Test objective

In this competition, you will forecast the demand of a product for a given week, at a particular store. The dataset you are given consists of 8 weeks of sales transactions in Mexico.
Every week, there are delivery trucks that deliver products to the vendors. Each transaction consists of sales and returns. Returns are the products that are unsold and expired. The demand for a product in a certain week is defined as the sales this week subtracted by the return next week.

Requirements

-Try to develop the test in Python.
-Share the doc with the answers, include a brief explanation of your results.
-Share your code so that our Lead Data Scientist can review it in detail.

1. Justify the election of the algorithm you used
2. Graph a time series for a determined product-client-agency combination
3. Add several metrics of your choice to show the robustness of the algorithm
4. Define a sample of clients that represents a specific agency (Please specify which agency and what were your selection criteria and methodology applied).
5. Predict week 9 for the top 3 selled products in your client sample.
In case of not finishing by the scheduled date, send what you've accomplished.
6. Make a flowchart drawing that maps all the steps of your used algorithm

Things to note:

- There may be products in the test set that don't exist in the train set. This is the expected
behavior of inventory data, since there are new products being sold all the time. Your model
should be able to accommodate this.

- There are duplicate Cliente_ID's in cliente_tabla, which means one Cliente_ID may have
multiple NombreCliente that are very similar. This is due to the NombreCliente being noisy and not standardized in the raw data, so it is up to you to decide how to clean up and use this information.

- The adjusted demand (Demanda_uni_equil) is always >= 0 since demand should be either a 0 or a positive value. The reason that
Venta_uni_hoy - Dev_uni_proxima sometimes has negative values is that the returns records sometimes carry over a few weeks.

File descriptions

- cliente_tabla.csv — client names (can be joined with train/test on Cliente_ID)
- producto_tabla.csv — product names (can be joined with train/test on Producto_ID)

- town_state.csv — town and state (can be joined with train/test on Agencia_ID)

Data fields

- Semana — Week number (From Thursday to Wednesday)
- Agencia_ID — Sales Depot ID
- Canal_ID — Sales Channel ID
- Ruta_SAK — Route ID (Several routes = Sales Depot)
- Cliente_ID — Client ID
- NombreCliente — Client name
- Producto_ID — Product ID
- NombreProducto — Product Name
- Venta_uni_hoy — Sales unit this week (integer)
- Venta_hoy — Sales this week (unit: pesos)
- Dev_uni_proxima — Returns unit next week (integer)
- Dev_proxima — Returns next week (unit: pesos)
- Demanda_uni_equil — Adjusted Demand (integer) (This is the target you will predict)