VPN Setup and Privacy Analysis Report

Task Overview

This report provides details about setting up a Virtual Private Network (VPN), testing its functionality, and researching VPN encryption and privacy features. It also includes a summary of VPN benefits and limitations.

Steps Performed

1️⃣ **Download and Install ProtonVPN**

- Visited https://protonvpn.com/free-vpn and downloaded the free version for Windows.
- Installed the VPN client and created a free account.

2️⃣ **Connect to a VPN Server**

- Logged in to ProtonVPN and connected to the **nearest free server**

3️⃣ **Verify IP Address Change**

- Before VPN:
  - **IP Address:** 117.202.xxx.xxx
  - **Location:** India
- After VPN:
  - **VPN IP Address:** 138.199.53.238
  - **Location:** Romania
- Verified IP address and location change using https://whatismyipaddress.com.

4️⃣ **Test Browsing**

- Accessed multiple websites to confirm encrypted traffic.

5️⃣ **Disconnect VPN**

- Disconnected VPN and observed browsing speed and IP address reverted to original.

VPN Encryption and Privacy Features

- **Encryption:** Uses **AES-256 encryption**, RSA-4096 handshake, and HMAC-SHA384 authentication.
- **Protocols:** Supports **WireGuard** and **OpenVPN** for secure tunneling.
- **Privacy:** Implements a strict **no-logs policy**, Kill Switch, and DNS Leak Protection.

✅ Benefits of Using a VPN

1. Hides the user's real IP address and location.
2. Encrypts internet traffic, protecting data on public Wi-Fi networks.
3. Allows bypassing geo-restrictions and censorship.
4. Prevents ISP tracking and throttling.

⚠️ Limitations of VPNs

1. Slightly slower internet speeds due to encryption.
2. Free VPNs limit bandwidth and server access.
3. Cannot guarantee 100% anonymity.
4. Some websites block VPN traffic.

Conclusion

This task provided hands-on experience in setting up and using a VPN. ProtonVPN successfully masked the original IP address and routed internet traffic securely through encrypted tunnels. This demonstrates the critical role of VPNs in protecting user privacy and ensuring secure communication.
