Welcome to the Course!

PLEASE DO NOT SKIP THIS LECTURE!

Welcome to the Course

- How to get help during the course.
- Useful course tips.
- How to get the notes for the course.
- Please check your automated welcome message for some nice useful information!

Welcome to the Course

- How to get help
  - ***Double check our provided files!***
  - ***Our files will always work with the correct versions of the libraries!***
  - Search the Online Documentation
  - Google or StackOverflow Search
  - Search Previous QA Posts
  - Post a new question to QA forums

Welcome to the Course

- *Please keep in mind...*
  - **Please only post questions relevant to the course material.**
  - **The discord chat server is specifically set-up for you to share questions that are outside the scope of the course.**

Welcome to the Course

- How to get help on platform issues
  - Open a support ticket
  - Email **info@pieriantraining.com**
    - Video player issues
    - Certification issues
    - Enrollment or payment issues

Welcome to the Course

- Useful Tips
  - Use bottom settings on video player to adjust playback speed.
  - Feel free to jump around sections if you already feel familiar with some material.

Welcome to the Course

- How to get the notes
  - Download the zip file resource in this lecture (or FAQ lecture)
  - Unzip the file
  - That’s it! You now have all the notes!
  - We will explain later on how to open the .ipynb files with Jupyter Notebook.

THANK YOU!

Installing Python and Jupyter Notebook

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Course Setup

- Let’ start getting set-up for the course!
    - Install Free Anaconda Python Distribution
    - Run Anaconda Navigator
    - Run Anaconda Command Prompt
    - Navigate Folders within Jupyter

Course Setup

- ***If you already have Python installed, feel free to skip to the next lecture for the course environment setup!***

Course Setup

- The Anaconda distribution is a free and open-source python distribution that includes many tools, including an environment manager, a download manager, and a graphical interface to access a variety of development environments.

Course Setup

- Make sure you've downloaded the .zip file of notebooks and unzipped the .ipynb content!
- Now that we have Jupyter Notebook running, you should be able to easily navigate to wherever you saved those files on your computer.

Course Setup

- In the next lecture we will show you how to import the course environment file!

Environment Setup

Course Setup

- What is a virtual environment?
    - Python libraries can change often and unexpectedly.
    - Minor changes can cause code to break, which can impede the learning process!

Course Setup

- What is a virtual environment?
    - Real Example:
        - Seaborn data visualization library changed a call from **distplot()** to **displot()**!
        - We want to focus on learning about data science and machine learning, not minor library changes.

Course Setup

- What is a virtual environment?
    - We can create a virtual environment to hold specific versions of Python libraries for our use.
    - We can activate or deactivate this environment as needed.

Course Setup

- What is a virtual environment?
    - We can also edit or update libraries as needed.
    - This allows us to balance between functioning code and keeping up to date with the latest library changes.
    - We can also have multiple virtual environments for different projects.

Course Setup

- Downloading the environment file:
  - Download directly from Udemy
  - Download directly from backup Google Drive link
  - Either is okay! It is the same file:
    - **requirements.txt**

Course Setup

- Download the file and save it to Downloads folder or Desktop folder.
- Now let’s show you how to:
    - Create an environment
    - Install from requirements.txt file
    - Activate an environment
    - Deactivate an environment

Machine Learning Pathway

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ML Pathway

- Let’s discuss the general idea of a pathway of using Machine Learning and Data Science for a useful Real World Application.
- This overview is very broad and in reality there is a lot of overlap between the various stages presented here.

ML Pathway

- Note that we will also try to distinguish various roles in the process such as Data Engineer, Data Analyst, Data Scientist, Machine Learning Researcher,etc..
- Keep in mind there is also a lot of overlap in these roles and different organizations label role titles differently.

ML Pathway

- Lastly keep in mind we cover all of these steps and topics in depth throughout the course, this is just a high level overview of the general process and pathway that utilizes a machine learning model.

ML Pathway

Real World

ML Pathway

Real World

Problem to Solve

Question to Answer

PIERIAN DATA

ML Pathway

Real World

Problem to Solve

How to fix or change X?

Question to Answer

How does a change in X affect Y?

