Low Level Design

Thyroid-Disease-Detection System

Written By	Mohammad Aadil
Document Version	0.1
Last Revised Date	31/01/2024

Document Control

Change Record:

Version	Date	Author	Comments
0.1	19 – May - 2021	Mohammad Aadil	Initial draft

Reviews:

Version	Date	Reviewer	Comments

Approval Status:

Version Comments

Review Date	Reviewed By	Approved By

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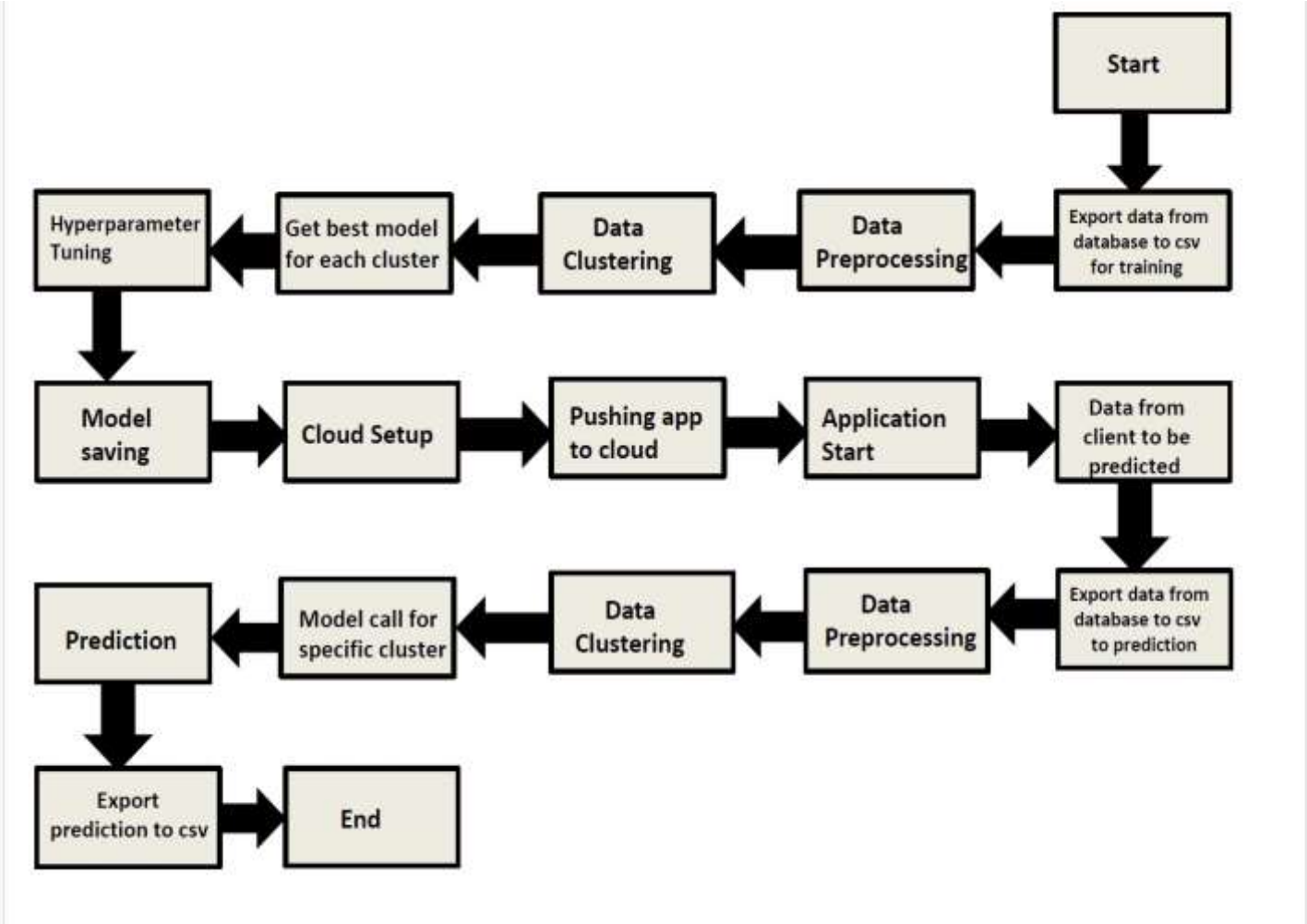
2. Architecture



3 LOW LEVEL DESIGN (LLD) 3. Architecture Description

3.1. Export Data for Traning:

- Retrieve data from the database
- Export data to a csv file for training purposes.
- We will be using thyroid disease data set present in uci machine leanring repository.
- This data set is satisfying our data requirement
- Total 7200 instances present in different batches of data

3.2. Data Preprocessing:

- Handle missing values and data cleaning
- Encode Categorical variables.
- Perform Exploratory data analysis(EDA)
- We first explore our data set in jupyter notebook and decide what pre-processing and validation we have to do such as imputation of null values dropping some column,etc .
- We can implement that for traning as well as prediction data

3.3. Data Clustering

- Utilize K-Means algorithm to create clusters.
- Determine the optimum number of clusters
- K-Means algotithm will be used to create cluster in the pre-processed data.
- The optimum number of clusters is sleected by plotting the elbow plot
- The idea behind Clustering is to implement different algorithms to train data in different clusters
- The K-menas model is trained over pre-processed data and the model is saved for further use in prediction

3.4. Get best model of each cluster

Here will will train various model on each cluster which we will obtain in data clustering and then will try to get best model of each cluster.

3.5. Hyperparameter Tuning

After selecting best model for each cluster, we will do hyperparameter tuning of each selected model,and try to increase performance of the models.

3.6 Model Saving

After performing hyperparameter tuning for models, we will save our models so that we can use them for prediction purpose.