A cross-functional team collaborated to ensure efficient ETL, model training, deployment, and monitoring. The team was structured as follows:

## **Data Engineering Team (ETL & Data Pipeline) – 3 Members**

Role: Responsible for extracting, cleaning, transforming, and loading data into storage for modeling.

* Lead Data Engineer (1 person) – Designed ETL pipeline, managed data ingestion & storage (AWS S3, BigQuery, Feast).
* Data Engineers (2 people) – Handled real-time streaming, data cleaning, feature extraction, and automation (Apache Kafka, SQL, Pandas, Airflow).

**Tools: SQL, Apache Kafka, Apache Airflow, Pandas, Spark**

## **Data Science Team (Model Training & Feature Engineering) – 4 Members**

Role: Developed, trained, and validated machine learning models for churn prediction.

* Lead Data Scientist (1 person) – Defined model strategy, feature selection, and validation metrics.
* ML Engineers (2 people) – Implemented model training, hyperparameter tuning, and experimentation (Scikit-learn, XGBoost, TensorFlow).
* Feature Engineer (1 person) – Created domain-specific behavioral features (e.g., sentiment analysis, engagement metrics).

**Tools: Scikit-learn, XGBoost, TensorFlow, MLflow, Postman**

## **MLOps & DevOps Team (Deployment & Monitoring) – 3 Members**

Role: Managed model deployment, scaling, and real-time monitoring.

* MLOps Engineer (1 person) – Integrated model into production (Docker, Kubernetes, CI/CD).
* DevOps Engineer (1 person) – Deployed APIs & monitored performance (FastAPI, AWS Lambda, Grafana).
* Monitoring Specialist (1 person) – Handled drift detection & automated retraining triggers (Evidently AI, Prometheus).

**Tools: Docker, Postman, Tableau, Power BI**

## **Business Analysts & Product Team – 2 Members**

Role: Ensured model predictions aligned with business goals.

* Product Manager (1 person) – Defined success metrics, stakeholder communication.
* Business Analyst (1 person) – Evaluated model insights for business impact & interpretability.

**Tools: Tableau, Power BI, SQL**

### Total Team Size: 12 Members