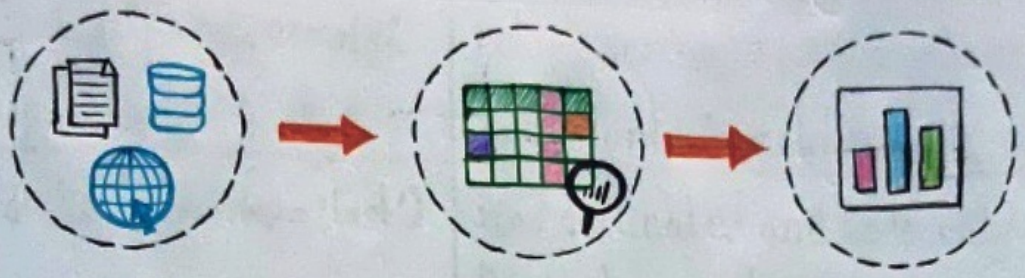
Pandas Cheat Sheet :

Data Cleaning

Data Cleaning useful for everyday working with data. This Pandas cheat sheet contains ready-to-use codes and steps for data cleaning.

EDA

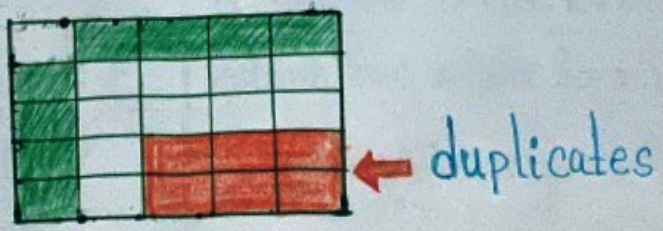
Exploratory Data Analysis.



df.info()	DataFrame columns, dtypes and memory
df.describe()	Returns columns coverage and types
df.head(7)	Returns first N rows
df.sample(2)	return random samples
df.shape	return DataFrame dimensions
df.columns	returns DataFrame columns

Duplicates

Detect and Remove duplicates.

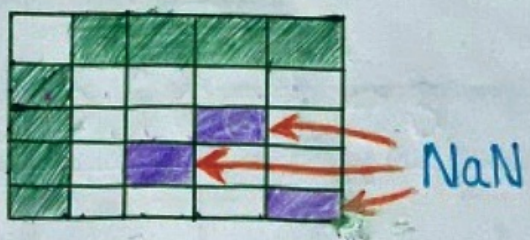


Duplicates

df.diet.nunique()	number of unique values in column
df.diet.unique()	Unique values in column
df['col_1'].value_counts(dropna=False)	return series of unique values and counts in column
df.duplicated(keep='last')	find duplicates and keep only the last record
df.drop_duplicates(subset=['col_1'])	drop duplicates from column(s)
df[df.duplicated(keep=False)].index	get indexes of all detected duplications:

Missing Values

Working with missing data.



df.isna()	return True or False for missing values
df['col_1'].notna()	return True or False for non-NA data
df.isna().all() s[s==True]	Columns which contains only NaN values

Missing Values

`df.isna().any()`	Detect columns with NaN values
`df['col_1'].fillna(0)`	Fill NaN with string or 0
`import seaborn as sns` `sns.heatmap(df.isna(),cmap='Greens')`	plot missing values
`s.loc[0] = None` `s.loc[0] = np.nan`	Insert missing data
`df.dropna(axis=0)`	droping rows with missing data
`df.dropna(axis=1, how='any')`	Drop columns with NaN values

Outliers

Detect and remove outliers.

`df['col_1'].describe()`	detecting outliers with describe()
`import seaborn as sns` `sns.boxplot(data=df[['col_1','col_2']])`	detect outliers with boxplot

`q_low = df['col'].quantile(0.01)`
`q_low = df['col'].quantile(0.99)`
`df[(df['col']<q_hi) & (df['col']>q_low)]`
	remove outliers with quantiles

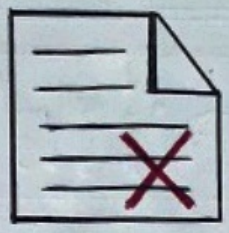
Outliers

```
import numpy as np
ab=np.abs(df['col']-df['col'].mean())
std=(3*df['col'].std())
df[ab <= std]
```

remove outliers with standart deviation

Wrong Data

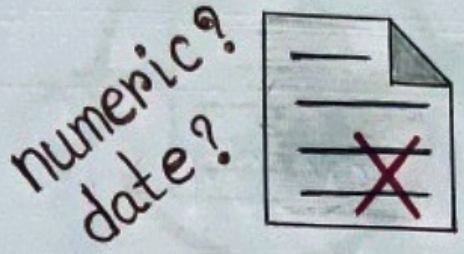
Detect wrong data.



