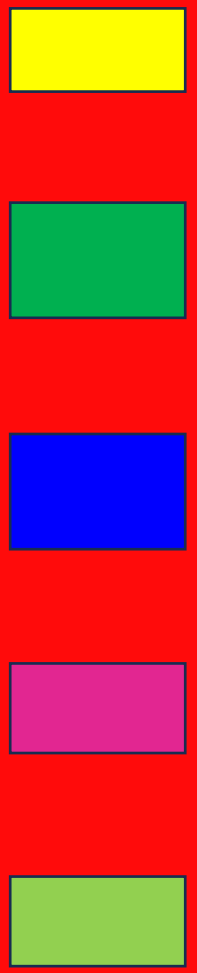
Confused about what to wear ?

Colors Combination and Advisior For Clothing Selection

A halt for daily confusion while ge

ready for Various occasion

Abstract



- Choosing the right color combination for clothing can greatly impact one's appearance and confidence in various settings. This project aims to develop a machine- learning model that helps users select the optimal color combinations for different occasions such as meetings, casual outings, or formal events. By analyzing color psychology and fashion trends, the model suggests the most suitable color combinations based on the user's preferences and the context of the event. The project utilizes machine learning algorithms and other technologies to provide personalized recommendations, enhancing users' fashion choices and confidence.

Data Collection
Data Visualization
Data Pre Processing
Modelling and Data Training
Testing

Data Set Used

	Pattern	Color1	Color2	Occasion	ColorCombination
0	Solid	Red	White	Meeting	Red & White
1	Striped	Blue	Black	Casual	Blue & Black
2	Checkered	Green	Gray	Formal	Green & Gray
3	Floral	Yellow	Orange	Party	Yellow & Orange
4	Solid	Pink	Brown	Meeting	Pink & Brown
..	...	...	...	...	...
71	Floral	Red	Gray	Party	Red & Gray
72	Solid	Orange	Black	Meeting	Orange & Black
73	Striped	Blue	Green	Casual	Blue & Green
74	Checkered	Yellow	White	Formal	Yellow & White
75	Floral	Pink	Brown	Party	Pink & Brown

[76 rows x 5 columns]

Importing Liberaries & Data Cleaning

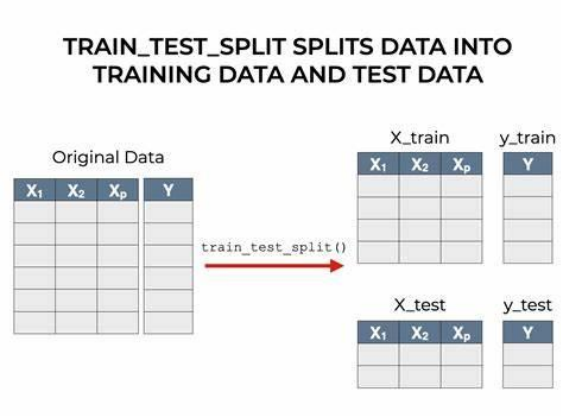
Importing Libraries & Data Cleaning to inspect and understand the structure and content of a dataset using the functions : 1. head: displays first few rows of DataFrame giving the overview of its structure and contents. 2. info: provide concise summary of DataFrame including its 3. size, data types, and memory usage. description: shows descriptive statistics summarizing the central tendency, dispersion and shape of DataFrame's distribution of numerical data.

Dependencies

Python

matplotlib

scikit learn



pandas

Import Library and Import data

```
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import accuracy_score
from itertools import product
```

	Pattern	Color1	Color2	Occasion	ColorCombination
0	Solid	Red	White	Meeting	Red & White
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..	...	...	...	...	...
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74	Checkered	Yellow	White	Formal	Yellow & White
75	Floral	Pink	Brown	Party	Pink & Brown

