Lab 2: Standards Ashish Sheoran

**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?**

Active connection.

Disable the firewall.

User interface application to exchange.

Configured IP address.

User assured account access authentication process.

Agreed upon protocol.

**Interface:**

1. EIA/TIA -> Electrical
2. EIA/TIA -> Mechanical
3. EIA/TIA -> Functional(LAN)
4. IEEE -> Procedural

**Encoding:**

1. Do a Google search and find the ASCII decimal and binary values for the capitalized first letter of your first name .  
   **A = 65 ( DECIMAL value IN ASCII )**
2. Write the decimal value \_\_\_65\_\_ . Write the binary value\_\_\_\_\_\_\_\_110101\_\_\_\_\_\_\_
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
   2. How many bits in total were transmitted? 6
   3. How many times did the signal change? (baud rate) 4
   4. What is the bit rate?

110101

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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?

The International Organization for Standardization, the members are the world’s largest developers of voluntary international standards. It stands in creation of products and services to make sure that they are safe, reliable to use and are of perfect quality.

1. What is an example of an ISO standard?

A good example of ISO is: ISO 9000 certification is designed to help companies decide which processes should be modified to increase productivity, efficiency, safety, and employee morale within an organization.

1. **Institute of the Electrical and Electronic Engineers (IEEE)**
2. What is the web site address for the IEEE?

<https://www.ieee.org/>

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

IEEE (Institute of Electrical and Electronics Engineers). The members of IEEE are professionals and educational employees. The members use it for conferences, technology standards and professional and educational activities.

1. What is an example of an IEEE standard?

A good example of an IEEE standard is the **IEEE 802.15.6 standard. It**  is the latest international standard for Wireless Body Area Network (WBAN).

1. **International Telecommunications Council (ITU-T) Telecommunications**
2. What is the web site address for the ITU?

<https://www.itu.int/en/pages/default.aspx>

1. What is the web site address for the ITU-Telecom?

<https://www.itu.int/en/ITUTELECOM/Pages/default.aspx>

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

The International Telecommunication Union coordinates the shared global use of the “radio spectrum”. They work to improve telecommunication in the developing world. They work on Internet, “latest –generation wireless technologies” and radio astronomy and so on. Moreover, ITU Telecom World (government, telecommunications) exchange ideas with ICT industry knowledge and technology.

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

A good example of ITU-T is: ITU-T A.1. This provides working methods for study groups of the ITU Telecommunication Standardization Sector.

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

. The Standards Council of Canada (SSC) is a well-known corporation established by an Act of Parliament in 1970 to foster and promote the voluntary standardization in Canada. Basically, it is independent of government in policies and operations, but it is financed partially by Parliamentary appropriation.

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.