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ML Pathway

Real World

Data Product

Data Analysis

PIERIAN DATA

ML Pathway

Real World

Data Product

Mobile Apps, Services, Websites, etc...

Data Analysis

Reports, Visualizations , Communications, etc...

PIERIAN DATA

ML Pathway

Real World

Data Product

Data Analysis

PIERIAN DATA

ML Pathway

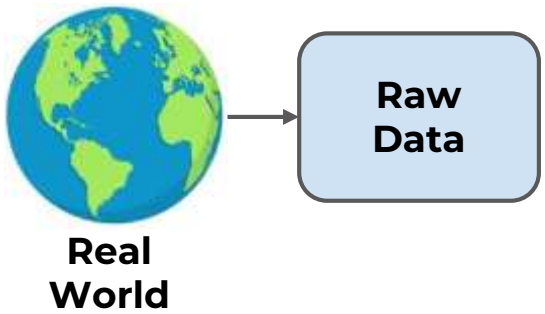
Real World

Data Product

Data Analysis

PIERIAN DATA

ML Pathway



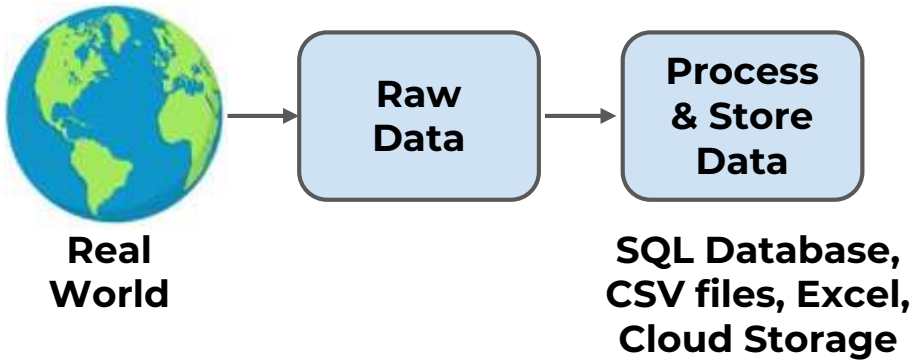
ML Pathway

Real World

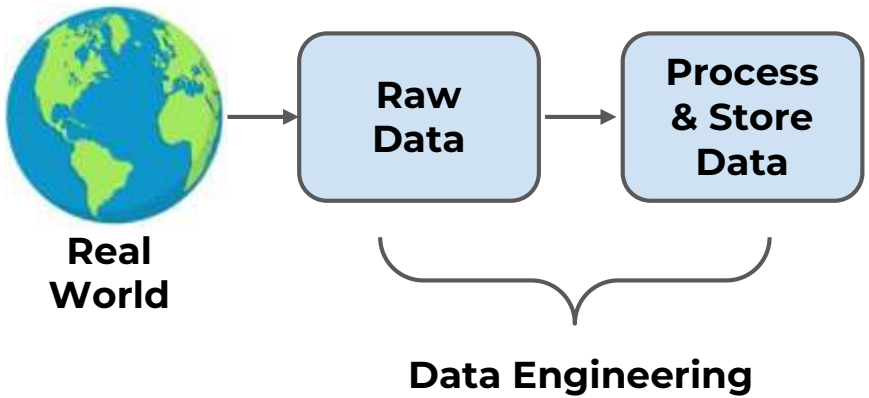
Raw Data

Physical Sensors, Surveys, Simulations, Experiments, Data Usage, etc...

ML Pathway


Raw Data
Process & Store Data
Real World
SQL Database, CSV files, Excel, Cloud Storage