[76 rows x 5 columns]

```
fashion_data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 76 entries, 0 to 75
Data columns (total 5 columns):
 #   Column            Non-Null Count  Dtype 
---  ------            --------------  ----- 
 0   Pattern           76 non-null     object
 1   Color1            76 non-null     object
 2   Color2            76 non-null     object
 3   Occasion          76 non-null     object
 4   ColorCombination  76 non-null     object
dtypes: object(5)
memory usage: 3.1+ KB
```

```
description = fashion_data.describe()
print(description)
```

```
       Pattern Color1  Color2 Occasion ColorCombination
count       76     76      76       76                76
unique       4     11      11        4                55
top      Solid   Blue  Yellow  Meeting     Black & Gray
freq        19     10      10       19                 3
```

```python
#define feature x and target veriable y
x = fashion_data[['Pattern','Color1','Color2' ,'Occasion']]
y = fashion_data[['ColorCombination']]
print(x)
print("Features (X):")
print(x.head())
print("\nTarget variable (y):")
print(y.head())
```

```
      Pattern  Color1  Color2 Occasion
0       Solid     Red   White  Meeting
1     Striped    Blue   Black   Casual
2   Checkered   Green    Gray   Formal
3      Floral  Yellow  Orange    Party
4       Solid    Pink   Brown  Meeting
..        ...     ...     ...      ...
71     Floral     Red    Gray    Party
72      Solid  Orange   Black  Meeting
73    Striped    Blue   Green   Casual
74  Checkered  Yellow   White   Formal
75     Floral    Pink   Brown    Party

[76 rows x 4 columns]
Features (X):
     Pattern  Color1  Color2 Occasion
0      Solid     Red   White  Meeting
1    Striped    Blue   Black   Casual
2  Checkered   Green    Gray   Formal
3     Floral  Yellow  Orange    Party
4      Solid    Pink   Brown  Meeting

Target variable (y):
  ColorCombination
```

