



App Dev League

Intro to AI



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Grade: 10th

Skills: AI, Web Dev



Lesson Overview

- What is Artificial Intelligence?
- What is Machine Learning?
- Types of ML Models
- How can we Implement AI/ML
- AI & Data
- Coding ML
- How to evaluate models
- More Resources



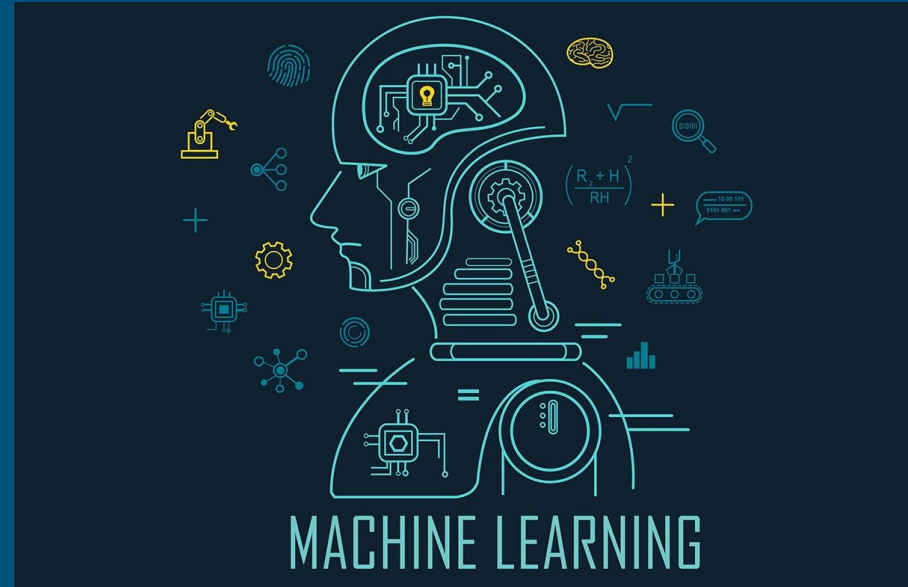
What is Artificial Intelligence?

- Google/Siri Assistant
- Self Driving Cars
- Any other machinery which shows intelligence portrayed only by humans!



What is Machine Learning?

1. Study of algorithms that improve from experience
2. Doesn't need to be explicitly programmed





Types of ML models



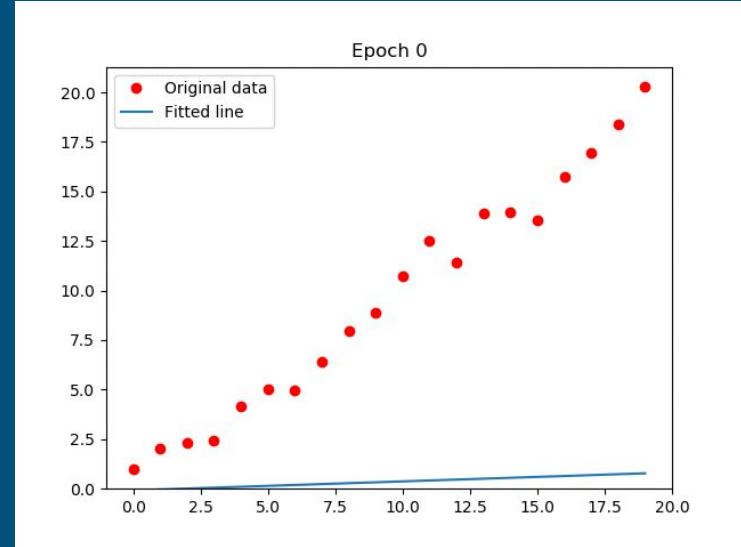
What is an ML Model?

1. There are many different types of models we can use to make predictions
 - a. Depending on your task, different models will have better results
2. Models are trained on data, and tested on data they haven't seen yet to evaluate their effectiveness



