Checkpoint Goal	Daily Goal	Date	Technic Code	Technic	Concept videos / doc	How to video or doc?	Reference video / doc	Hours Required (Avg.)	Quiz Time	Quiz	Assignment Deadline	Assignment Submission Links	
PRS													
FIRST CHECKPOINT: Ability to perform basic coding required for Data Science in Python													
Python Fundamentals	Basic and Intermediate understanding of Python Understanding , should cover Python syntax, Conditional Branching, Loops, Iterators, and Basic Object Oriented Programming - Classes and Object Creation and Calling	2022/01/28 - 2022/01/31	T1	Chapter 1 : Introduction to Python	Introduction to Python	Python Implementation of all concepts	Introduction	10 mins	30	Python Quiz	Dataset	Data Dictionary	
			T2	Chapter 2 : Python Fundamentals	Operations in Python		List, tuple, disctionary	30 mins					
					Variables and Data types in Python		How to do						
					Data Structure in Python								
					Itertools		How to do						
			T3	Chapter 3 : Python Programming Constructs	Conditional Statements [Selection]		How to do	30mins					
					Iterative Statements [Repetation]		How to do						
			T4	Chapter 4 : Functions	Pyhton functions			30 mins					
			T5	Chapter 5 : Classes and Objects	Python Class and Objects		How to do	1 hr					
SECOND CHECKPOINT: Ability to perform basic python required for Data Science in Numpy and Pandas Library													
Numpy Fundamentals	Good Knowledge of Numpy library, Advantages and clear understaning of different functions of Numpy Library	2022/02/01 - 2022/02/02	T6	Chapter 1: Numpy Introduction	What is Numpy	Numpy Implementation	Numpy	30 mins	30	Numpy Quiz			
					Numpy Features								
					Advantages over Numpy over Normal Array								
			T7	Chapter 2: Numpy ndarrays and its attributes	Ndarrays			2 hrs					
					Attributes								
					Creating Numpy ND Array Objects								
					Dimentions in array								
					Numpy array indexing and slicing								
			T8	Chapter 3: Numpy Functions	np.where()			1 hr					
					Numpy Rounding								
Pandas Fundamentals	Should have clear understanding of pandas, need to be familier with series and dataframe, clear inderstanding of dataframe creaation and manipulation, sound knowledge of data preprocessing using pandas and also different pandas functions	2022/02/03 - 2022/02/04	T9	Chpater 1 : Pandas Introduction	What is Pandas ?	Pandas Implementation	Pandas Introduction	30 mins	30	Pandas Quiz			
					What are the pandas Dataframes ?								
					Advantages of Pandas								
			T10	Chapter 2 : Data Structure in Pandas	Introductions		Series and dataframe	15 mins					
					Basic Operations								
			T11	Chapter 3 : Saving Dataframes	Introductions		writing dataframe	30 mins					
					Reading and Saving								
			T12	Chapter 4 : Dataframe Operations	Adding a row/column		Add, delete	15 mins					
					Deleting a row/column								
					Sorting (ascending/ descending)								
			T13	Chapter 5 : Null Handling	Finding Nulls		Null Imputation	30 mins					
					Replacing Nulls								
			T14	Chapter 6 : Aggregation of Groups	Introductions		groupby	30 mins					
					Aggregation Functions								
			T15	Chapter 7 : Lambda Functions	What are lambda functions ?		Lambda function	30 mins					
					How to use Lambda functions ?								
					Implementation of Lambda Functions								
			T16	Chapter 8 : Joining of Two Dataframes	Introductions		Pandas joining	30 mins					
					Join								
					Concat function								
			T17	Chapter 9 : Basic Pandas Functions	unique()			30 mins	30				
					nunique()								
					value_counts()								
					describe()								
					isin()								
THIRD CHECKPOINT: Statistics, Data Preprocessing pre-process, data splitting and Explaantory Data Analysis													
Ability to pre-process , split the data and perform EDA	understanding basic pre-processing and data splitting	2022/01/08 - 2022/01/09	T18	Pre-process the Data	Data Filtering , Duplicate/Constant columns removal , Identification of target column	How to do	Practical guide to preprocessing	1 hrs			Masterclass Demo		
					Date time conversion	How to do	Date-time	1 hr					
					Null Imputation	How to do	Null imputation						
			T19	Split the pre-processed data into train, test and validation sets	Train-Test-Val Set : How split , why Split	How to do	Split and it's importance	1 hrs					
	Understand EDA		T20	How to do Exploratory Data Analysis?	Continuous Variable	How to do	Further study	40 mins					
					Catagorical Variable	How to do	Further study						
					Univariate Analysis	How to do	Univariate Analysis	1 hr					
					Multivariate Analysis	How to do	Multivariate Analysis						
	Data Visualisation and Pattern Analysis				Distributions and IQR	How to do	Also read	1 hrs					
					Measure of Central Tendency (mean , median , mode)	How to do	Add on						
					Data Visualisation	How to do	cook book on data visualisation	1 mins					
					Outlier Detection and Treatment	How to do	Extended Read						
			T21	Matplotlib, Seaborn and Plotly Basic plots	Matplotlib, Seaborn and Plotly libraries	How to do	External Video	60 mins					
FOURTH CHECKPOINT: Ability to do feature engineering & feature selection													

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Ability to do feature engineering & feature selection	Feature Engg	2022/02/9 - 2022/02/11	T22	How to do derive or make Features?	Numerical and Catagorical Columns	How to do	Extended Study	30 mins	30	Data Preprocessing and Feature Selection Quiz	Master Class Demo Code and Datasets		-
					Feature Engg Techniques	How to do	Extended Study	2 hrs					
					Date Columns Manupulation	How to do	Extended Study	20 mins					
					Normalisation , Standarization -Scaling techniques	How to do	Further Study	1.5 hrs					
	Feature Selection		T23	How to select the best features?	Filter Method	How to do	Extended Study	1hrs					
					Wrapper Method	How to do	Extended Study	1 hrs					
					Embedded Method	How to do	Extended Study	1 hrs					
FIFTH CHECKPOINT: Ability to build base model,tune hyper-parameters & decide good model evaluation metric													
Ability to build base model, tune hyper-parameters & decide good model evaluation metric	Different types of Model	2022/02/14 - 2022/02/18	T24	Different Model Building Algorithms	Supervised and Unsupervised Learning Classification and Regression	How to do	References	2 hrs			Masterclass Demo code and dataset		
					Distance Based Algorithms	How to do							
					Machine learning Models (Supervised and Unsupervised)	How to do	References						
					ML Algo Part - 1		Extra read	3 hrs	-	-			
					ML Algo Part -2	How to do							
					Classification			2 hrs	-	-			
					Regression								
	Hyper Parameter Tuning and Evaluation of Models		T25	How to tune the model Hyper-Parameters?	Cross Validation , Randomied Search CV , Grid Search CV	How to do	Extra read	3hrs	-	-			
				How to decide the Metrics to be Used ?	Classification & Regression Based Metrices	How to do	Further Study	2 hrs	-	-			
Machine Learning Final Project - Payment Date Prediction													
Data Dictionary		Dataset			Payment Date Prediction Jupyter notebook		Starting Date - 2022/02/18	BEST WISHES			Deadline - 2022/02/25	Submission Link	