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**Machine learning – MGT 665**

**Prof. Itauma**

**Final Project Reflection**

Machine learning is a subset of AI that helps deal with data and learn from data to make prediction or approach a solution to the given data. Learning the machine learning subject was very interesting and classes were engaging with many real-life examples discussed and were asked to take up different topics every time that intrigued our thinking to come up with some thing new and interesting. For the final project of this course, we were asked to work on a project by evaluating various models for dataset choosing either classification or regression techniques.

Me and my teammate choose to take up wine dataset as our topic. Probably my thinking was bit inclined towards this topic when I recently visited a vinery in the north of Michigan. It was a beautiful place with a café and wine tasting rooms and they served variety of wines to the customers. Lot of people travelled there with families, kids etc. and lot of fun activates were arranged. Influenced by the fall season and vinery, this topic was constant on my mind which made me think why not take a wine dataset and do research on it a bit as wine serves lot of importance with many in their lives. Wine is not just a drink but talks about memories friendships and many. With this we choose a dataset from UCI machine learning repository that talks about Portugal Vinho Verde wines.

Our dataset was quality prediction of the wines based on its chemical compositions and perform a classification model to classify the wines into categories of low, medium and high quality. Working on this was interesting, as I researched on lot of research paper about how they were evaluating the models and how the performance of the data is. Also, working this like a research paper gave me lot of in-depth ideas and though about how to do the model evaluation. After some research and analysis, we were able to approach to a solution and started working on evaluating various models to understand the best performing model for out dataset.

**My key takeaways:**

* Understanding in depth about supervised and unsupervised learning.
* How to work on variable treatment for classification and regression problems
* Evaluating the various models
* Scaling the data
* Fine tuning the models
* Interpreting the solution using accuracy, precision, recall.
* Understanding confusion metrics
* Analyze the AUC-ROC curve
* Real life business implementation

**Significance:**

These takeaways are important to me as this helped me understand how to approach a machine learning problem and which approach to choose. These helped me further analyze the business problem in real life environment and try to approach to a solution using various methods. By understanding in depth about machine learning makes me industry ready where ML play a major role in analyst career. Also intrigued my thinking process a whole.

**Conclusion:**

I am feeling good about doing something and wish to carry this Knowledge forward. I would like to thank my professor for always encouraging and motivating to do better. The class discussions and activities indeed helped me give deeper insights into machine learning. Not to forget about the important LinkedIn learnings that gave us lot of exposure to machine learning subject. I will carry this knowledge moving forward that helps me in career further.