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.

* In total, there are 5 main components which are crucial to establish a connection between two devices. Those are Source, Destination, Media, Protocol, and Message.

But in my opinion, among these Five concepts, 2 of the most important is Protocol and Media as per my understanding. The reason behind choosing these is explained below in the next answer.

1. Discuss that why the proposed components are important.

* Indeed, data communication isn’t possible if any one of the 5 components is missing. It is certainly necessary to have all the five components to establish a connection. But here we are focussing about importance of a component among these five.

So, if we have a source and a destination device handy, Protocol and Media together makes a strong basis of establishing a connection. The reason is that a Protocols is the only one which provide flexible interconnection of communication even between devices of different platforms.

A Protocol is absolutely needed to establish a connection, identification of the devices, data transmission and acknowledgement between the two devices involved in a connection.

By this we can conclude that, if we have a source device and destination (no matter the platform) can be connected with each other if we have either a wireless or a wired medium between the two and the Protocol which makes sure about other components can certainly establish a connection.

**Encoding:**

1. Do a Google search and find the ASCII decimal and binary values for the capitalized first letter of your first name.
2. Write the decimal value 🡪85.

Write the binary value 🡪 01010101.

1. Write the binary value at the top of the chart. Write a bit between each vertical dotted line.
2. 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 horizontal axis in mapping your value.
3. After mapping the value, answer the following questions:
   1. How many characters in total were transmitted? 5 characters were transmitted.
   2. How many bits in total were transmitted? 8 bits.
   3. How many times did the signal change? (baud rate) 🡪 4 times (Baud rate = 4).
   4. What is the bit rate? 🡪 8.

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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?

* The website is www.iso.org.

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

* It is an Independent/Non-governmental type of organization. ISO has 167 countries as its members (National Standard Bodies).

1. What is an example of an ISO standard?

* ISO 9001 is one example and is one of the most popular ISO standards which is for creating, implementing as well as maintaining a QMS for any type of company.

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

* The website is [www.ieee.org](http://www.ieee.org).

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

* It is a Professional Association type of organization. There are more than 4,00,000 members of IEEE from over 160 countries. Mainly, the members are Engineers, Students, Scientists and Allied Professionals.

1. What is an example of an IEEE standard?

* One example of an IEEE standard is IEEE 802.3 which is an Ethernet standard for CSMA/CD .

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

🡪 The website is www.itu.int

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

* The website is https://telecomworld.itu.int/

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

* It is a Specialized agency in ITU sector. Its members comprise of over 900 companies, research institutes, and organisations from 193 Member States in total.

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

* An example of ITU-T standard is IMSI Unique Identifier codes which are used in SIM cards.

1. **What is the name of Canada’s standard organization?**

🡪 The Standards Council of Canada (SCC) is the standard organization of Canada.

1. What is its mission or mandate?

* Its mission involves working with the customers and stakeholders in promoting effective and efficient standardization that certainly improves Canada’s social well-being. Their main aim is to improve the quality of life of Canadians.

**Grading:**

* learnname\_Lab2\_StandardBodies.docx

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

Submit using the Lab2 Submission link under MySeneca\Graded Work