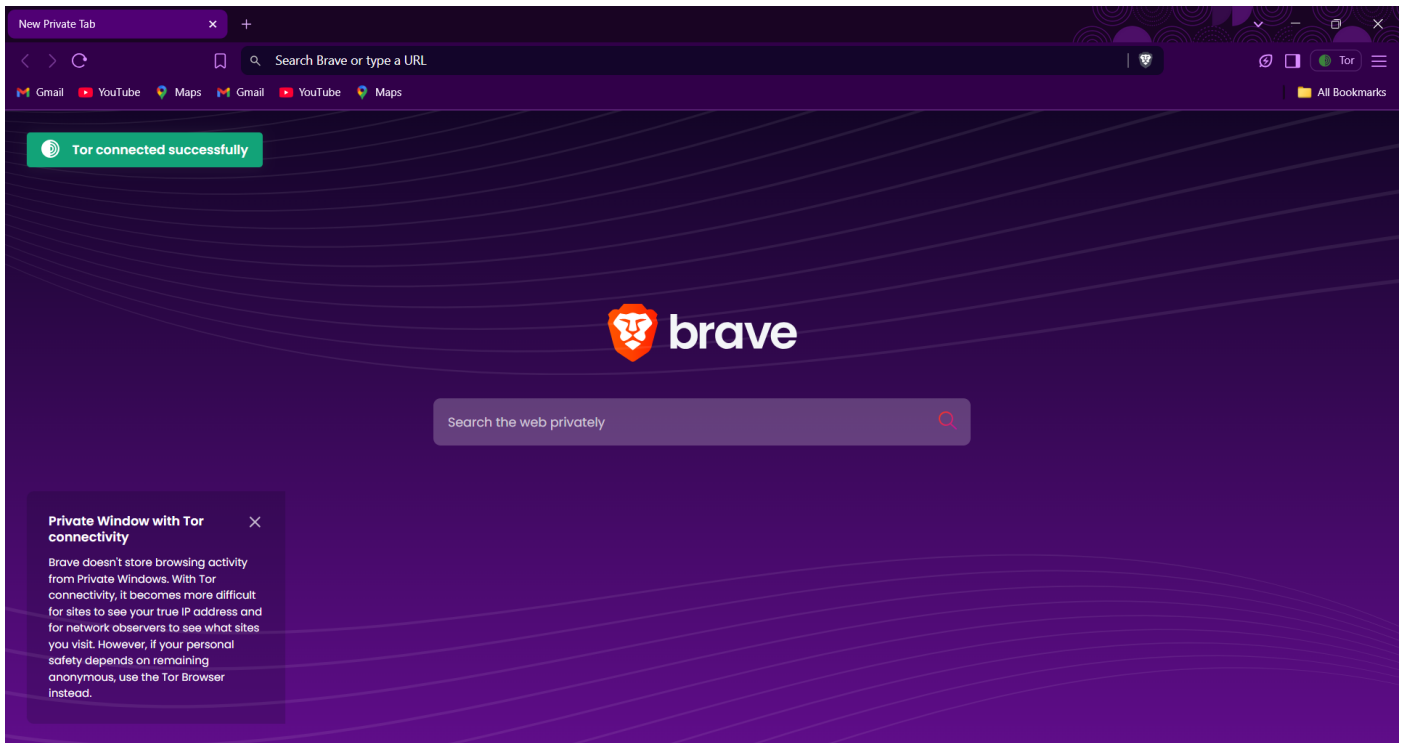
Summary: VPN Benefits and Limitations

Benefits:
- Protects data from hackers on public Wi-Fi.
- Masks IP address and location.
- Allows access to geo-restricted content.
- Enhances privacy and anonymity.

Limitations:
- May slow down internet speed.
- Free VPNs can have limited bandwidth or servers.
- Some VPNs may log user data, compromising privacy.

Outcome:

Gained practical experience using a VPN and understanding how it secures communication and enhances online privacy.