# AA Engine Project — Decisions Log

## 1. Data Contracts

- \*\*Universe (tickers)\*\*:   
 148070.KS, 385560.KS, BND, AGG, HYG, EMB, VWOB, 278530.KS, EWY, SPY, QQQ, IWM, VWO, IEMG, CMOD.L, GSG, GLD, RWO, IFGL  
  
- \*\*Data source & storage\*\*: Fetch via yfinance → clean → update local CSV (one per ETF).  
- \*\*Prices\*\*: Use Adjusted Close as proxy for total return index (TRI).  
- \*\*Base currency\*\*: KRW.  
- \*\*FX policy\*\*: Forecast in local currency; convert returns to KRW only at portfolio/backtest stage (unhedged, 100% exposure).  
- \*\*Calendars\*\*: Use union of KRX + NYSE calendars; allow as-of last available price with max staleness cap of 3 business days.  
- \*\*Missing data\*\*: No forward-fill in features/targets; only controlled as-of carry at rebalance dates.  
- \*\*Survivorship bias\*\*: Accept current-universe v1 with inception masks (drop pre-inception rows).  
- \*\*PIT (Point-in-time)\*\*: Strictly enforce—no future data leakage; only use info known at or before t.

## 2. Forecast Specification

- \*\*Horizon\*\*: 20 trading days, customizable via config and method parameter.  
- \*\*Target variable\*\*: Forward log return of TRI (default; arithmetic returns optional).  
- \*\*Modeling approach\*\*: Per-asset XGBoost models.  
- \*\*Features (v1)\*\*:  
 \* Rolling log returns: windows [5, 20, 60]  
 \* Rolling volatility: [20, 60]  
 \* Momentum (MA ratios/z-scores): [20, 60, 120]  
- \*\*Cross-validation\*\*: Expanding walk-forward with 5 folds, 5-day embargo; customizable.  
- \*\*Evaluation metrics\*\*:  
 \* Regression: RMSE, MAE, R²  
 \* Directional: Hit ratio (sign)  
 \* F1 score deferred unless classification model added.

## 3. Portfolio & Backtesting

- \*\*Portfolio optimizer\*\*: Black–Litterman using forecaster views in local returns, then converted to KRW.  
- \*\*Backtester\*\*: Operates in KRW; applies FX returns additively for USD assets.  
- \*\*Rebalancing schedule\*\*: To be finalized, but will align to a global rebalance date (likely NYSE month-end).

## 4. Governance & Extensibility

- \*\*Configuration\*\*: All core parameters (horizon, features, CV folds, costs) set in YAML configs.  
- \*\*Extensibility\*\*: Horizon, features, and CV scheme are all customizable without code changes.  
- \*\*Documentation\*\*: This decisions log serves as stakeholder reference for methodology choices.