Data Visualization

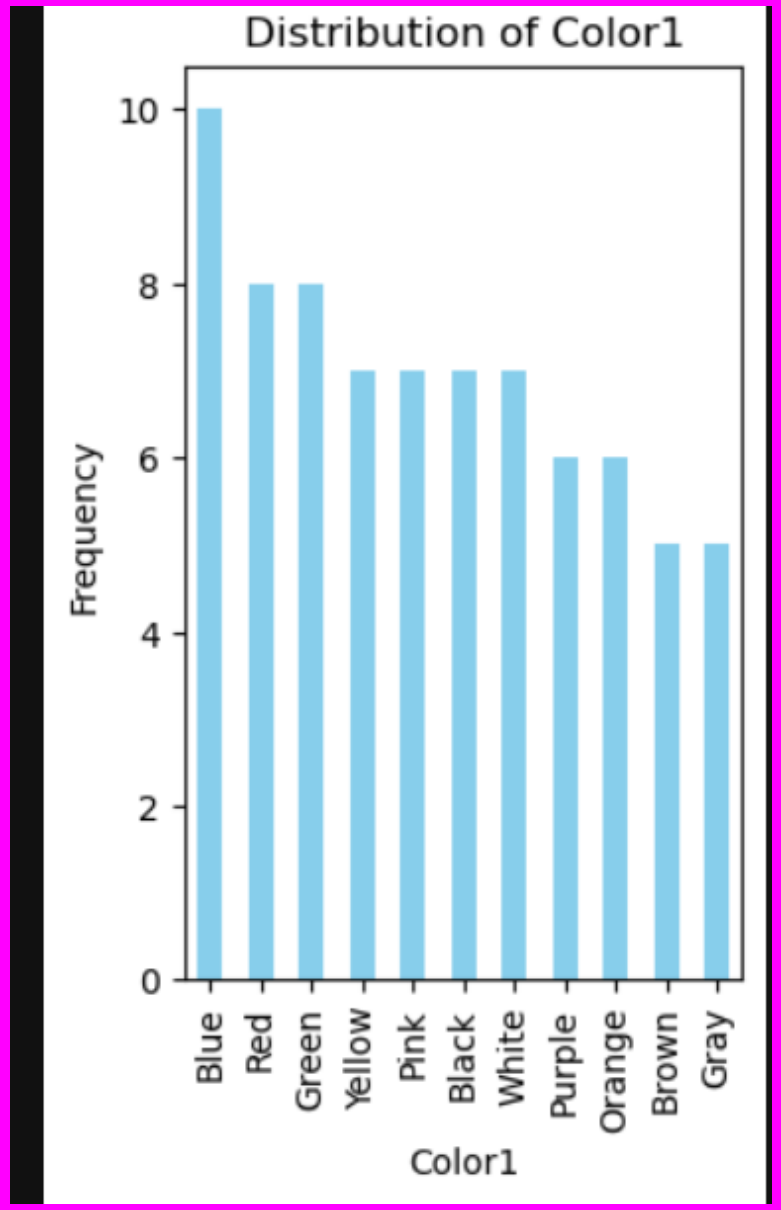
```
plt.figure(figsize=(10, 6))
```

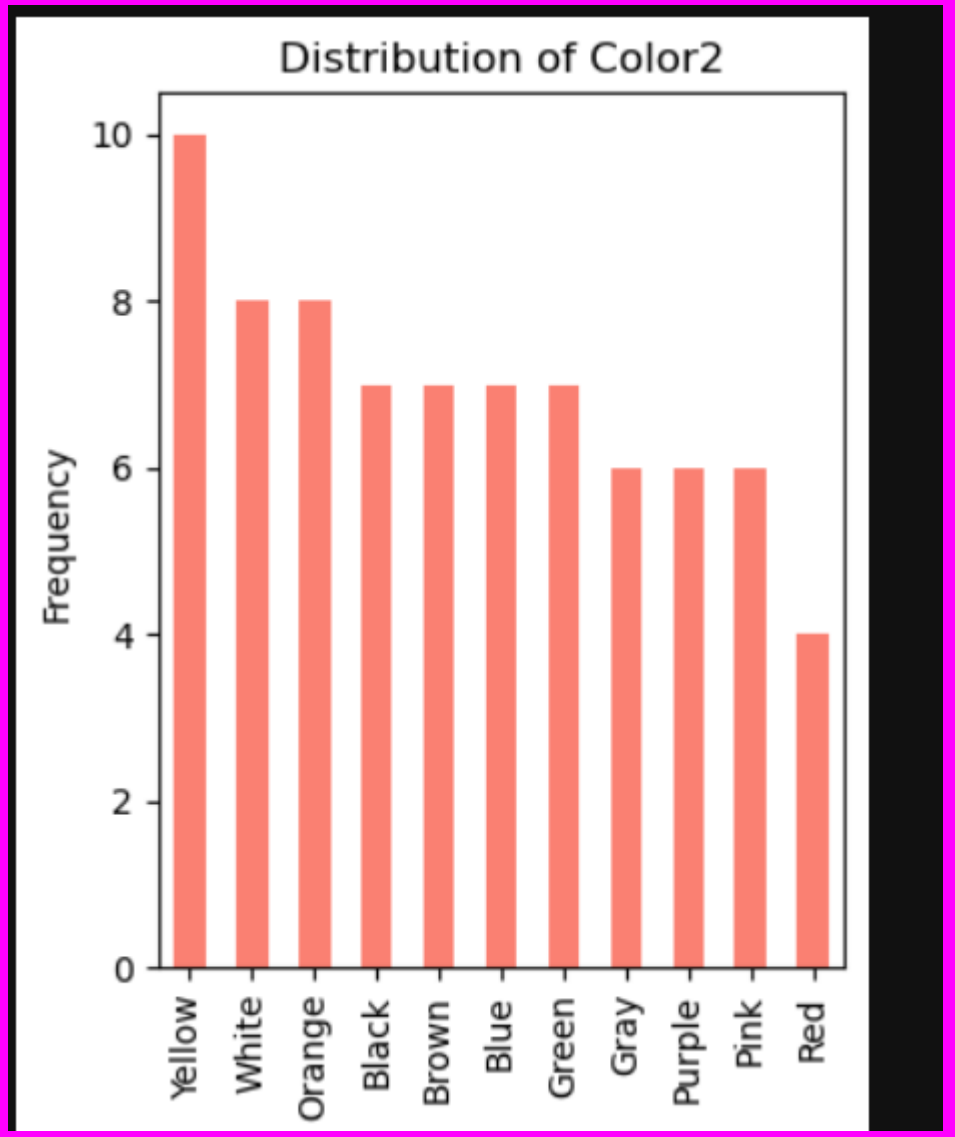
```
<Figure size 1000x600 with 0 Axes>
```

<Figure size 1000x600 with 0 Axes>

```
color1_counts = fashion_data['Color1'].value_counts()
color2_counts = fashion_data['Color2'].value_counts()
```

```
# Plot color1 distribution
plt.subplot(1, 2, 1)
color1_counts.plot(kind='bar', color='skyblue')
plt.title('Distribution of Color1')
plt.xlabel('Color1')
plt.ylabel('Frequency')
```


Distribution of Color1
Frequency
10
8
6
4
2
0
Blue
Red
Green
Yellow
Pink
Black
White
Purple
Orange
Brown
Gray
Color1


Distribution of Color2
Frequency
10
8
6
4
2
0
Yellow
White
Orange
Black
Brown
Blue
Green
Gray
Purple
Pink
Red

```
#Create a horizontal bar plot with half shade of color 1 and color 2 and write the occasion name on the bar
plt.figure(figsize=(20,15))
#calculate the position of bar
for i, (color1, color2, occasion) in enumerate(zip(x['Color1'], x['Color2'], x['Occasion'])):
    # Calculate the position of the bar
    y = len(x) - i - 1

# Plot the first half of the bar representing Color1
    plt.barh(y, 0.5, color=color1, alpha=0.7)
    # Plot the second half of the bar representing Color2
    plt.barh(y, 0.5, left=0.5, color=color2, alpha=0.7)
     # Write the occasion name on the bar (to the left side)
    plt.text(-0.1, y, occasion, ha='right', va='center', color='black', fontsize=8)

    # Display color information on the right side of the barrr
    plt.text(1.1, y, f"{color1} / {color2}", ha='left', va='center', color='black', fontsize=8)

# Remove y-axis ticks
plt.yticks([])

plt.title('Color Combinations with Occasions')
plt.xlabel('Color')
plt.ylabel('Occasion')
plt.tight_layout()
plt.show()
```

