



Creating new Features - Solutions

Possible new features:

1) Season

Idea: Capture seasonal patterns in fire incidence and behavior.

Creation: Convert the 'month' column into a categorical feature indicating the season.

2) Weekend

Idea: Explain if there is a difference in fire incidence between weekends and weekdays.

Creation: Create a binary feature indicating whether the fire occurred on a weekend.

3) HighRiskArea

Idea: Identify if certain areas within the park are more prone to fires.

Creation: Create a binary feature indicating whether the fire occurred in high-risk areas based on 'X' and 'Y' coordinates.

4) FireWeatherIndex (FWI)

Idea: Provide a single metric that summarizes the conditions conducive to fire ignition and spread.

Creation: Combining 'FFMC', 'DMC', 'DC', and 'ISI' to form a composite index indicating overall fire weather conditions. Calculated as mean of the four indexes.

5) TemperatureWindIndex (TWI)

Idea: Capture the combined effect of temperature and wind on fire behavior.

Creation: Create an index combining temperature and wind speed to indicate potential fire intensity (multiply the two attributes)

6) TemperatureHumidityIndex (THI)

Idea: Understand the combined effect of temperature and humidity on fire behaviour. Higher values indicate hotter and drier conditions, which are more conducive to fires.

Creation: Ratio of 'temp' to 'RH' to indicate the level of heat stress.

7) WindRainInteraction

Idea: Explore how the combination of wind and rain might influence fire behaviour. This interaction might reveal situations where high wind speeds and rainfall affect fire spread differently.

Creation: Multiply 'wind' and 'rain' to capture the interaction effect between these two factors.

8) DroughtIndex (DI)

Idea: Capture the effect of medium and long-term moisture content on fire behavior.

Creation: Create an index combining 'DMC' and 'DC' to indicate overall drought conditions (mean of the index values).