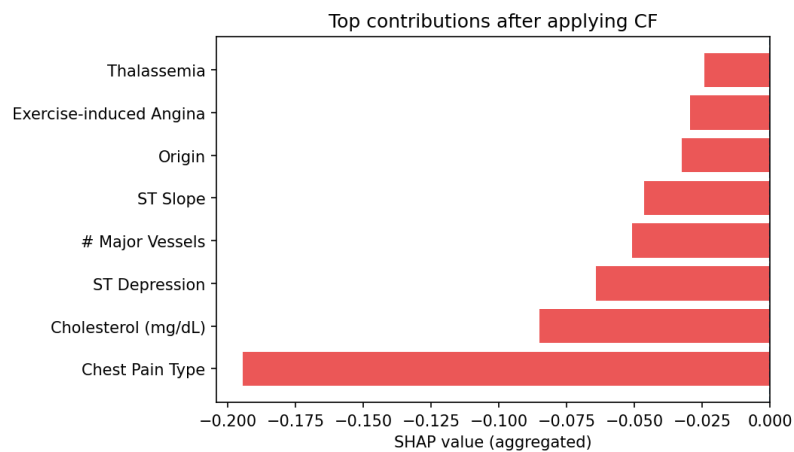
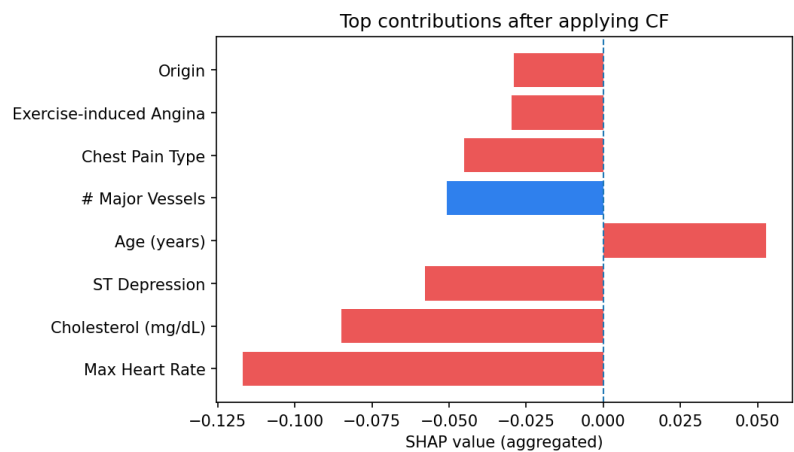
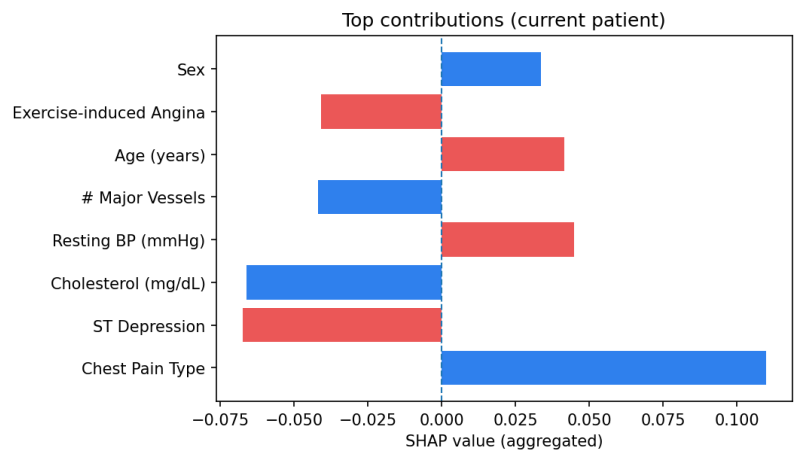
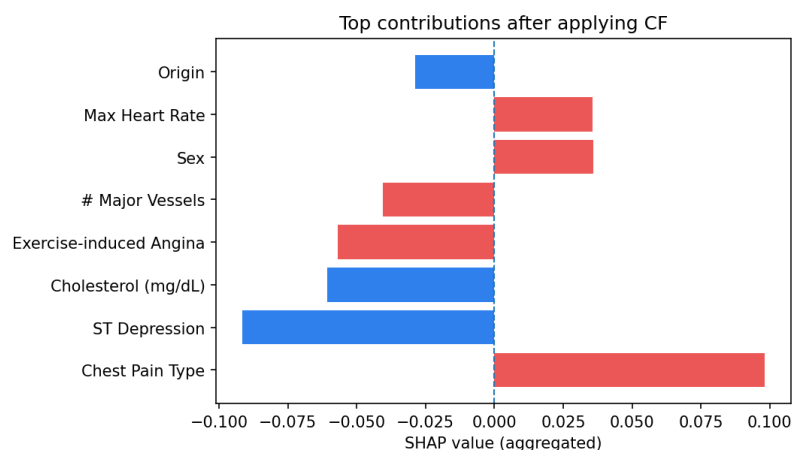


