Tutorial Sheet

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1 Computer Networks - Week 4

1.1 Subjective Question

- 1. Why do we have domain names? What is a real-life example of a domain name? Describe how domain names are hierarchical.

- 2. Describe the server/client model. Which is your computer?

- 3. Who controls the internet?

- 4. Why is TCP/IP important? What would happen if these protocols didn't exist? Choose one layer of the protocol and explain what challenges it seeks to overcome.

- 5. Why does Google frequently re-crawl the internet? (optional)

- 6. Find an API online - what types of information can you get from that API? (covered in Week 5 Lab)

1.1.1 Objective Questions

- 1. **Describe the following terms:**

  a. LAN
  b. API (covered in Week 5 Lab)
  c. JSON (covered in Week 5 Lab)
  d. Ethernet

- 2. Identify the main components of an API and explain their functions. (covered in Week 5 Lab)

- 3. Explain the concept of DNS and its role in the Internet architecture.

- 4. Explain the difference between IPv4 and IPv6. Why was there a need to move from IPv4 to IPv6?

- 5. Describe the role of routers in connecting a Local Area Network (LAN) to an Internet Service Provider (ISP).

- 6. Write a simple JSON format to describe a personal profile including name, age, address, and hobbies. (covered in Week 5 Lab)

1.1.2 Multiple Choice Questions (MCQs)

1. **Which format represents an IPv6 address?**

   a) XX.XX.XX.XX
   b) XXXX:XXXX:XXXX:XXXX:XXXX:XXXX:XXXX:XXXX
   c) XXX.XXX.XXX
   d) None of the above