Project Documentation

Project Overview

This project utilizes the Qt framework to create a graphical user interface (GUI) application for handling data, performing k-means clustering, and saving the results.

Header Files

cart.h: Header file for the `Cart` class, which manages the shopping cart functionality.
data_output.h: Header file for the `DataOutput` class, which handles saving selected columns of data.
kmeans.h: Header file for the `KMeans` class, implementing the KMeans clustering algorithm.
mainwindow.h: Header file for the `MainWindow` class, which defines the main window of the application.
mymodel.h: Header file for the `MyModel` class, implementing a custom model for handling and displaying data.
norm.h: Header file for data normalization functions.

Source Files

cart.cpp: Implementation of the `Cart` class, managing the shopping cart functionality.
data_output.cpp: Implementation of the `DataOutput` class.
kmeans.cpp: Implementation of the `KMeans` class, containing the KMeans clustering algorithm.
main.cpp: The entry point of the application, where the `MainWindow` is instantiated and shown.
mainwindow.cpp: Implementation of the `MainWindow` class, user interactions and data processing.
mymodel.cpp: Implementation of the `MyModel` class, providing a custom model for the table view.
norm.cpp: Implementation of functions for normalizing data.

UI Files

cart.ui: Qt Designer file defining the user interface for the shopping cart.
mainwindow.ui: Qt Designer file defining the user interface for the main window.

CSV files

menu.csv: main data for project
qt_data_output: data with selected columns
qt_data_norm_output: normalized data
qt_data_clust_output: data with clusters column

Usage

1. Loading Data: The application loads data from `menu.csv` and displays it in a table.
2. Selecting Columns: Users can select columns to be included in the clustering process using checkboxes.
3. Displaying Data: Users can display the selected columns in the table.
4. Normalization: The selected data is normalized and saved to `qt_data_norm_output.csv`.
5. KMeans Clustering: The normalized data is clustered using the KMeans algorithm, and the results are saved to `qt_data_clust_output.csv`.