ML Pathway

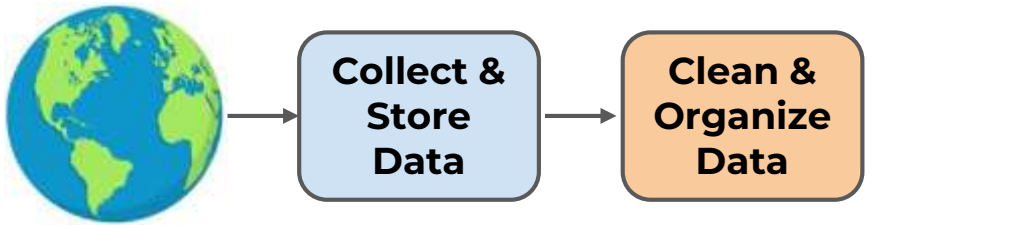


ML Pathway

Real World

Collect & Store Data

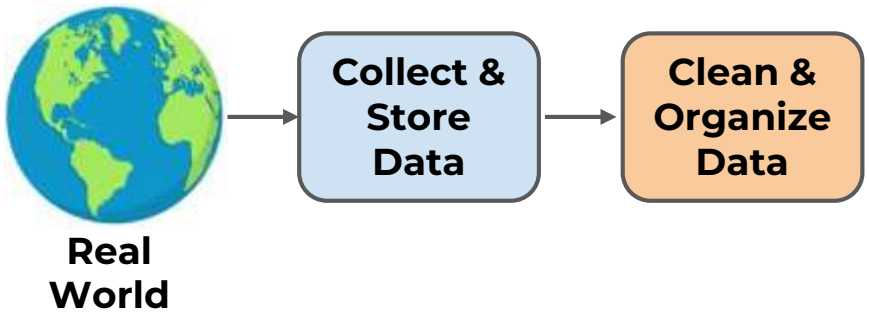
ML Pathway


Collect & Store Data
Clean & Organize Data
Real World
Reorganize Data, Dealing with Missing Data, Restructure Data, etc...

ML Pathway


Collect & Store Data
Clean & Organize Data
Real World
Reorganize Data, Dealing with Missing Data, Restructure Data, etc...

