

To

IITD-AIA Foundation of Smart Manufacturing

Date:08-06-2023

Subject: ***Weekly Progress Report for Week-0.***

Dear Sir,

Following is the required progress report of this week dated from 1-06-2023 to 8-06-2023.

Weekly Progress:

June 01:

Starting with a course to build required skills and gain basic knowledge of the respective field.

Topics covered:

- modules
- Evidence values
- p values.

June 02:

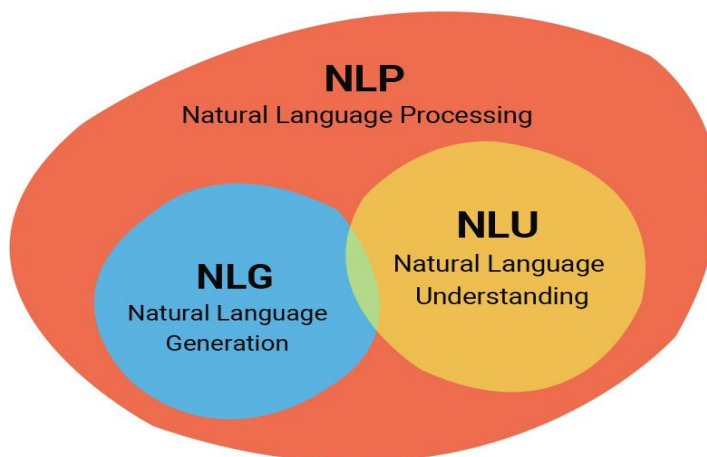
Topics covered:

- Stochastic Gradient Descent
- Data Ethics.

June 03 & June 04:

Topics covered:

- Natural Language Processing- Natural language processing (NLP) is a branch of artificial intelligence (AI) that enables machines to understand human language.



- Tabular Data.

June 05:

Topics covered:

- Numpy
- Pandas
- Scikit-Learn

June 06 & June 07:

Topics covered:

- Machine Learning-
1. Supervised Learning
 2. Unsupervised Learning
 3. Reinforcement Learning.
- Tensorflow

June 08 & June 09:

Topics covered:

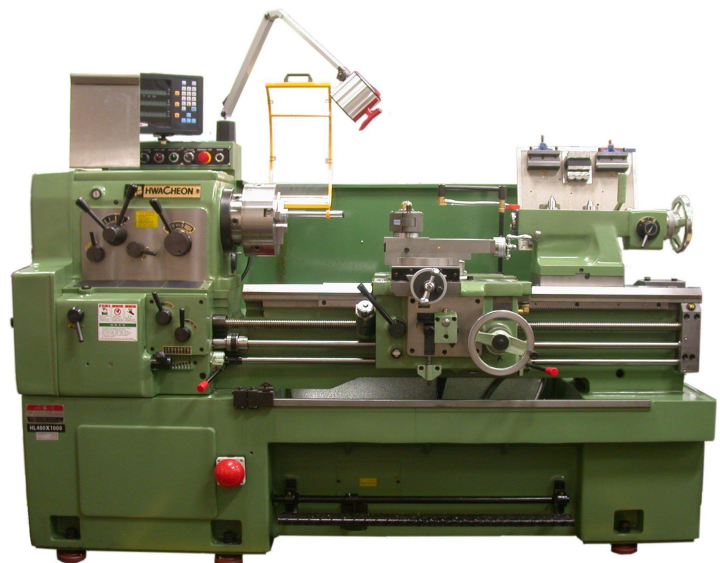
- Open source- Open-source refers to libraries/software with publicly accessible source code that can be seen, modified, and distributed by anyone.
Example- Mozilla Firefox, GNU/Linux
- Python3
- Lathe Machine

On 9th June 2023 project was assigned which is **INTP23-ML-03 "Predicting Tools wear and surface roughness for a lathe machine".** I started exploring the problem definition.

I have done some research on the *Hardware* that is being leveraged in the project which is the Lathe Machine.

It is said to be a machining tool that is used primarily for shaping metal or wood.

It is said to be one of the Oldest machine tools in the *production* of machines, also known as the Mother of all Machines.



I understood the relation between *tool wear* and the *surface roughness* of the Lathe machine. Both depend on various different factors such as cutting speed.

Reference:

- The course referred for the learnings is- "*Practical Deep Learning for Coders - Full Course from fast.ai and Jeremy Howard*".