Name : Aayush Gopal

Project : Unscripted

**LEARNING PHASE-I BEGINS (ML BROAD)**

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| DATE | PROGRESS |
| 02.04.2021 | * Created a github repo- [ayushgopal/Unscripted\_Personal](https://github.com/ayushgopal/Unscripted_Personal) to store my personal files and other contribution related to this project. * Created a colab-notebook- [firstColab.ipynb](https://colab.research.google.com/drive/1JNxg0vKk3kyjWumunaih2ktxcMeiqJTv#scrollTo=__DJnExKe4SM) for collectively contributing my updates with my team members. * Created this docs file-[Unscripted\_Progress\_Report](https://docs.google.com/document/d/14fDqPcek9DBA5z_AoaB8K9uuPA-EMCAu4fW4dqC54UM/edit#) to store my progress report and share with my mentors and to keep a track record of the flow for future references. |
| 03.04.2021 | * Revised basics of python from- [Intro\_Python](https://www.youtube.com/watch?v=5GYeia8IRbg&list=PLVHgQku8Z935Qq0h3SZpSOwSrUMx1y3c9&ab_channel=Intellipaat) * Gave a quick review to topics like Pandas, Numpy, Matplotlib. |
| 04.04.202108.04.2021 | * Took a brief break to prepare for major quizzes @ first half spring session 2021. |
| 09.04.2021 | * Went through the [first chapter](https://github.com/rasbt/python-machine-learning-book-3rd-edition/blob/master/ch01/ch01.ipynb) of the book [**MACHINE LEARNING WITH PYTHON**](https://github.com/rasbt/python-machine-learning-book-3rd-edition) by **Sebastian Rachaka** * Started a tour of machine learning, going through very fundamental questions and finding there answers like  1. What is machine learning? 2. What are different branches of machine learning and how can we exploit each one of them to our advantage? 3. What are the different terminologies used commonly in machine learning? 4. What are the different software and tools that make working with machine learning easier? 5. **Most importantly** how does machine learning operate to generate useful output? |
| 10.04.2021  11.04.2021 | * Went through the [second chapter](https://github.com/rasbt/python-machine-learning-book-3rd-edition/tree/master/ch02) of the book [**MACHINE LEARNING WITH PYTHON**](https://github.com/rasbt/python-machine-learning-book-3rd-edition) * Went further into the core concept of machine learning focusing particularly towards neural networks, how it works and much more. [😍best video to visualize neural nets](https://www.youtube.com/watch?v=aircAruvnKk&list=PLZHQObOWTQDNU6R1_67000Dx_ZCJB-3pi). * Revisited some core topics like Gradient Descent, cost optimizations, objects, classes and much more. * Some out of the book stuff that I read-  1. [difference between .loc and .iloc](https://www.pythonprogramming.in/what-is-difference-between-iloc-and-loc-in-pandas.html#:~:text=loc%20gets%20rows%20(or%20columns,so%20it%20only%20takes%20integers).) 2. [matplotlib vs plotly](https://towardsdatascience.com/plotly-vs-matplotlib-what-is-the-best-library-for-data-visualization-in-python-89a8b64a9471#:~:text=The%20two%20analyzed%20libraries%20produce,receives%20a%20dictionary%20as%20input.) 3. [various methods of numpy](https://numpy.org/doc/stable/user/numpy-for-matlab-users.html) |

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| 12.04-  20.04 | * Went through various classifiers and models in machine learning namely  1. Perceptron Learning model 2. Adaptive Learning model 3. Gradient Descent 4. Logistic cost and regression model  * Went through regularization approaches that tend to look that machine learning model is not under or over learned which included SVM models * Finally learnt what is KNN and Decision tree |

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| 20.4-  01.05 | Took a break to cover mid sem syllabus |

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| 01.05  14.05 | * Went through the **SCI-KIT-LEARN** library and learnt various things like  1. Preprocessing 2. Slicing the dataset to train and predict 3. Getting pre-processed modules to perform various machine learning operations that would otherwise require many lines of coding and make it difficult for beginner. 4. Labeling data and checking accuracy of deployed model  * At last to sum up all of the 1.5 month learning went through a great [video to summarise](https://www.youtube.com/playlist?list=PLxt59R_fWVzT9bDxA76AHm3ig0Gg9S3So) .This video gives an animated approach to complex but well structured concepts. |

