## Task 2:

Here are the key standard libraries along with their key functions used in your project:

1. **Pandas**:
    - Key Functions:
        - **read_csv()**: Used to read data from CSV files into a DataFrame.
        - **drop()**: Used to drop specified labels from rows or columns.
        - **iloc[]**: Used for integer-location based indexing to select rows and columns.
        - **copy()**: Used to create a deep copy of the DataFrame.
        - **head()**: Used to display the first few rows of the DataFrame.
        - **to_numeric()**: Used to convert object types to numeric types.
2. **Matplotlib**:
    - Key Functions:
        - **figure()**: Used to create a new figure.
        - **subplots()**: Used to create a figure and a set of subplots.
        - **countplot()**: Used to show the counts of observations in each categorical bin using bars.
        - **show()**: Used to display a figure.
        - **figure(figsize=())**: Used to specify the size of the figure.
3. **Seaborn**:
    - Key Functions:

- **countplot()**: Used to show the counts of observations in each categorical bin using bars.
- **pairplot()**: Used to plot pairwise relationships in a dataset.
- **set_style()**: Used to set the aesthetic style of the plots.

4. **Scikit-Learn**:
    - Key Functions:
        - **train_test_split()**: Used to split arrays or matrices into random train and test subsets.
        - **VotingClassifier()**: Used to combine multiple classifiers and aggregate their predictions using voting.
        - **ExtraTreesClassifier()**, **GradientBoostingClassifier()**, **RandomForestClassifier()**, **XGBClassifier()**, **DecisionTreeClassifier()**: Different classifiers used for training.
        - **RFE()**: Used for recursive feature elimination.
        - **fit_transform()**: Used to fit the transformer and then transform the data.
        - **get_support()**: Used to get the support of the selected features.
        - **score()**: Used to compute the mean accuracy of the model.
        - **named_estimators_**: Attribute used to access the named estimators of the VotingClassifier.
5. **Featuretools**:
    - Key Functions:
        - **EntitySet()**: Used to create a new entity set.
        - **add_dataframe()**: Used to add a DataFrame to the entity set.

- **dfs()**: Used to run deep feature synthesis.
- **add_numeric()**, **multiply_numeric()**: Transformation primitives used in deep feature synthesis.

6. **Optuna**:
    - Key Functions:
        - **create_study()**: Used to create a new study.
        - **optimize()**: Used to optimize the objective function.
        - **suggest_int()**, **suggest_float()**: Used to suggest integer and float parameters for optimization.