Phase 3 Expectations

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Agenda

1. Phase 3 Overview
2. Week 1: Math & Classification
3. Week 2: More Models!
4. Gating / Assessments
5. What Will Phase 3 Feel Like?

Phase Overview

PHASE 1
Weeks 1 - 3

Data Engineering

Statistics

PHASE 2
Weeks 4 - 6

PHASE 3
Weeks 7 - 9

Machine Learning

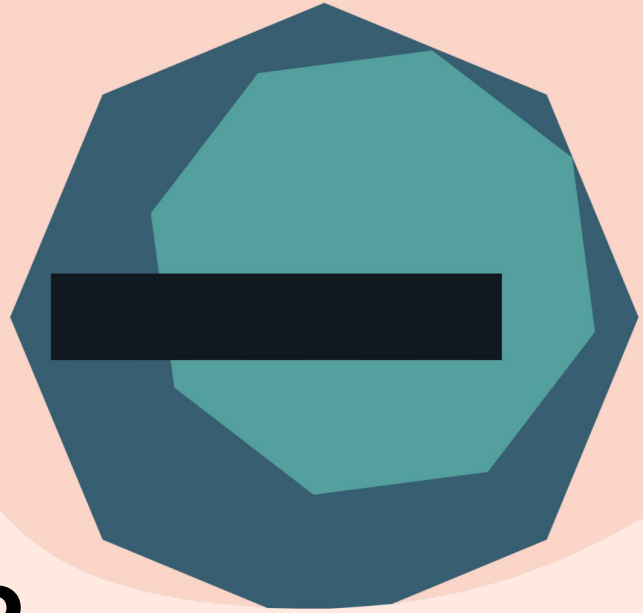
Advanced Topics

PHASE 4
Weeks 10 - 12

PHASE 5
Weeks 13 - 15

Capstone

Week 1