ML Pathway



ML Pathway

Real World

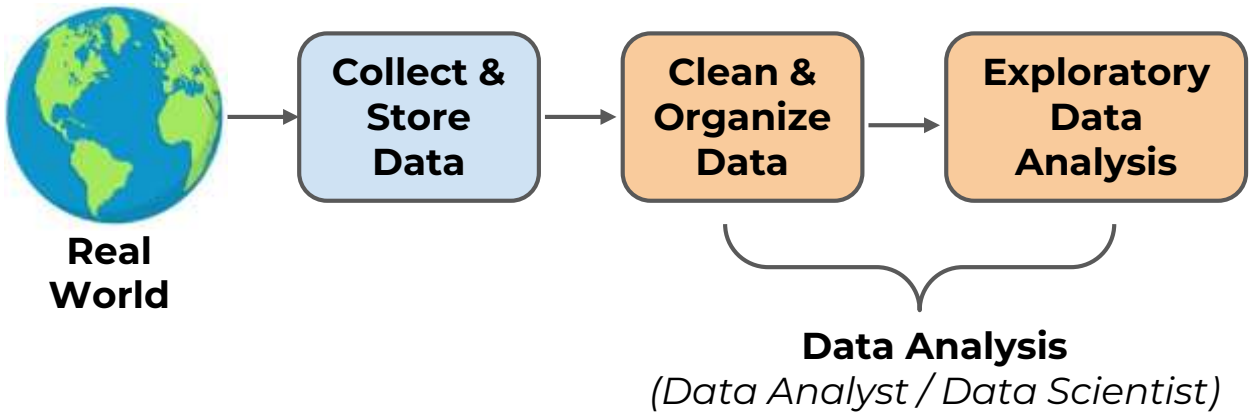
Collect & Store Data

Clean & Organize Data

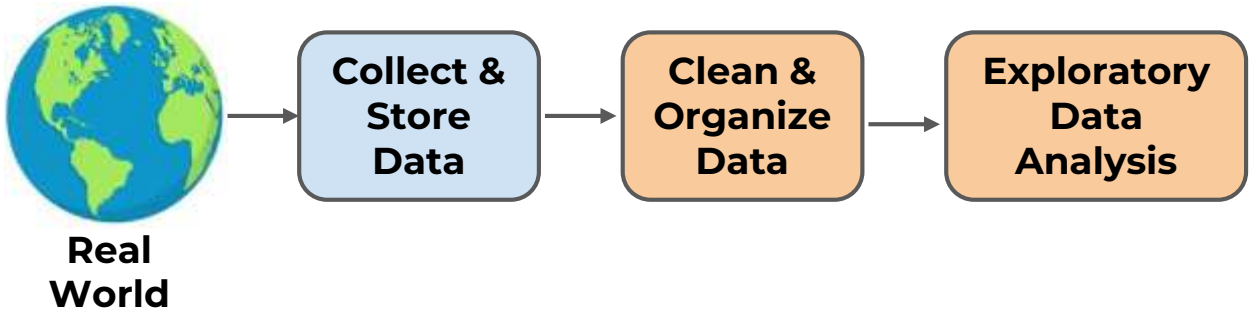
Exploratory Data Analysis

Statistical Analysis, Visualizations

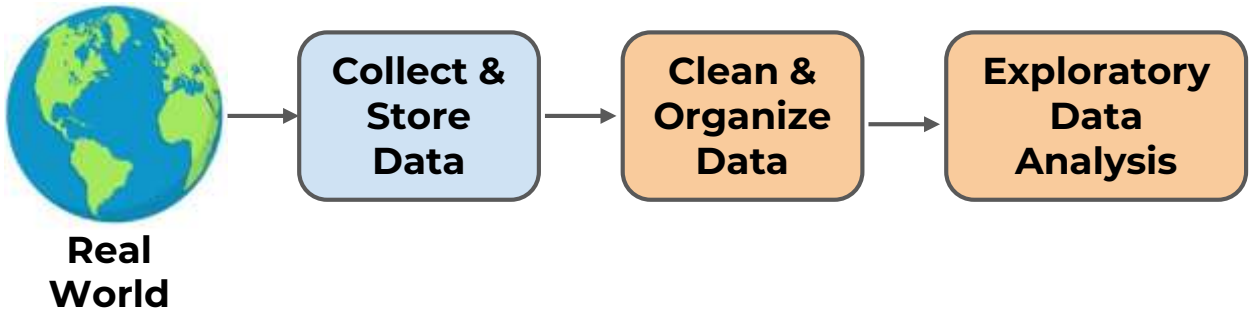
ML Pathway


Collect & Store Data
Clean & Organize Data
Exploratory Data Analysis
Real World
Data Analysis
(Data Analyst / Data Scientist)

ML Pathway


Real World
Collect & Store Data
Clean & Organize Data
Exploratory Data Analysis
Question to Answer