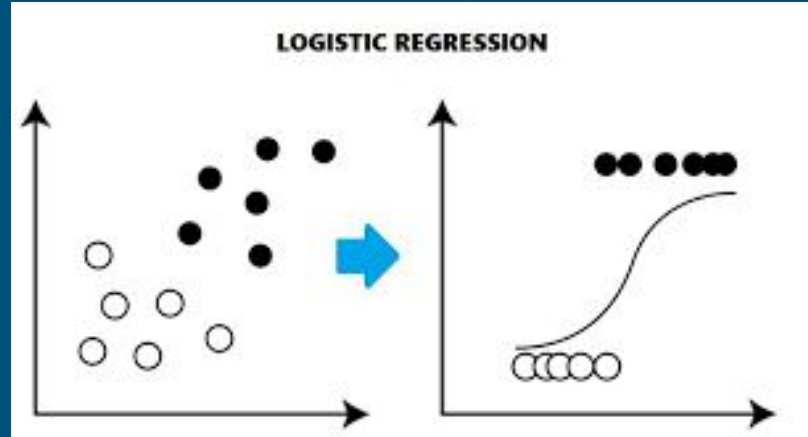
Linear Regression

- Line of best fit
- Predict future values
- $y = mx + b$



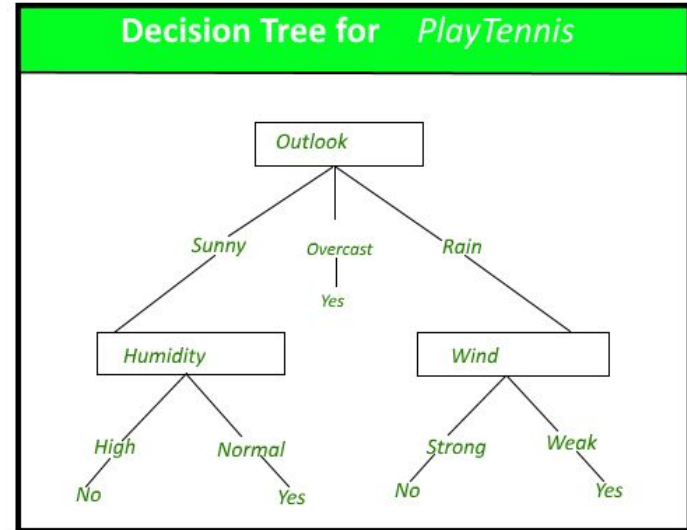
Logistic Regression

- Multiple classes
- Predict future values
- More complex than linear



Decision Tree

- Yes/No tree
- Predict future data using this criteria
- Commonly used as in a random forest



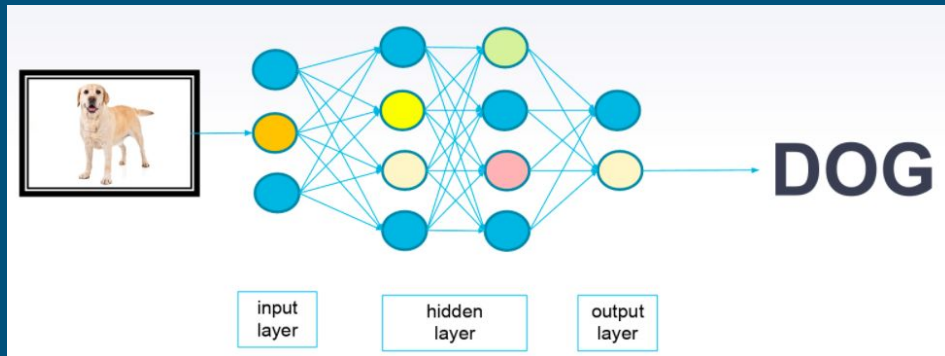
Other Models

- There are many other types of models such as SVMs, Random Forests, etc.
- These use the same principles as the 3 models in the previous slides
- But what about more complex models such as a Neural Networks?



What is a Neural Network?

1. Structure is much more complex than regression
2. Needs a lot more data usually
3. Can be used for more complex tasks such as image recognition
4. Complex math model





How can we implement ML?

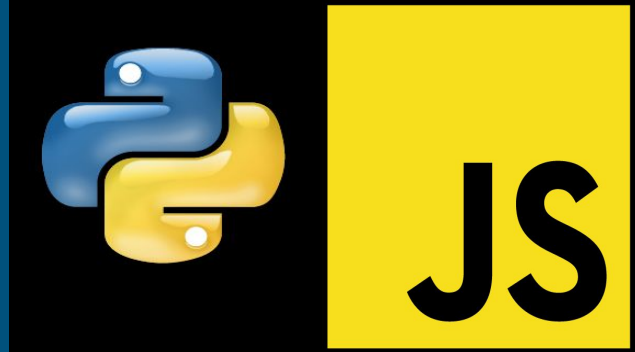


AI and Data

- All AI systems need Data to train the model
- The data is what helps them learn
 - Similar to your schoolwork - the more and more problems you do, the better you get at solving them
 - AI Models are very similar in nature



Coding ML



- There are a couple languages used for ML
 - Most common one is Python (many ML libraries written for Python)
 - Other languages such as JavaScript and R can also be used
 - **We will be using the Sklearn library in the next video!**



How to Evaluate Models

- Accuracy
- AUC
- Precision
- Recall



Content Review

- What is AI?
 - ◆ AI is human intelligence shown in machinery
- What is ML?
 - ◆ Most common form of AI
- Types of ML models
 - ◆ There are simple models (regression), and more complex like neural nets
- Linear Regression
 - ◆ Uses line of best fit to predict values
- Logistic Regression
 - ◆ Splits data in multiple groups
- Decision Tree
 - ◆ Looks at different criterias and uses a yes/no tree to get a final prediction
- Neural Network
 - ◆ Much More complex model
- How to code ML?
 - ◆ Many languages can be used, but Python is the primary



More Resources

[Tensorflow Curriculums](#)

[Andrew Ng Coursera Course](#)



THANKS!

ANY QUESTIONS?

You can find more info @

- ◇ <https://www.appdevleague.org>
- ◇ <https://linktr.ee/AppDevLeague>