Colour Combination

Ocassion

```
# Separate features and target variable e
x = fashion_data[['Pattern', 'Color1', 'Color2', 'Occasion']]
y = fashion_data['ColorCombination']
```

Split data into training and training Set

```
x_encoded = pd.get_dummies(x)
x_train, x_test, y_train, y_test = train_test_split(x_encoded, y, test_size=0.2, random_state=42)

# Initialize the RandomForestClassifier
clf = RandomForestClassifier()

# Train the model only on the training data
clf.fit(x_train, y_train)

# Make predictions on the testing data
predictions = clf.predict(x_test)

# Evaluate model accuracy on the testing data
accuracy = accuracy_score(y_test, predictions)
print("Model Accuracy:", accuracy)
```

```
Model Accuracy: 0.125
```

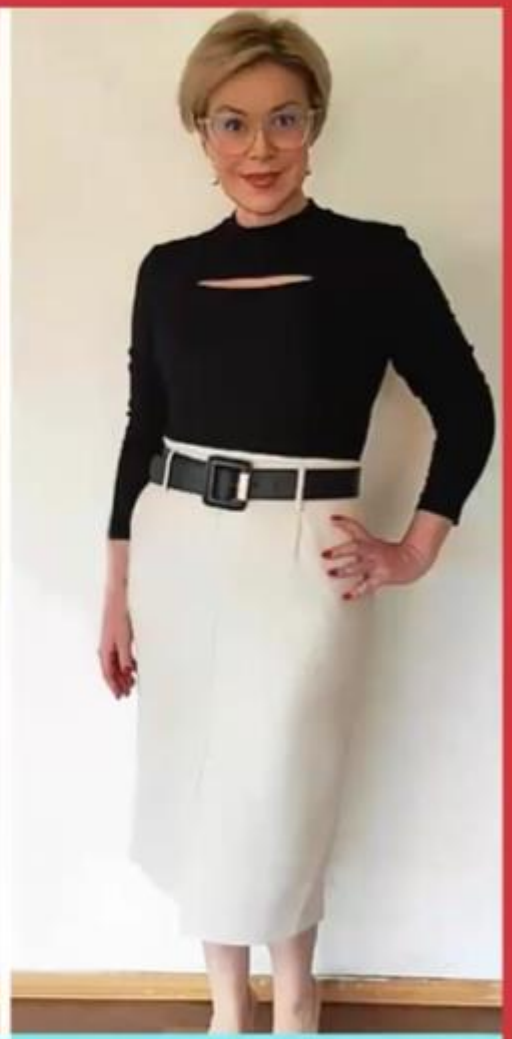
```
occasions = ['wedding', 'business meeting', 'casual outing']
color_combinations = {
    ('red', 'light'): 'wedding',
    ('red', 'dark'): 'business meeting',
    ('blue', 'light'): 'casual outing',
    ('blue', 'dark'): 'casual outing',
    ('green', 'light'): 'business meeting',
    ('green', 'dark'): 'casual outing'
}
# Generate all possible combinations of colors
all_combinations = list(product(color1, color2))

# Predict occasions for each combination
for combination in all_combinations:
    color_combo = tuple(combination)
    if color_combo in color_combinations:
        occasion = color_combinations[color_combo]
        print(f"Colors: {color_combo}, Occasion: {occasion}")
    else:
        print(f"No occasion found for colors: {color_combo}")
```

```
Colors: ('red', 'light'), Occasion: wedding
Colors: ('red', 'dark'), Occasion: business meeting
Colors: ('blue', 'light'), Occasion: casual outing
Colors: ('blue', 'dark'), Occasion: casual outing
Colors: ('green', 'light'), Occasion: business meeting
Colors: ('green', 'dark'), Occasion: casual outing
```

BEFORE
AFTER
CANALI

GOOD
BETTER

MAKES YOU LOOK OLDER



FRESHENS UP

BORING

COOL

What Should I wear at Casual Outing today ?

Result Showing all Possible Colour Combination

```
Colors: ('red', 'light'), Occasion: wedding
Colors: ('red', 'dark'), Occasion: business meeting
Colors: ('blue', 'light'), Occasion: casual outing
Colors: ('blue', 'dark'), Occasion: casual outing
Colors: ('green', 'light'), Occasion: business meeting
Colors: ('green', 'dark'), Occasion: casual outing
```

Benefits

Build self- confidence

Personalized Recommendations

User friendly

Enhances user's fashion choices

Thank You Being a Patience and audience