ML Pathway



Data Analysis

PIERIAN DATA

ML Pathway

Real World

Collect & Store Data

Clean & Organize Data

Exploratory Data Analysis

Report

Visualization

Communication

Data Analysis

PIERIAN DATA

ML Pathway

Real World

Collect & Store Data

Clean & Organize Data

Exploratory Data Analysis

Report

Visualization

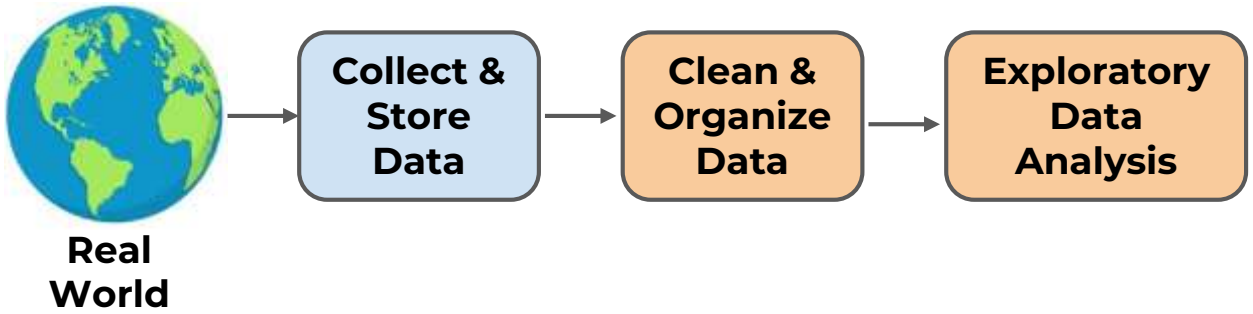
Communication

Data Analysis

Make Decisions
Answer Key Questions

PIERIAN DATA

ML Pathway


Real World
Collect & Store Data
Clean & Organize Data
Exploratory Data Analysis

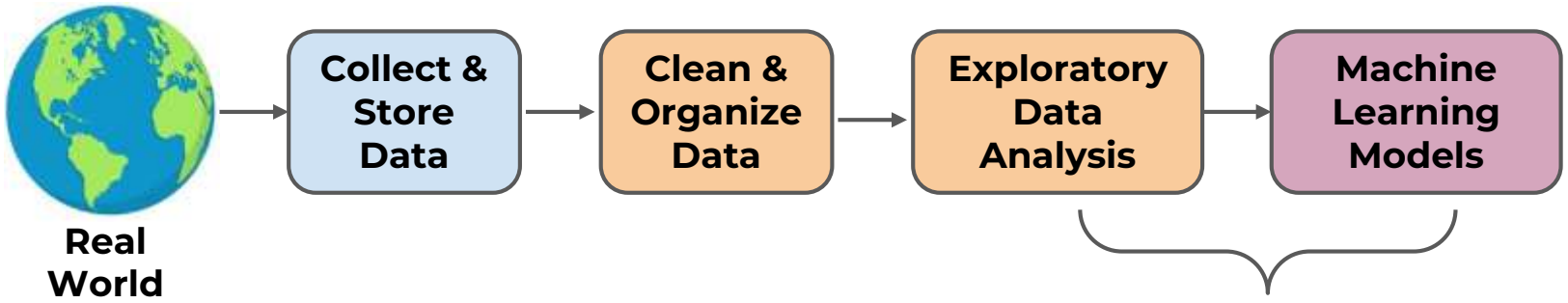
ML Pathway

Real World

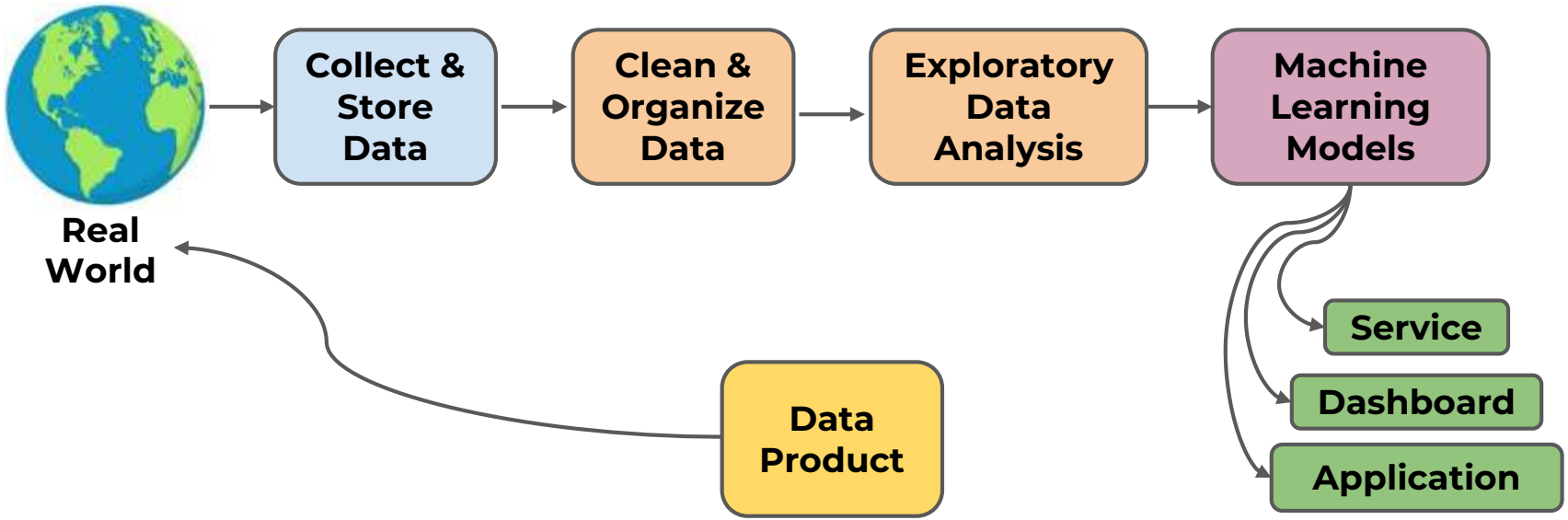
Collect & Store Data → Clean & Organize Data → Exploratory Data Analysis → Machine Learning Models

