Lab 2: Standards

**Brain Storming Task:**

You work for a research company as a member of the **Experimental Research Team**. Presently, the company is growing quickly and to exchange files, users must physically walk a disk or drive over to someone else if they wish to share files; this is inefficient. The company wants your team to develop a new way to exchange files electronically between to two computers using a cable. Today, is the first meeting of the team to discuss the problem. Assume, that due to some reason the team cannot meet, and the team leader has asked all the team members to send their suggestions before having a formal meetup. Being the team member submit your suggestions.



**Instructions:**

1. Identify the two most important topics or components that are necessary for communication to occur.
2. Physical problems (cable length, cable management) when communicating between computers using cables
3. Problems identifying senders and receivers to exchange electronic files
4. Discuss that why the proposed components are important.

There are many physical limitations in connecting computers by cable. First of all, depending on the distance between computers you want to connect, the length of the cable can be longer, and if there are more computers, the number of cables you need to manage increases, so you need a strategy to manage the cable. In addition, in order to exchange files electronically, key values (e.g., IP) that can identify the sender and receiver must be assigned and managed for each computer.

**Encoding:**

1. Do a Google search and find the ASCII decimal and binary values for the capitalized first letter of your first name .  
   Capitalized first letter of my first name: D

ASCII decimal: 68

ASCII binary: 1000100

1. Write the decimal value \_68\_\_\_\_ . Write the binary value\_\_\_1000100\_\_\_\_\_\_\_\_\_\_\_\_
2. Write the binary value at the top of the chart. Write a bit between each vertical dotted line.
3. Use the chart to map the binary value using NRZI encoding (Non-Return to Zero Inverted). A change in voltage at the beginning of a clock cycle (vertical dotted lines) is a “1”. No change in voltage at the beginning of a clock cycle is a “0”. The horizontal dotted lines represent voltage 0.5 voltage levels. Map each letter to 6th horizontal line which represents +3 volts. Do not go below the hortizontal axis in mapping your value.
4. After mapping the value, answer the following questions:
   1. How many characters in total were transmitted? \_\_\_\_\_\_1 (D)\_\_\_\_\_\_\_\_\_\_\_
   2. How many bits in total were transmitted? \_\_\_\_\_\_\_\_2\_\_\_\_\_\_\_\_\_\_\_\_
   3. How many times did the signal change? (baud rate) \_\_\_\_\_\_\_\_1\_\_\_\_\_\_\_\_\_\_
   4. What is the bit rate? \_\_\_\_1\_\_\_\_\_

1000100

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| 1 | 0 | 0 | 0 | 1 | 0 | 0 |  |
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**Standard Making Bodies**

Do a Google search and write the answers in the space below. Use your own words. DO NOT copy and paste the answers. The answers are all one line of text.

1. **International Organization for Standardization (ISO)**
2. What is the web site address for the ISO?

<https://www.iso.org/home.html>

1. What type of standard making body is it and who are its members?

ISO is an independent, non-governmental international organization with a membership of 164 national standards bodies. ISO covers standardization in all fields including computers and data communications.

1. What is an example of an ISO standard?

ISO 8601DATE AND TIME FORMAT

1. **Institute of the Electrical and Electronic Engineers (IEEE)**
2. What is the web site address for the IEEE?  
   <https://www.ieee.org/>

What type of standard making body is it and who are its members?

IEEE is the largest professional organization comprised of engineers.

It is the world's largest association of technical professionals with more than 423,000 members in over 160 countries around the world.

1. What is an example of an IEEE standard?  
   IEEE 802.11x (Wireless LAN standard)
2. **International Telecommunications Council (ITU-T) Telecommunications**
3. What is the web site address for the ITU?  
   <https://www.itu.int/en/Pages/default.aspx>
4. What is the web site address for the ITU-Telecom?  
   <https://www.itu.int/en/ITUTELECOM/Pages/default.aspx>
5. What type of standard making body is it ITU-T and who are its members?  
   Telecommunications Standards Sector which has 269 sector members such as Samsung Electronics and Apple.
6. What is an example of an ITU-T standard?

H.264/MPEG-4 AVC for video compression

1. **What is the name of Canada’s standard organization?**Standards Council of Canada (SCC)
2. What is its mission or mandate?

The mandate of the Council is to:

- promote the participation of Canadians both in voluntary standards activities and in public-private sector cooperation in relation to voluntary standardization in Canada;

- coordinate and oversee the efforts of the persons and organizations involved in Canadian goods and services through standards-related activities;

- develop standards-related strategies and long-term objectives.

**Grading:**

* learnname\_Lab2\_StandardBodies.docx

Remember replacing **learnname** with **your name** for submission.

Submit using the Lab2 Submission link under MySeneca\Graded Work