Counterfactual Report — Heart Disease (Demo)

Generated: 2025-10-01 13:42:52
Model: XGBoost | Version: v1-demo | CF method: genetic
Immutable: sex, age, origin
Permitted ranges: {"trestbps": [90.0, 200.0], "chol": [100.0, 400.0], "thalach": [60.0, 220.0], "oldpeak": [0.0, 6.5], "ca": [0.0, 4.0]}

Prediction: 1 | Probability (disease): 0.542





Counterfactual 1:

- Chest Pain Type: asymptomatic → non-anginal ($\Delta=$ —) [■ achievable]
- Cholesterol (mg/dL): 206 → 209 ($\Delta=3.0$) [■ achievable]
- Max Heart Rate: 170 → 178 ($\Delta=8.0$) [■ achievable]

Explanation: If you adjust Chest Pain Type: asymptomatic → non-anginal; Cholesterol (mg/dL): 206 → 209; Max Heart Rate: 170 → 178, the prediction changes from 0.75 to 0.85.

Suggestions:

- Consider incorporating regular aerobic exercises, such as brisk walking or cycling, to improve heart health
- Increase fiber intake by adding more fruits, vegetables, and whole grains to your diet to help manage cholesterol
- Include interval training in your exercise routine to potentially boost your maximum heart rate and overall fitness

Counterfactual 2:

- Chest Pain Type: asymptomatic → atypical angina ($\Delta=$ —) [■ achievable]
- Resting BP (mmHg): 130 → 140 ($\Delta=10.0$) [■ achievable]
- Cholesterol (mg/dL): 206 → 198 ($\Delta=-8.0$) [■ achievable]

Explanation: If you adjust Chest Pain Type: asymptomatic → atypical angina; Resting BP (mmHg): 130 → 140; Cholesterol (mg/dL): 206 → 198, the prediction changes from 0.75 to 0.85.

Suggestions:

- For atypical angina, consider incorporating stress-reducing activities like yoga or meditation into your routine
- To manage higher blood pressure, aim for regular aerobic exercise, such as brisk walking, for at least 150 minutes per week
- To lower cholesterol, focus on a heart-healthy diet rich in fruits, vegetables, whole grains, and healthy fats

Counterfactual 3:

- Resting BP (mmHg): 130 → 120 ($\Delta=-10.0$) [■ achievable]
- Cholesterol (mg/dL): 206 → 209 ($\Delta=3.0$) [■ achievable]
- Max Heart Rate: 170 → 60 ($\Delta=-110.0$) [■■ tough]

Explanation: If you adjust Resting BP (mmHg): 130 → 120; Cholesterol (mg/dL): 206 → 209; Max Heart Rate: 170 → 60, the prediction changes from 0.75 to 0.85.

Suggestions:

- Aim for regular aerobic exercise, such as brisk walking or cycling, to help lower resting blood pressure over time
- Incorporate more fiber-rich foods, like fruits and vegetables, to support healthy cholesterol levels.
- Gradually reduce high-intensity workouts and include more moderate activities to maintain heart health without overexertion

DISCLAIMER: Educational demo. Not medical advice.