**Data Preprocessing Report**

1. Introduction

Data preprocessing involves transforming raw data into a format that is suitable for analysis or modeling. It includes tasks such as data cleaning, feature selection, feature engineering, and data transformation. The goal of this phase is to improve the quality of the data and enhance the performance of downstream tasks.

2. Data Description

The Brand Dataset is a collection of data related to various brands. It consists of two main components: an "images" folder containing image files of real and fake grayscale images of different apparels of brands and a "brand\_info.csv" file providing additional information about each the types of apparels used in each season and the brands of clothes.

3. Data Cleaning

Handling null values:

Effectively addressing null values is imperative to uphold the precision and dependability of both your data analysis and machine learning models. In the context of our dataset, specifically within the attributes encompassing "Primary Color," "Use," "Seasonal," and "Year," there exist instances of null values. These instances of missing data have been meticulously managed and rectified through appropriate strategies.

Handling Categorical variables:

Categorical values are non-numeric variables that represent various levels or categories, such as colors, names, or labels. In this Brand dataset, we used the label encoder to encode features like Gender Type, Type, subtype, Article, Primary Color, and Brand. The label encoding technique converts each category in a categorical feature into a numerical value.

Processed the images using various techniques that includes gray scale, rotation range, zoom range, width and height range, horizontal flip, and fill mode.