Supervised Learning:
Predict an Outcome
Unsupervised Learning:
Discover Patterns in Data

ML Pathway


Real World
Collect & Store Data
Clean & Organize Data
Exploratory Data Analysis
Machine Learning Models
Machine Learning
(Data Scientist / Machine Learning Engineer)

ML Pathway



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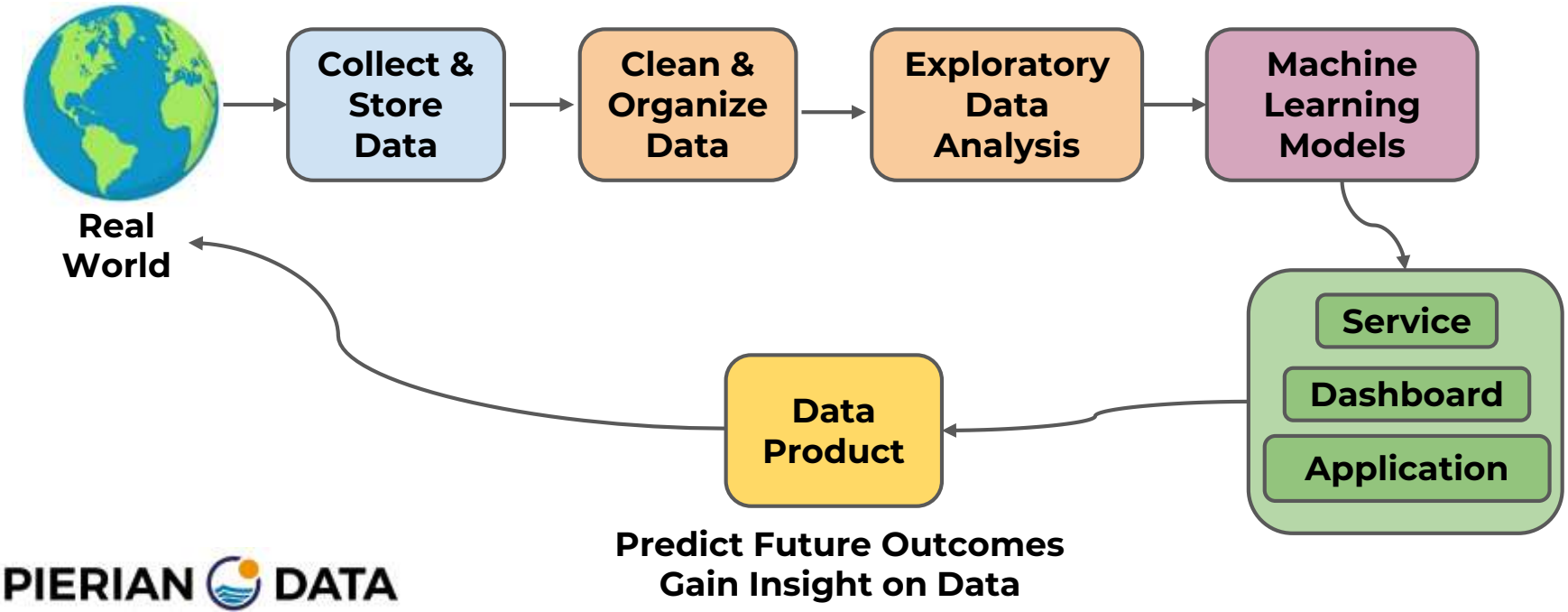
ML Pathway



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ML Pathway

- Now that we understand the general dynamics of the Data Science and Machine Learning Pathway ,we can begin to focus on learning various Python libraries well suited for each of these major components!