`df[df['col_1'].str.contains(r'[@#&$%+-/*]')]`	Detect special symbols
`df[df['col_1'].map(lambda x: x.isascii())]`	Detect (non) ascii characters
`df['col']\ .loc[~df['col'].str.match(r'[0-9.]+')]`	find pattern with regex
`import numpy as np` `np.where(df['col']==' ',df['col2'],df['col'])`	detect empty spaces
`df[df['col_1'].str.contains('[A-Za-z]')]`	Detect latin symbols
`df.applymap(np.isreal)`	detect non numeric rows
`df['city'].str.len().value_counts()`	Count values by lenght

Wrong Format

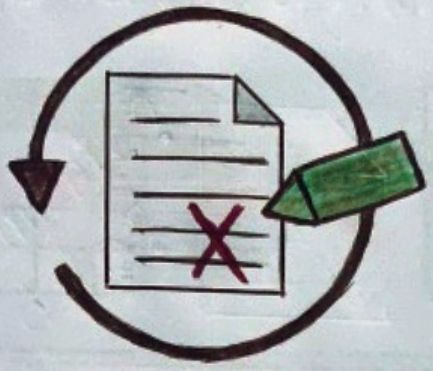
Detect wrong format.



df.apply(pd.to_numeric,errors='coerce')\ .isna().any()	detect wrong numeric format
pd.to_datetime(df['date_col'], errors='coerce')	detect wrong datetime format
import pandas_dedupe dd_df=pandas_dedupe.dedupe_dataframe(df, field_properties=['col1', 'col2'], canonicalize=['col1'], sample_size=0.8)	Find typos and miss-pelling - Deduplication and canonicalization with pandas_dedupe
from difflib import get_close_matches w=['apes','apple','peach','puppy'] get_close_matches('ape',w, n=3, cutoff=0.8)	use difflib to find close matches

Fix Errors

Fix errors in Pandas.



`df.convert_dtypes()`	Convert the DataFrame to use best possible dtypes
`df.astype({'col_1': 'int32'})`	Cast col_1 to int32 using a dictionary
`df.fillna(method='ffill')`	Propagate non-null values forward or backward
`values = {'A': 0, 'B': 1, 'C': 2, 'D': 3}` `df.fillna(value = values)`	Replace all NaN elements in column with dict
`df.ffill(axis = 0)`	Fill the missing values row wise

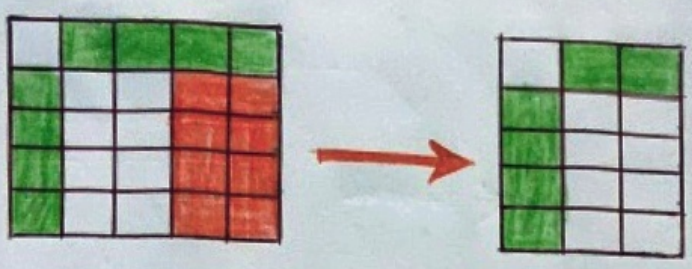
Replacing

Replace data in DataFrame.

`df['col']=df['col'].str.replace('M','')`	replace string from column
`df['col'].str.replace('M',' ')\ .fillna(0).astype(int)`	replace and convert column to integer
`df['col'].str.replace('A7','7', regex=False)`	Replace values in column - no regex
`df.replace(r'\r+|\n+|\t+',' ', regex=True)`	Find and replace line breaks - new line, tab - regex
`df['col'].str.replace('\s+',' ', regex=True)`	Replace multiple white spaces
`df['col'].str.rstrip('\r\n')`	Replace line breaks from the right
`p=r'<[^<>]*>'` `df['col'].str.replace(p,'', regex=True)`	Replace HTML tags

Drop

Drop rows, columns, index, condition.



df.drop('col_1', axis=1, inplace=True)	Drop one column by name
df.drop(['col1','col2'], axis=1)	Drop multiple column by name
df.dropna(axis=1, how='any')	Drop columns with NaN values
df.drop(0)	Drop rows by index-0
df.drop([0,2,4])	drop multiple rows
df[(df['col1']>0)&(df['col2']!='open')]	drop rows by condition
df.reset_index()	drop index