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| Predicting High Tumor Mutational Burden in Cancer Patients.  Pharma Industry | | September 5  2024 |
| This document contains the information required to solve the problem as a part of the Problem space training journey |  | |

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|  | DO THE MATH |

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Predicting High Tumour Mutational Burden in Cancer Patients.

Industry

A leading pharmaceutical company is focused on advancing personalized medicine through clinical trials and innovative treatments, particularly in oncology and immunotherapy. Our expertise spans across patient data analytics, clinical trial optimization, to predict treatment responses. We collaborate with global pharma companies to enhance treatment efficacy and accelerate drug discovery. Our solutions are in line with regulatory standards, ensuring a sustainable and patient-centric healthcare future.

# Problem Statement

## The clinical trials team needs a predictive model to identify cancer patients with high tumor mutational burden (TMB) status, which is closely linked to positive immunotherapy outcomes. Currently, there is no direct and efficient way to measure TMB, making it difficult for patients to undergo testing. Using machine learning, the goal is to develop a model that analyzes patient demographics, lab results, vital signs, and biomarkers to predict high TMB patients, ensuring timely and personalized treatment recommendations.

## Outcome

## Enhance the accuracy of identifying high TMB patients.

1. Reduce time and costs associated with direct TMB testing.

## Persona

**Role:**

**Goals:**

1. Identify patients with high tumor mutational burden (TMB) status for personalized immunotherapy treatment.
2. Enhance predictive accuracy of TMB status using patient demographics, lab results, vital signs, and biomarkers.
3. Streamline patient selection for clinical trials through predictive models, improving trial efficiency.
4. Reduce the time and cost associated with direct TMB testing by developing predictions.

# List of deliverables

* Vertical Writeup
* Client Context
* Empathy Map
* muPDNA
* muOBI
* ADF
* BPF
* EDA Report
* Mockup
* Solution Model/Code Modules
* Web App
* Deck

# Data & Data dictionary