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| **TOPICS OF STRENGTH AND WEAKNESS** | * My strength in these topics was that I am easily able to understand all the topics I went through and due to the videos provided I am to grasp the concept well in the first go. * My weakness in this overall learning is that I am not able to remember precisely all the coding stuff as it is too much but I have figured out that I will search for the coding stuff whenever required. I have tried this in another project so I hope that won't be much of a problem. |

**IMPLEMENTATION PHASE-I BEGINS**

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| 14.05- 31.05 | 1)Tried out various **Speech to Text** converter including [Google Speech text](https://cloud.google.com/speech-to-text/?utm_source=google&utm_medium=cpc&utm_campaign=japac-IN-all-en-dr-bkwsrmkt-all-all-trial-e-dr-1009882&utm_content=text-ad-none-none-DEV_c-CRE_507046429651-ADGP_Hybrid%20%7C%20BKWS%20-%20EXA%20%7C%20Txt%20~%20AI%20%26%20ML%20~%20Speech-to-Text_Speech%20-%20google%20speech%20to%20text-KWID_43700054972142124-kwd-21425535976&userloc_9304059-network_g&utm_term=KW_google%20speech%20to%20text&gclid=CjwKCAjwuIWHBhBDEiwACXQYsf2hNrbhA-__aZSaoZ3p28sZUGMBcJOYjBYsjv6REF11MBF3rliZVhoCmI8QAvD_BwE&gclsrc=aw.ds), [IBM Watson](https://www.ibm.com/in-en/watson?p1=Search&p4=43700052660680860&p5=e&gclid=CjwKCAjwuIWHBhBDEiwACXQYsTdcbrmXctUBvdxF5w5K--8y4gVPaWvJ9zezmipUBEniaJREhv2SZxoCBioQAvD_BwE&gclsrc=aw.ds), [Deep Speech](https://deepspeech.readthedocs.io/en/r0.9/) and I personally worked on [Speech Recognition library](https://pypi.org/project/SpeechRecognition/).  2)Conducted an in depth analysis of the above libraries using [jiwer](https://pypi.org/project/jiwer/) based wer- calculator to narrow down our result.  **Conclusion-** Based on the overall analysis done by our team we found Google Speech to Text as the best library to work with as it contained no token requirements and produced minimum wer on initial calculations.  **Analysis files-**[**Initial Analysis**](https://drive.google.com/drive/u/0/folders/1_UAroBYlWUnVwTRDl22_e4BX0L5WdwPg) |
| 31.05-  15.05 | 1)Carried out further analysis using advanced libraries like  [BLEU](https://ariepratama.github.io/Introduction-to-BLEU-in-python/), [ROGUE](https://pypi.org/project/rouge/) to get more insights about recall, precision and F1 class of error.  2)Tried to check effectiveness on data of large variety including long/short data , clear/noisy samples and voices of different accent to confirm whether our library works on all sorts of data perfectly  **Analysis files-**[**Final Analysis**](https://drive.google.com/drive/u/1/folders/1rIk1Q0LMyJI9Be3z-hgts1TBlkiOn0AV) |
|  | **TOOK A BREAK FOR ENDSEM EXAMS** |
| **02 July** | **I AM BACK** |

**LEARNING PHASE PART-II BEGINS(NLP)**

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| 02.07-  08.06 | 1. Completed [**hugging face**](https://huggingface.co/course/chapter1) course that contained information about various features of the hugging face library such as transformers, pipeline,tokenizer amongst others that help in some topics like text classification, summarization, and many others . 2. Learnt about various pre-existing models like [bert](https://towardsdatascience.com/bert-explained-state-of-the-art-language-model-for-nlp-f8b21a9b6270), [pegasus](https://ai.googleblog.com/2020/06/pegasus-state-of-art-model-for.html) which are easily available and require fine tuning to use for our specific tasks. |

**IMPLEMENTATION PHASE PART-II BEGINS**

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| 08.06-  11.06 | Read **research papers** like [paper1](http://doras.dcu.ie/21907/1/Houssem_Paper.pdf), [paper2](https://aclanthology.org/2020.lrec-1.449.pdf), [paper3](https://www.isca-speech.org/archive/archive_papers/interspeech_2011/i11_0933.pdf) on nlp to get insight about how quality research work is done in this field , what kind of datasets are used,what is the size of a good dataset, what methods are used and final efficiency/conclusion on required tsk. |
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