**PROJECT : Guided Search (Behavioral Health – Mental Health Wellness Steps)**

**Background / Problem Statement**

* Mental health patients struggled with rigid step-based or unintuitive care journey tools.
* No guided interaction model for understanding behavioral intent across multiple query touchpoints.
* Lack of operationalized ML models for behavioral health intelligence limited personalization.

**UST Solution (Built Using AWS SageMaker MLOps AI Workbench)**

* Deployed **multi-turn, guided NLP search** using customized Semantic NLP + RoBERTa variants.
* Created behavioral intent inference system for personalized wellness recommendations.
* AWS MLOps Implementation:
  + **DataOps Pipeline**: Curated datasets via S3, SageMaker Ground Truth, and real-time ingestion streams.
  + **CI/CD Training Pipelines**: SageMaker Pipelines integrated with GitHub, IAM, EventBridge.
  + **CI/CD Inference Pipelines**: Scalable model endpoints within secured VPC using SageMaker hosting.
  + **Model Monitoring Pipelines**: Performance drift monitored via Clarify + CloudWatch + EventBridge auto-triggers.

**Business Impact**

* 50% faster onboarding into behavioral health journeys through guided, AI-driven experiences.
* Personalized pathways increased patient adherence and reduced drop-off in therapy sessions.
* Predictive behavioral insights enabled **proactive care recommendations** improving provider trust and care quality.

**Cost Impact**

* MLOps automation eliminated 40% manual retraining tasks.
* Reuse of modular SageMaker pipelines cut deployment time and infra spend by 30%.
* Unified monitoring + retraining reduced rework costs and ensured SLA compliance.

**AWS SageMaker MLOps Benefits**

* MLOps framework enabled **modular retraining for evolving behavioral models**.
* Data + Model lineage helped in transparent audit trails—supporting healthcare governance.
* Pipelines improved **time-to-value** for model insights while ensuring deployment reliability.