

# Artificial Intelligence

## Fundamental with Python



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<< Setup works environment

<< Python for AI/ML

<< The Machine Learning Landscape

# End-to-End Machine Learning Project

Classification >>

Training Models >>

Support Vector Machines >>

# End-to-End ML Project Steps

1. Look at the big picture.
2. Get the data.
3. Discover and visualize the data to gain insights.
4. Prepare the data for Machine Learning algorithms.
5. Select a model and train it.
6. Fine-tune your model.
7. Present your solution
8. Launch, monitor, and maintain your system.

# Working with Real Data

- Popular open data repositories
  - [UC Irvine Machine Learning Repository](#)
  - [Kaggle datasets](#)
  - [Amazon's AWS datasets](#)
- Meta portals (they list open data repositories)
  - [Data Portals](#)
  - [OpenDataMonitor](#)
  - [Quandl](#)
- [Open Government Data of Thailand](#)
- Other pages listing many popular open data repositories
  - [Wikipedia's list of Machine Learning datasets](#)
  - [Quora.com](#)
  - [The datasets subreddit](#)

# Look at the Big Picture

- **Frame the problem**
  - What exactly the business objectives
- **Select a Performance Measure**
  - Such Root Mean Square Error (RMSE) or Mean Absolute Error (MAE).
  - It gives an idea of how much error the system typically makes in its predictions
- **Check the Assumptions**

# Get the Data

- Create the workspace
- Download the Data
- Take a look at the Data Structure
- Create a Test Set

# Discover and Visualize the Data to Gain Insights

- Visualizing Geographical Data
- Looking for Correlations
- Experimenting with Attribute Combinations

# Prepare the Data for Machine Learning Algorithms

- Data Cleaning
- Handling Text and Categorical Attributes
- Custom Transformers
- Feature Scaling
- Transformation Pipelines



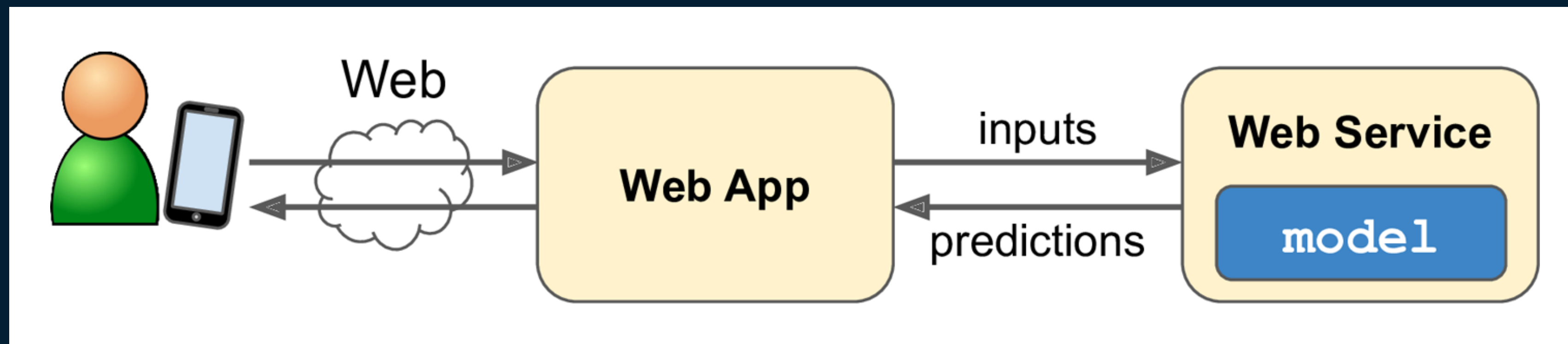
# Select and Train a Model

- Training and Evaluating on the Training Set
- Better Evaluation Using Cross-Validation

# Fine-Tune Your Model

- Grid Search
- Randomized Search
- Ensemble Methods
- Analyze the Best Models and Their Errors
- Evaluate Your System on the Test Set

# Launch, Monitor, and Maintain Your System



# Weekly Open Questions

Reply through [@thefutureisdata](#)

# What are steps and techniques of a machine learning project?

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