Python and Machine Learning Summer Internship (6 Weeks) (3rd June, 2024 - 12th July, 2024)				
S.No.	**Topic**	**Date**	**Duration**	
	Installations for Getting Started with Python and ML			
1	Introduction to GitHub and VS Code	03-06-2024	3 Hrs.	week 1
	o Introducing VS Code o Install VS Code o Install GitHub Pull Requests and Issues extension in Visual Studio Code o Authenticate to GitHub using Visual Studio Code o Check trusted Visual Studio Extensions supported in GitHub account o Create a repository and publish it			
	Intro to Jupyter notebook/ collab			
	o Installing Anaconda Navigator o Installing Jupyter Notebook and Jupyter Lab			
2	**Basics of Python**			
	o Introduction to strings, Tuples, Lists, Dictionaries.	05-06-2024	3 Hrs.	
	o Control flow & conditional statements.	07-06-2024	2 Hrs.	
	o Function Handling in Python.			
	o File Handling and Modules in Python.	10-06-2024	2 Hrs.	week 2
	o Exception Handing in Python			
	o OOPs concepts in Python	12-06-2024	3 Hrs.	
3	**Basic ML Concepts: Intro to python models basics**	14-06-2024	2 Hrs.	
	o Data Manipulation with NumPy, SciPy, scikit-learn and Pandas.			
	o Exporting Data in different formats- CSV, Excel and JSON.			
	o Data Visualization using Matplotlib and Seaborn			
4	**Data Pre-processing Steps.**			
	o Data Cleansing. o Stripping out extraneous information o Normalizing and Standardizing data o Encoding Categorical Data	17-06-2024	2 Hrs.	
	o Feature Selection Methods			

	1. Filter Methods 2. Wrapper Methods 3. Embedded Methods	19-06-2024	3 Hrs.	week 3
	o Dimension Reduction Techniques			
	Principal Component Analysis			
5	**ML Algorithms**			
	o Introduction to Machine Learning Algorithms	21-06-2024	3 Hrs.	
	o Linear Regression with Hands-on Project			
	o Logistic Regression with Hands-on Project	24-06-2024	2 Hrs.	week 4
	- Discuss Evaluation Metrics for Classification			
	o Naive Bayes with Hands-on Project	26-06-2024	3 Hrs.	
	o KNN with Hands-on Project			
	o SVM Algorithm with Hands-on Project	28-06-2024	2 Hrs.	
	o Decision Tree and Random Forest Algorithm with Hands-on Project	01-07-2024	3 Hrs.	week 5
	o K-Means clustering with Hands-on Project	03-07-2024	3 Hrs.	
	Techniques to Handle Imbalanced Data For a Classification Problem			
	o Choice of Evaluation Metric o Resampling using Oversampling and Undersampling o SMOTE o Ensemble Methods - BalancedBaggingClassifier - Random Forest Classifier	05-07-2024	2 Hrs.	
6	**Model Selection and Boosting**			
	o k-Fold Cross-Validation o Bias-Variance Tradeoff o Grid Search in Python o Boosting algorithms - XGBoost	08-07-2024	2 Hrs.	week 6
7	**Optimization Techniques in Machine Learning**			
	o Exhaustive search o Gradient descent o Genetic algorithms	10-07-2024	3 Hrs.	
	Introduction to Deep Learning			

8	o Introducing Perceptron o Basics of Neural Network	12-02-2024	2 Hrs.	
	Note:			
	Few more sessions will be added in between from time to time by some more Industry Experts on different topics			
	Some Doubt sessions will be taken at the end of the Internships for the research projects			
	Guidance for research project and research paper will be provided even after the Internship to help the students in			
	publishing the paper in International Conferences and Journals			