Lab 2: Standards

**Group Brain Storming:**

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.



**Instructions:**

1. The teacher will assign you to a group of 6 students
2. Each group must pick a leader. Take a minute to decide who will be the leader. The leader’s role is to make sure that the rules of the exercise are followed and to report to the teacher at the end of the exercise.
3. Use the Brain Storming form on the next page.
4. RULE1: Go around the group and each person MUST give one topic they feel is necessary for communication to occur. There are no “bad” topics. And no one can be “passed over”. Each group member writes the topic in the balloon.
5. RULE2: Go around the group again and each person MUST state why they think their topic is important for communication to occur.
6. RULE3: After the discussion, go around the group again and find out from each person which topics they feel are the most important and second most important. Everyone writes a “1” and “2” beside the balloon respectively.
7. RULE4: Each group now debates only the topics marked with a “1” and “2”. The group MUST come to a consensus on which 2 topics the group feels are the most important and second most important. Everyone writes a “1\*” and “2\*” beside the balloons.
8. The leader will announce the 2 topics to the teacher who will write them on the board. most important topics.

**Brain Storming Work Sheet**

**What things must be worked out for 2 computers to communicate using a cable?**

Secure File Transfer protocol network drivers

Ethernet cable TCP/IP

Network cards user accounts

**Interface:**

1. Electrical

One device takes an input and sends status messages to the other computing device to let it know what has happened thus far.

1. Mechanical

This involves the physical method for two computing devices to communicate with each other.

1. Functional

This involves the determining the pace at which the communication process occurs. It also determines what kind of method for communication should be used.

1. Procedural

This involves determining the protocol that will be used to complete the communication process between two computing devices.

**Encoding:**

1. Do a Google search and find the ASCII decimal and binary values for the capitalized first letter of your first name .  
   **S**
2. Write the decimal value 115. Write the binary value 01110011
3. Write the binary value at the top of the chart. Write a bit between each vertical dotted line.
4. 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.
5. After mapping the value, answer the following questions:
   1. How many characters in total were transmitted? **1 character**
   2. How many bits in total were transmitted? **8 bits**
   3. How many times did the signal change? (baud rate) **5 times**
   4. What is the bit rate? **2 bps**

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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?

[www.iso.org](http://www.iso.org)

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

It is an organisation cause its domain (org)

1. What is an example of an ISO standard?

Information security management

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

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

Members are everywhere around the world as you able to apply voluntarily.

1. What is an example of an IEEE standard?  
   One of the more notable are the [IEEE 802](https://en.wikipedia.org/wiki/IEEE_802) [LAN](https://en.wikipedia.org/wiki/LAN)/[MAN](https://en.wikipedia.org/wiki/Metropolitan_area_network) group of standards, with the widely used computer networking standards for both wired ([ethernet](https://en.wikipedia.org/wiki/Ethernet), aka IEEE 802.3) and wireless ([IEEE 802.11](https://en.wikipedia.org/wiki/IEEE_802.11) and [IEEE 802.16](https://en.wikipedia.org/wiki/IEEE_802.16)) networks.
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://telecomworld.itu.int/>
5. What type of standard making body is it ITU-T and who are its members?  
   Government (for profit)

Largely made up of corporations looking to make money off their technology they plan to show to the public in hopes that it will become standard.

1. What is an example of an ITU-T standard?

Telephone communication

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

Their mission is to encourage volunteers to help improve existent services and standards in the country. The volunteers can help plan out how to do so. They also help other standard making bodies to create their standards.