Scenario 1: Excluding the external Features

Scenario 2: Including the external Features (Promo + Holiday)

```
--- Baseline Model Comparison Excluding Extra Features ---
                        RMSE        MAE
XGBoost            41.767511   18.721055
Linear Regression  41.553979   19.146951
Random Forest      42.290362   19.914100


Best Baseline Model: XGBoost
```
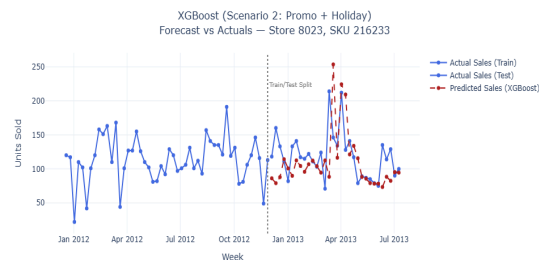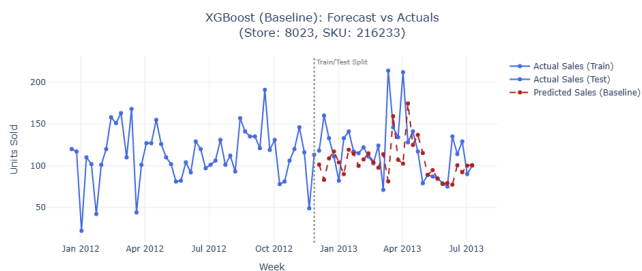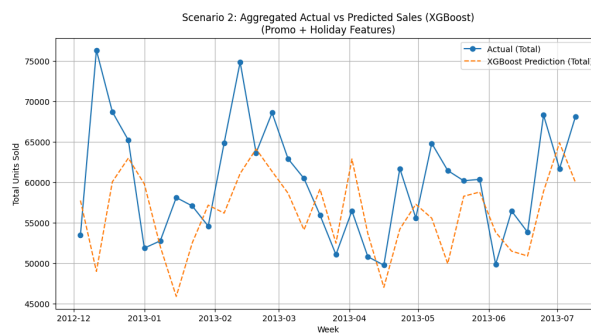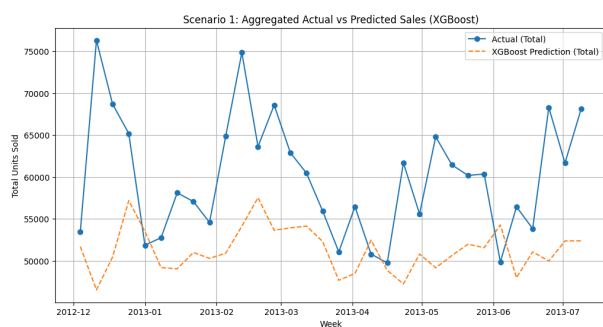
```
--- (Promo + Holiday) Model Comparison ---

                        RMSE        MAE
XGBoost            34.983141   16.994791
Random Forest      34.393761   17.508616
Linear Regression  35.142343   18.257599


Best Model (Scenario 2): XGBoost
```


Scenario 1: Aggregated Actual vs Predicted Sales (XGBoost)

Scenario 2: Aggregated Actual vs Predicted Sales (XGBoost)
(Promo + Holiday Features)

XGBoost (Baseline): Forecast vs Actuals
(Store: 8023, SKU: 216233)

XGBoost (Scenario 2: Promo + Holiday)
Forecast vs Actuals — Store 8023, SKU 216233

Prophet Model Implementation:

```
--- Prophet Model Results without including extra Features ---
MAE  : 32.6119
RMSE : 60.4334
```

```
--- Prophet (Scenario 2: with Promo + Holiday)---
MAE  : 36.4442
RMSE : 62.6373
```


Scenario 1: Aggregated Prophet Forecast vs Actual Sales

Prophet Aggregate Forecast (Scenario 2: Total Demand)