**Patient Survival Analysis**

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Project Description and Use-Case Scenario:

Survival analysis is the percentage of people in a study or treatment group still alive for a given period of time after diagnosis. It is a method of describing prognosis in certain disease conditions. Survival rate can be used as yardstick for the assessment of standards of therapy. The survival period is usually reckoned from date of diagnosis or start of treatment. Survival rates are important for [prognosis](https://en.wikipedia.org/wiki/Prognosis), but because the rate is based on the population as a whole, an individual prognosis may be different depending on newer treatments since the last statistical analysis as well as the overall general health of the patient.

Business Value:

1. In clinical practice, estimates of mortality risk can be useful in triage and resource allocation
2. Help hospitals to determine appropriate levels of care
3. Help health insurance department to know how the health outcomes of their policy holders will be, so that they can calculate the premium accordingly.

For whom this is beneficial: Doctors, Hospital Managements, Health Insurance Department

Functional Requirements:

1. Gender wise relation between the age and hospital mortality.
2. Impacts of BMI and weight over patients.
3. Relation between ethnicity and survival of the patient
4. Survival rate with respect to body system and age of the patient
5. Expected length of stay of patient between hospital admission and unit admission?
6. Code which best describes the reason for ICU admission.
7. To find different Glasgow coma scale components which results in highest APACHE III score.
8. Whether the Glasgow Coma Scale was unable to be assessed due to patient sedation?
9. Prediction of Patient Survival using ML algorithms.

Dataset Considered:

Patient Survival Prediction

(<https://www.kaggle.com/datasets/mitishaagarwal/patient>)

Dataset consists of around 92000 observation with 85 features

Solution:

**Step 1: Data Ingestion**

Tool: Azure Blob Storage

Loading data from local to blob storage.

**Step 2: Data Movement**

Tool: Azure Data Factory, Azure data lake

Copying data from blob storage to azure data lake.

**Step 3: Data Transformation**

Tool: Azure Data Bricks

Uploading data from data lake into data bricks and performing transformations

**Step 4: Data Visualization**

Tool: PowerBI

Using PowerBI for visualizing the data.

**Step 5: Data Modelling**

Tool: Pyspark

Using Pyspark for ML modelling of data.

Reviewed By:

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