High-Level Design (HLD)

Churn Analytics

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Contents

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Date Issued	Version	Description	Author
08 June 2022	1.0	First Version of Complete HLD	Sahil Patni

Abstract

The primary objective is on the churn in telecom industries to accurately estimate the customer survival and customer hazard functions to gain the complete knowledge of churn over the customer tenure.

1 Introduction

1.1 Why this High-Level Design Document?

The purpose of this High-Level Design (HLD) document is to add the necessary detail to the current project description to be a suitable model for coding. This document is also intended to help detect contradictions before coding and can be used as a reference manual for how the modules interact at a high level.

The HLD will:
- Present all the design aspects and define them in detail
- Describe the user interface is implemented
- Describe the hardware and software interfaces
- Describe the performance requirements
- Include design features and the architecture of the project

List and describe the non-functional attributes like:
- Security
- Reliability
- Maintainability
- Portability
- Reusability
- Application compatibility
- Resource use
- Serviceability

1.2 Scope

The HLD documentation presents the structure of the system, such as the database architecture, application architecture (layers), application flow (Navigation), and technology architecture. The HLD uses non-technical to mildly technical terms which should be understandable to the administrators of the system.

2 General Description

2.1 Product Perspective & Problem Statement

This industry has a unique set of challenges from the technology front and the customer demands due to its wide range of sectors. The Telecom industry consists of a set of sectors like wireless communication, satellite communication, Internet Service providers etc. The primary objective is on the churn in telecom industries to accurately estimate the customer survival and customer hazard functions to gain the complete knowledge of churn over the customer tenure

The project aims to perform data visualization techniques to understand the insight of the data. This project aims to apply various Business Intelligence tools such as Tableau or Power BI to get a visual understanding of the data.

2.2 Tools used

Business Intelligence tools and libraries work such as **Excel, SQL (SQL Server Management Studio), Power BI**
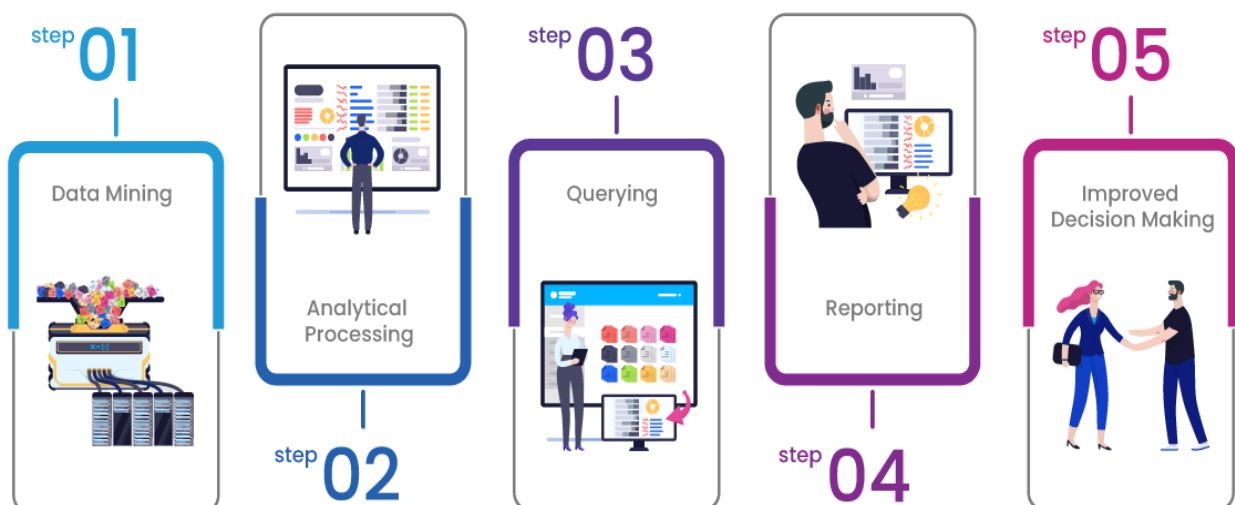

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3 Design Details

3.1 Functional Architecture

3.2 Optimization

Your data strategy drives performance
- Minimize the number of fields
- Minimize the number of records
- Optimize extracts to speed up future queries by materializing calculations, removing columns, and the use of accelerated views

Reduce the marks (data points) in your view
- Practice guided analytics. There is no need to fit everything you plan to show in a single view. Compile related views and connect them with action filters to travel from overview to highly granular views at the speed of thought.
- Remove unneeded dimensions from the detail shelf.
- Explore. Try displaying your data in different types of views.

Limit your filters by number and type
- Reduce the number of filters in use. Excessive filters on a view will create a more complex query, which takes longer to return results. Double-check your filters and remove any that are not necessary.
- Use an include filter. Exclude filters load the entire domain of a dimension, while include filters do not. An include filter runs much faster than an exclude filter, especially for dimensions with many members.
- Use a continuous date filter. Continuous date filters (relative and range-of-date filters) can take advantage of the indexing properties in your database and are faster than discrete data filters.
- Use Boolean or numeric filters. Computers process integers and Booleans (t/f) much faster than strings.
- Use parameters and action filters. These reduce the query load (and work across data sources).

Optimize and materialize your calculations

- Where possible, use MIN or MAX instead of AVG. AVG requires more processing than MIN or MAX. Often rows will be duplicated and display the same result with MIN, MAX, or AVG.

4 KPIs

Dashboards will be implemented to display and show certain KPIs and relevant indicators for the disease. As and when the system starts to capture the historical/periodic data for a user, the dashboards will be included to display charts over time with progress on various indicators or factors

4.1 KPIs (Key Performance Indicators)

Key indicators display a summary of the how does Churn model identify these customers? The model can be used to calculate the churn rate and depending on the nature of the business, different metrics can be used. A few common metrics are –

- Number of customers lost
- Percent of customers lost
- Value of recurring business lost
- Percent of recurring value lost

5 Deployment

Prioritizing data and analytics could not come at a better time. Your company, no matter what size is already collecting data and analyzing just a part of it to solve business problems, gain competitive advantages, and drive enterprise transformation. With the explosive growth of enterprise data, database technologies, and the high demand for analytical skills, today's most effective IT organizations have shifted their focus to enabling self-service by deploying and operating Tableau at scale, as well as organizing, orchestrating, and unifying disparate sources of data for business users and experts alike to author and consume content.