Low Level Design (LLD)

News Summarization

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1 Introduction

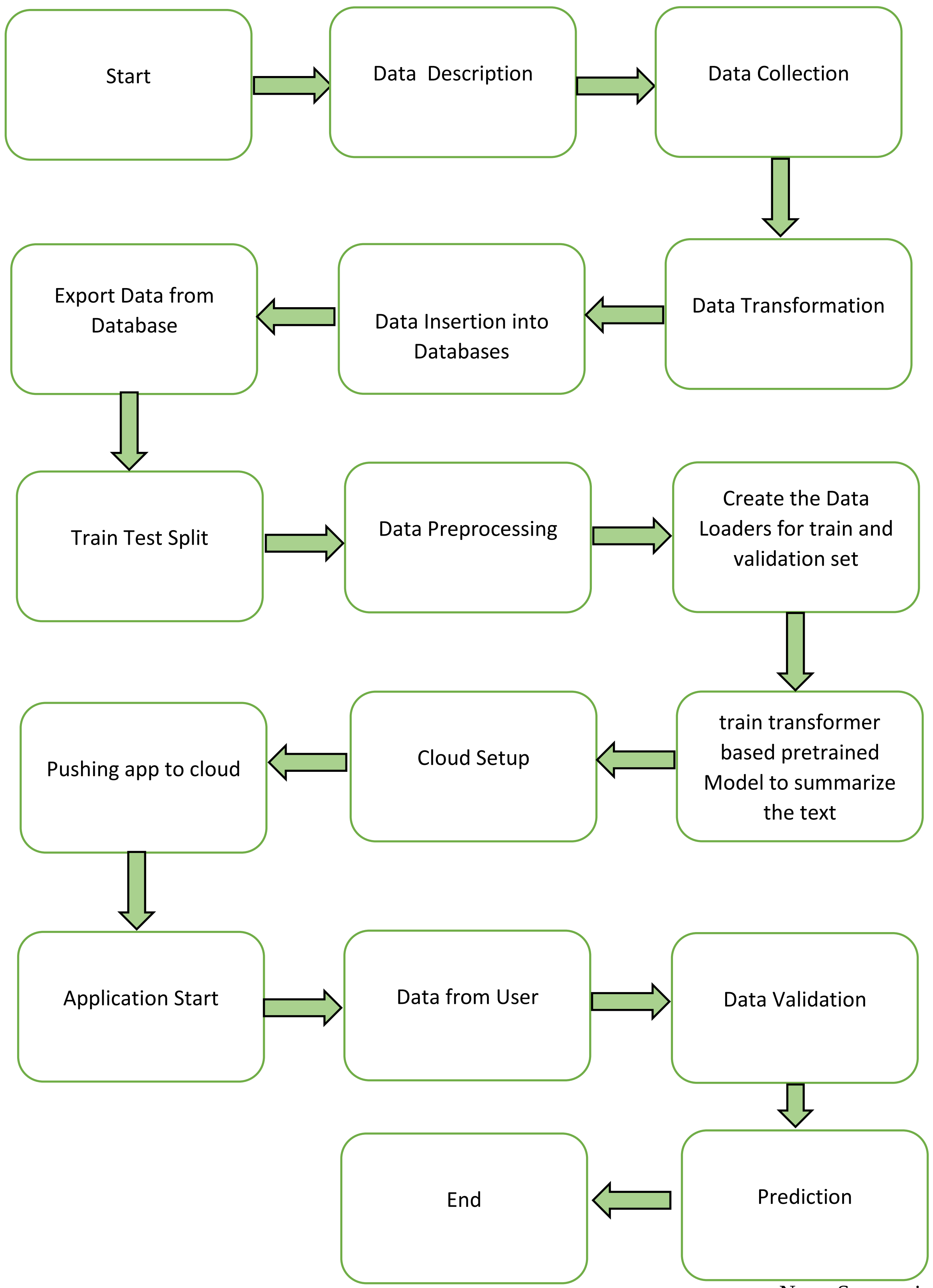
1.1 Why is Low-Level Design Document?

The goal of LLD or a low-level design document (LLDD) is to give the internal logical design of the actual program code for News Summarization. LLD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so the programmer can directly code the program from the document.

1.2 Scope

Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

2 Architecture



3 Architecture Description

3.1 Data Description

Context: Collection of News articles and their Summaries helps greatly in NLP Summarization tasks.

Content: List of News articles with Summaries; Dataset is split into train & validation for building the Deep learning based transformer model.

3.2 Data Collection and Transformation

Data was collected from the Cornell Website. Transform the collected data into the required file format.

3.3 Data Insertion into Databases

- Database creation and connection – Create a Cassandra database with a namespace key.
- Table creation in the database.
- Insertion of files in the table.

3.4 Export Data from the Database

Data Export from Database – The data in a stored database is exported as a CSV file for Text Pre-processing and Model Training.

3.5 EDA Analysis

Performing Data Visualization of the article length and summary length.

3.6 Data Preprocessing

For Data Preprocessing steps, we could use punctuation removal, Create tokens for both texts and summarize.

3.7 Model Building and Evaluation

Train the pre-trained T5-base (Transformer) model for summarization and Calculate the Rough Scores.

3.8 Data from the User

Here we will collect data from News articles from the user

3.9 Data Validation

Here Data Validation will be done, given by the user.

3.10 Prediction

The model will predict the News article's summary (Extraction and Abstraction).

3.11 Deployment

We will be deploying the model to GCP.

This is a workflow diagram for the Facebook Status Prediction.

4 Unit Test Cases

Test Case Description	Pre-Requisite	Expected Result
Verify whether the Application URL is accessible to the user	1. Application URL should be defined	The application URL should be accessible to the user.
Verify whether the Application loads entirely for the user when the URL is accessed	1. Application URL is accessible 2. Application is deployed	The Application should load entirely for the user when the URL is accessed.
Verify whether the user can input the text in all input fields	1. Application is accessible	The user should be able to input the text in all input fields.
Verify whether the user gets Submit button to submit the inputs.		The user should get Submit button to submit the inputs.
Verify whether the user is presented with results on clicking submit.		The user should be presented with results on clicking submit