VPN Experiment Report

This report documents the process and results of analyzing how VPNs change IP addresses, encrypt traffic, and affect browsing performance.

Procedure:

- Selected ProtonVPN (Free Plan).
- Installed client on Windows 10.
- Connected to a server in Singapore.
- Verified IP address before and after connection.
- Conducted browsing and speed tests.
- Compared performance and documented results.

Observations:

Metric	Without VPN	With VPN
IP Address	49.xx.xx.xx (India)	185.xx.xx.xx (Singapore)
Download Speed	47 Mbps	31 Mbps
Upload Speed	25 Mbps	18 Mbps
Ping	8 ms	48 ms

Findings:

- IP address successfully changed, proving VPN tunneling worked.
- Encryption was active and verified via DNS leak test.
- VPN added latency but protected identity and location.
- No DNS leaks detected.
- Free VPNs have limited bandwidth and server options.

Benefits:

- Hides real IP address and location.
- Encrypts traffic on public Wi-Fi.
- Helps bypass geographic restrictions.
- Provides privacy from ISP tracking.

Limitations:

- Reduced speed and increased latency.

- Some free VPNs log or share data.
- Limited server choices and bandwidth.
- Doesn’t protect against phishing or malware.

Conclusion:

Using a VPN enhances online privacy and security by encrypting network traffic and hiding your IP address. However, performance trade-offs and provider trust must be considered. A paid VPN with an audited no-log policy is recommended for long-term use.