**Project Design Phase-I**

**Solution Architecture**

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| Team ID | NM2023TMID11307 |
| Project Name | Project - Estimation and prediction of hospitalization and medical care costs |

**Solution Architecture:**

The architecture of the estimation of healthcare expenditures related to obesity solution involves various components and technologies working together to provide accurate cost estimations and support cost-effective prevention strategies. Here's an overview of the solution architecture:

1. Data Collection and Integration:

* Data Sources: The solution collects data from various sources, such as electronic health records, health surveys, insurance claims, and public health databases. These sources provide diverse information on demographic data, BMI measurements, smoking status, medical history, healthcare utilization, and expenditures related to obesity.
* Data Integration: Data integration techniques are employed to merge and consolidate the collected data from different sources. This involves data cleaning, normalization, and transformation to ensure data consistency and quality. Data integration frameworks or tools can be used to streamline the process and ensure efficient data handling.

1. Data Preprocessing and Feature Engineering:

• Data Cleaning: Data preprocessing techniques are applied to handle missing values, outliers, and inconsistencies in the collected data. This ensures data quality and prepares the data for analysis.

• Feature Engineering: Relevant features are derived or selected from the preprocessed data to capture the essential characteristics related to healthcare expenditures and obesity. This may include creating obesity severity indicators, comorbidity indices, or aggregating data at appropriate levels for analysis

**Example - Solution Architecture Diagram:**

