**eda\_changepoints.py**

* It is used to find moments of significant statistical change in an EDA signal.
* **"Scene detector"**: Its purpose is not to find individual peaks (like SCRs) but to identify the exact moments in time where the fundamental character of the signal changes.
* Specifically, it looks for points where the signal's mean (average level) and its variance (variability) both shift significantly. For example, it detects the transition from a calm, stable resting state (low mean, low variance) to an anxious, fluctuating state (higher mean, higher variance).
* The function then tells you how many of these "scene changes" it found.

Imports:

import numpy as np

import pandas as pd

from ..signal import signal\_changepoints

* **np**: For working with numerical arrays.
* **signal\_changepoints**: The actual "engine" that performs the complex statistical analysis to find the change points.

Function Definition

def eda\_changepoints(eda\_cleaned, penalty=1000, show=False):

* **penalty=1000**: "Expert skepticism dial" - a doubt level (e.g., how much you question or verify something instead of just accepting it).
* **show=False**: A plot of the signal with the detected change points marked. If False, it will not show.

**"""Calculate the Number of Change Points"""**

* **Docstring (user manual)**

Sanity Check & Formatting

if not isinstance(eda\_cleaned, np.ndarray):

if isinstance(eda\_cleaned, pd.DataFrame):

colnames = eda\_cleaned.columns.values

if len([i for i in colnames if "EDA\_Clean" in i]) == 0:

raise ValueError(

"Your input doesn't contain a cleaned EDA signal."

)

else:

eda\_cleaned = eda\_cleaned["EDA\_Clean"]

eda\_cleaned = np.array(eda\_cleaned)

* **if not isinstance(eda\_cleaned, np.ndarray):**: It first checks if the data is already in the ideal format (a NumPy array). If it is, it skips this whole block.
* **if isinstance(eda\_cleaned, pd.DataFrame):**: If the input is a pandas DataFrame, it looks for the column named EDA\_Clean. If it can't find it, it stops with an error. If it finds it, it extracts just that column.