MULTI-OMICS INTEGRATION WORKFLOW

STEP 1:
SET UP ENVIRONMENT

STEP 2:
LOAD AND PREPROCESS DATA

Transcriptomics
Fluxomics
Multimodal_CSV

STEP 4:
FEATURE SELECTION & DIMENSIONALITY REDUCTION

RF Feature importance

STEP 3:
EXPLORE DATA

Missing values
Duplicates

STEP 5:
TRAIN & EVALUATE MODELS

ML_Models
LR, RF, XGB, ANN

STEP 6: ASSESS PREDICTIVE PERFORMANCE

Evaluation Metrics
ROC AUC, Brier Scores, MCC

STEP 7:
INTERPRET TOP FEATURES (SHAP)