

**Data Communications and Computer Networks**  
Spring 2025 Term Project

**Your project presentations will be on 23 May or 30 May**

Select one of the following topics for your term project or you can suggest a topic of your preference. You can also choose any topic from the chapters we have covered. You can present your research in a presentation and/or an application (wireshark lab, Cisco Packet Tracer, etc..).

Present for 10minutes: introduction, key concepts, analysis/results, demo (wireshark, cisco, application) and conclusion.

- 1) Comparing wired vs. wireless networks for small businesses: analyze pros and cons for a small business setup.
- 2) The role of VPNs in remote work security: explain how VPN enhance security for remote workers.
- 3) Cloud storage solutions for businesses :compare different cloud storage options (Google Drive, Dropbox, OneDrive).
- 4) Impact of 5G on business communications :discuss how 5G improves business networking.
- 5) Basic network security best practices for small businesses :outline simple security measures to protect business networks.
- 6) VoIP vs. traditional phone systems :compare costs and benefits for businesses.
- 7) Social engineering attacks and prevention :explain common scams (phishing, pretexting) and how to avoid them.
- 8) The importance of backup solutions for business data :discuss different backup methods (local, cloud, hybrid).
- 9) How firewalls protect business networks :explain firewall types and their role in security.
- 10) Wi-Fi standards (Wi-Fi 6 vs. Wi-Fi 5) for business use :compare performance and suitability for offices.
- 11) Blockchain in secure business transactions :briefly explore how blockchain enhances data security.
- 12) IoT devices in Business: benefits and risks :discuss smart devices in offices and security concerns.
- 13) The future of remote work and networking needs :predict how networks must adapt for hybrid work.
- 14) Ethical hacking for network security :explain how penetration testing helps businesses.
- 15) Bandwidth requirements for video conferencing tools :compare Zoom, Teams, and Google Meet for business use.
- 16) Basic cisco network design for a small office :use cisco packet tracer to create a simple LAN with switches, routers, and pcs.
- 17) Configuring VLANs for department segmentation :design a network with VLANs (Sales, HR, IT) using cisco packet tracer.
- 18) Capture and analyze network traffic using wireshark. explain its purpose in network monitoring, capture basic network traffic like web browsing, ping requests etc.