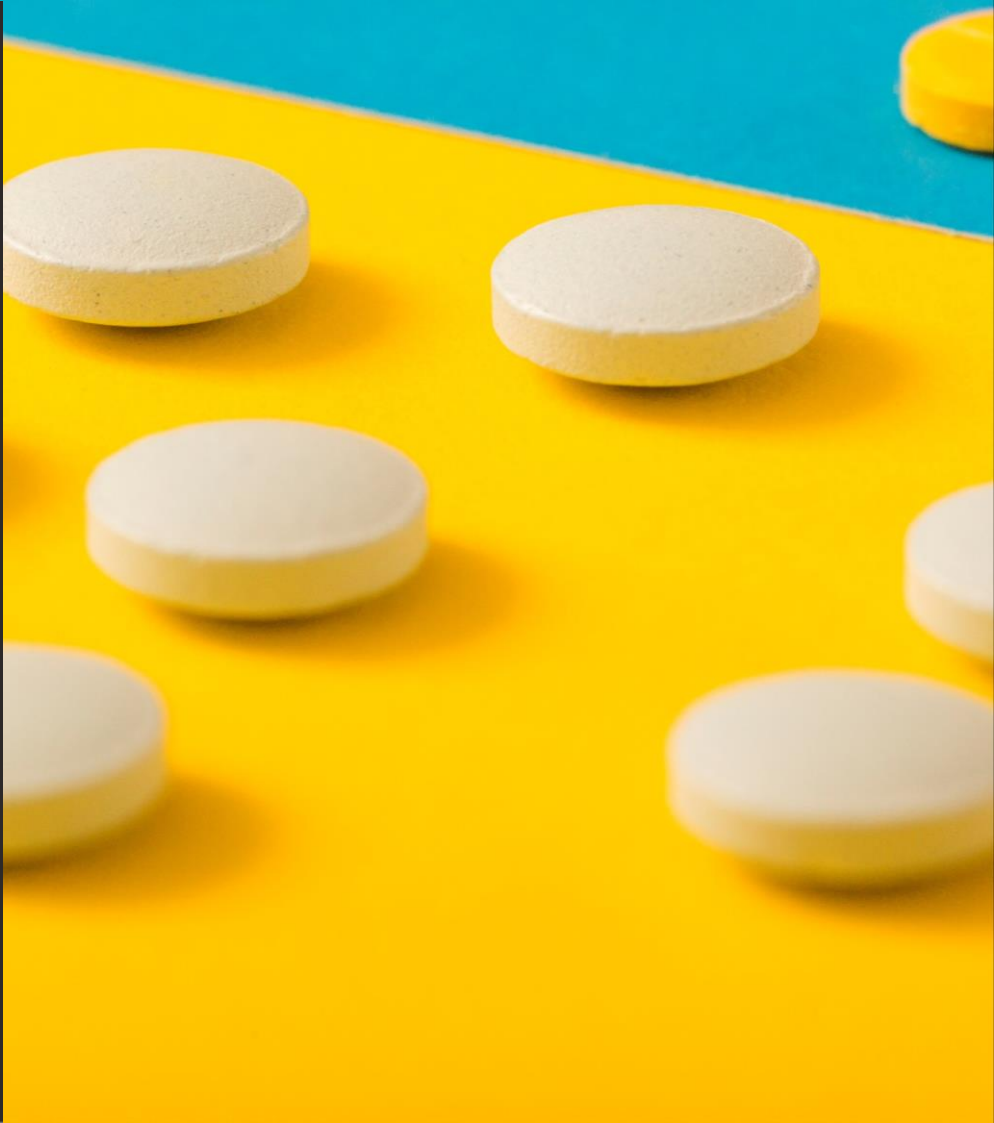


Client leverages Amazon Sagemaker to enhance the disease prediction and insight generation capability

Customer is a leading global pharmaceutical company headquartered in the United States. The company focuses on researching, developing and commercializing innovative medicines, vaccines, and animal health products.



The Background

The human health division of the Customer engaged Tiger to:

- To help co-build a model development using predictive and patient analytics.
- To apply a data visualization tool to trace the patient's journey and understand the treatment approach.
- To understand patient journey opportunities, HCP, and account activations to support the execution of marketing strategy across markets and disease areas.

Cloud Services: AWS Cloud Platform: Sage Maker, S3, Glue, Lambda, AWS Cloud Watch.



Key Challenges

Numerous challenges across Requirements, Implementation, and Operational phases

/ Requirements – no single truth of market basket definition, multiple iterations in finalizing the requirements, need for more detailed specifications for complex features, dependency between EDA completion and Requirement confirmation.

/ Implementation – Market basket definitions are not in sync among data engineering, ML, and UI Pipelines; Business rules are defined in multiple layers.

/ Operational – Knowledge sharing across PODs is working on different indications across vendors.

Our Solutions

- The design of the overall solution is segmented into a three-pronged approach. Identification of Patient cohort, Feature engineering, and ML engine are the processes leading to the model development.
- Exploratory Data Analysis to narrow down and build the final Patient cohort used for Data Science Modelling.
- Identify the features list to understand which drivers have larger predictive power to train the model.
- Model set up, train, and validate and look at model accuracy, and precision to select the best model.

