GENERAL ASSEMBLY

Intro to Data Cleaning

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LEARNING OBJECTIVES

- Inspect data and data types
- Cleaning up data

Introduction to Data Cleaning

Intro to Data Cleaning

Since we're starting to get pretty comfortable with using pandas to do EDA, let's add a couple more tools to our toolbox.

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There's no magic formula, but we'll go over some common cleaning operations.

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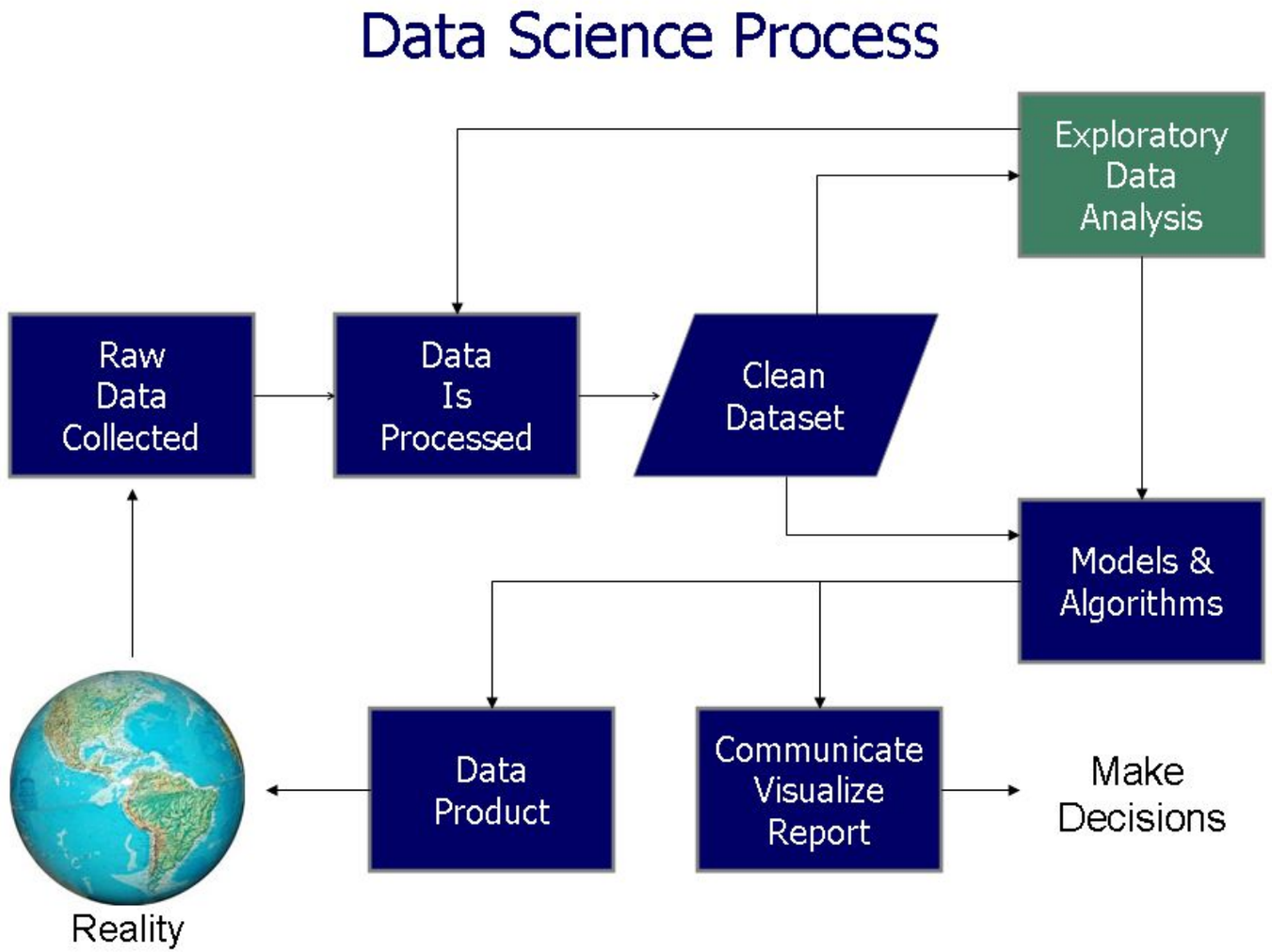
Reproducibility matters, so document! For high-level planning and documentation, ***data flow diagrams*** are helpful.

Intro to Data Cleaning



Intro to Data Cleaning

Technically: once you know what you want to do, how do you do it in pandas?

Pandas has many functions to help process and manipulate your data - we'll take a look at some:

- .dtypes is the data type attribute of numpy/pandas objects.
- df.apply() applies a function along any axis of a DataFrame.
- pandas.Series.value_counts returns a Series containing counts of unique values. Excludes NaN values.

The main data types stored in pandas objects are:
float, int, bool, datetime64, datetime64, timedelta, category, and object

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Common Steps in Cleaning Data:

- Drop Outliers
- Normalization
- Relabeling
- Decoding
- Handling Null Values
- Binarization

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Let's take a look at an example of how to inspect data types

Intro - Applying functions functions to dataframes

Intro to Data Cleaning

Generally, df.apply(), will apply a singlular function to every cell of the dataframe you use it with.

Conversely: df.map(), is available when you only want to work with a single dimension of your dataset, ie: df['a'].map(my_func)

Intro - .value_counts()

Intro to Data Cleaning

Why is this important? Basically, this tells us the count of unique values that exist. It's helpful to identify anything unexpected. Looking at value_counts(), per series, can give us a quick overview of values expressed in our data.

- Strings inside of mostly numeric / continious data
- Non-numeric values
- General counts of values that we might expect to see
- Most common / least common values

Independent Practice

Intro to Data Cleaning: Independent Practice

- Use the sales.csv data set, we've seen this a few times in previous lessons
- Inspect the data types
- You've found out that all your values in column 1 are off by 1. Use df.apply to add 1 to column 1 of the dataset
- Use .value_counts to count the values of 1 column of the dataset

Bonus

- Add 3 to column 2
- Use .value_counts for each column of the dataset

Intro to Data Cleaning: Independent Practice

- Add an extra column to your dataframe that is a copy of an existing column with continious data
  - Randomly change the value of continious data cells within it to the following:
    - NaN
    - A blank string
    - A numeric string
    - The same value

Report value_counts post-"random data troll" processing. Does it seem random?

- Convert blank strings and NaN values to float(0)
- Convert numeric strings to floats with 2f precision
- Divide by 2 if cell value is prime, use remainder as value

Conclusion