Activity 8.1 – Learning Highlights

Emerging Technologies:

- **Artificial Intelligence (AI):** Good friends who help us do our homework.
- **Machine Learning (AI/ML):** A process for teaching Machines by feeding them a bunch of data. Can be categorized into supervised, unsupervised, semi-supervised and reinforcement learning.
- **Blockchain:** Blockchain is all about decentralizing and autonomy. It makes systems more transparent, and with smart contracts, it automates processes like payments.
- **Internet of Things (IoT) and Edge Computing:** IoT connects physical devices, making them share data and automate tasks. When combined with edge computing, data is processed closer to the source, which means faster responses and less lag.
- **Augmented Reality (AR) and Virtual Reality (VR):** Fancy technologies that can bring you to another world but hurting your eyes.
- **Quantum Computing:** Still in development. If this technology becomes mature, all encryptions in the world right now are no longer safe. Cracking your 30-digit password is just like drinking a cup of milk.

Machine Learning Process:

1. **Define the Problem:** Understand what you're trying to solve or predict.
2. **Collect the Data:** Gather the data that will be used to train the model. This could be images, text, numbers, or other types of information. The more relevant data you have, the better your model can learn.
3. **Prepare the Data:** Before feeding the data into the machine learning model, you need to clean and preprocess it. This means removing errors, filling in missing values, or transforming the data into a format the model can understand.
4. **Choose a Model:** There are different machine learning models, like decision trees, neural networks, or support vector machines.
5. **Train the Model:** During training, the model learns from the data by identifying patterns and relationships.
6. **Test the Model:** After training, you test the model with new data that it hasn't seen before. This helps evaluate how well the model performs and if it can make accurate predictions.
7. **Tune the Model:** Sometimes the model needs tweaking, like adjusting parameters or improving the training process to get better results. This step involves optimizing the model for better performance.

8. **Deploy the Model:** Once the model works well, it can be deployed to start making real-world predictions or automating tasks.
9. **Monitor and Improve:** After deployment, it's important to keep an eye on the model to ensure it continues to perform well over time.