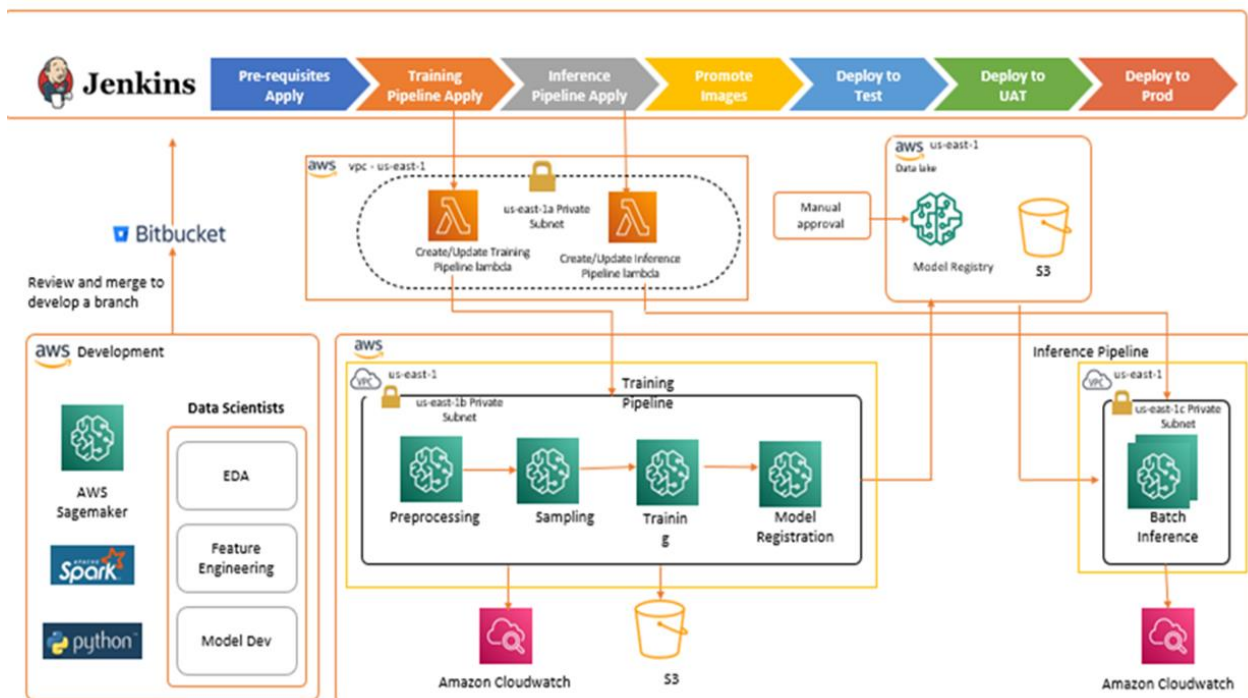


Product Features:

- Fit for purpose data: Thorough EDA across different indications and datasets. Enablement of marketers to make strategic data-driven decisions.
- Target User Personas: Marketing Lead, Marketing Support, Marketing BEAs, Digital Analytics Lead, Business Stakeholders, Field Reps.



Solution Architecture



- The solution is to provide modeling solutions to give insights on patients and physicians across markets and for multiple diseases.
- The models predict the stage of cancer a particular patient is in.
- For the data, claims data (Anonymized Patient Level data (APLD)) from a third-party vendor is utilized. Medical domain experts define features, different stability criteria, and filters during EDA.
- Create the data in a common data model for Modelling. Orchestrate the individual steps in the Data science workflow. The steps include Preprocessing, Sampling, Training, Model Registration, and Inference.
- CI/CD with Jenkins ensures automated builds and deployment of the MLOps pipeline, including SonarQube, Blackduck, and Coverity scans and unit test cases.
- Register the model to the Model Registry after the evaluation step of predefined thresholds by the Data Scientists.
- The model evaluation report is bundled with the model artifacts. For every pipeline run, a lineage report will be stored in S3 recording the inputs, outputs, framework, metadata and code hash for governance and backtracking.
- Re-train the models on demand or every 3 months when the data refresh happens. Apply multiple DQ checks in the Data Engineering pipeline and in the MLOps pipeline for data drift using Tensor Data Validation.

Value Delivered

- Improved Patient Opportunities
- Data-Driven Decision-Making
- Better Market Performance
- Marketing Strategy Optimization
- Accurate Market Sizing
- Account Growth opportunity

About Tiger Analytics

Tiger Analytics is a global leader in AI and analytics, helping Fortune 1000 companies solve their toughest challenges. We offer full-stack AI and analytics services & solutions to help businesses achieve real outcomes and value at scale. We are on a mission to push the boundaries of what AI and analytics can do to help enterprises navigate uncertainty and move forward decisively. Our purpose is to ***provide certainty to shape a better tomorrow.***

Being a recipient of multiple industry awards and recognitions, we have 4000+ technologists and consultants, working from multiple cities in 5 continents.

www.tigeranalytics.com

US | UK | Canada | India | Singapore | Australia