More Linear Regression, Predictive Modelling, OOP, Little bit of Math

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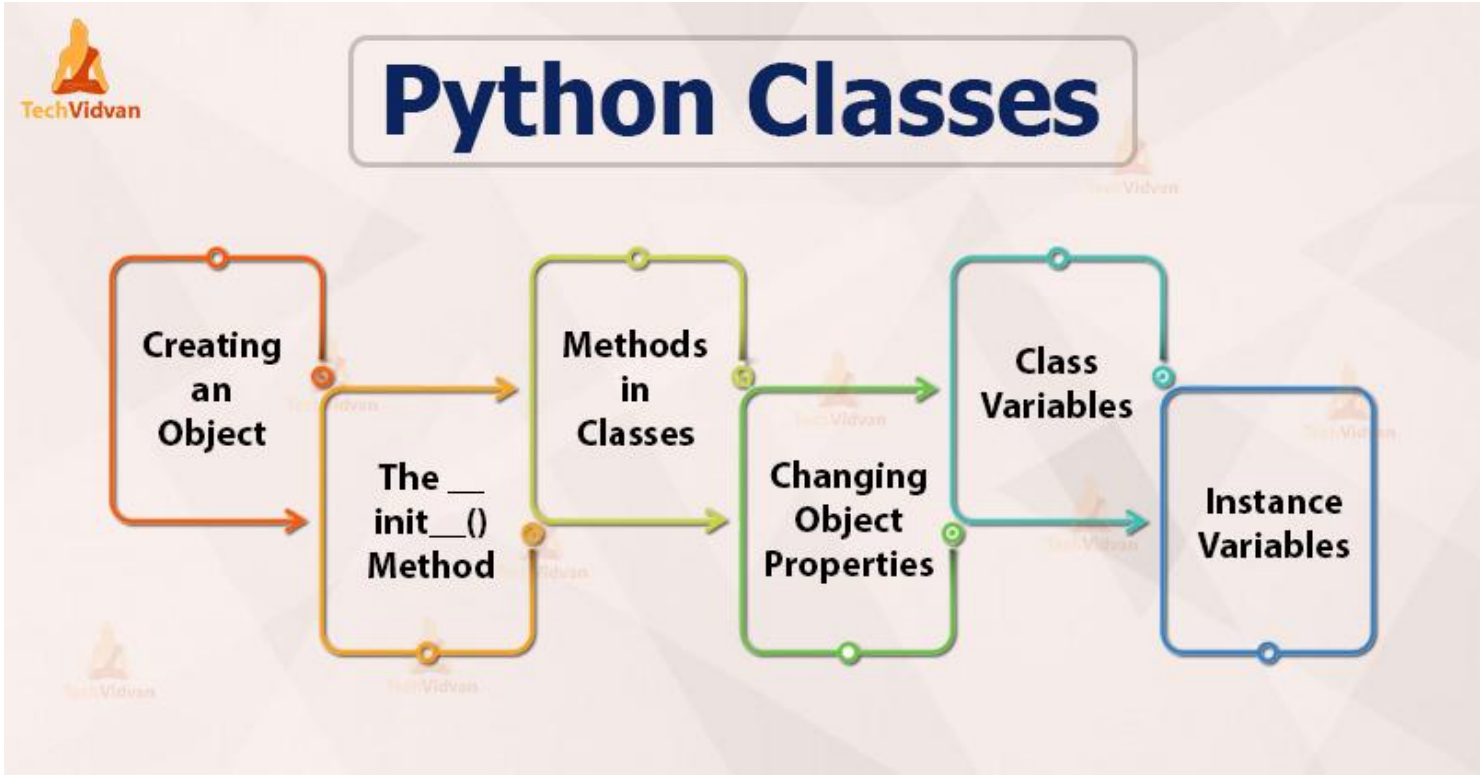
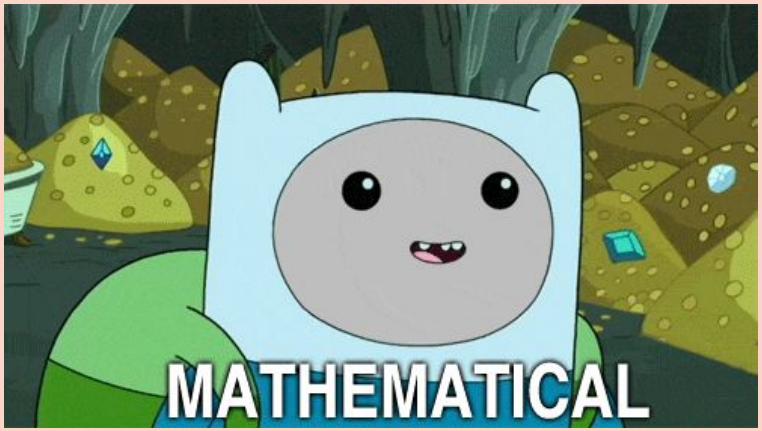
Object-Oriented Programming

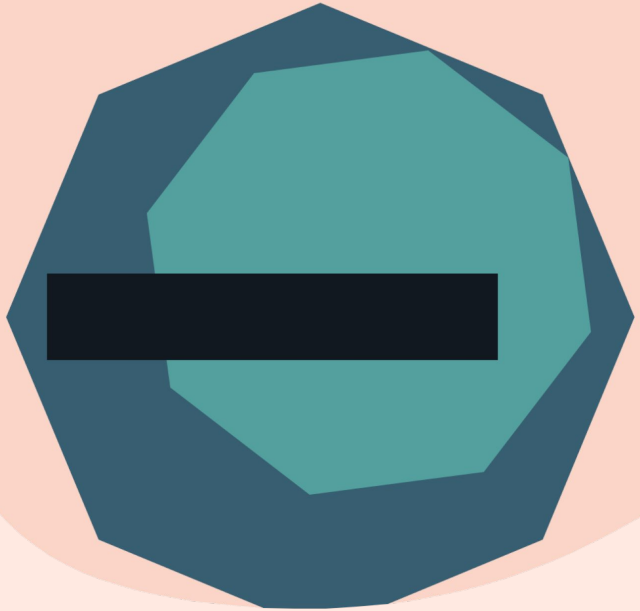


The Math Behind Data Science

- Linear Algebra
- Calculus, Cost Functions, Gradient Descent
- Focus on concepts and application!



Week 2



Logistic Regression, Model Tuning, Evaluation

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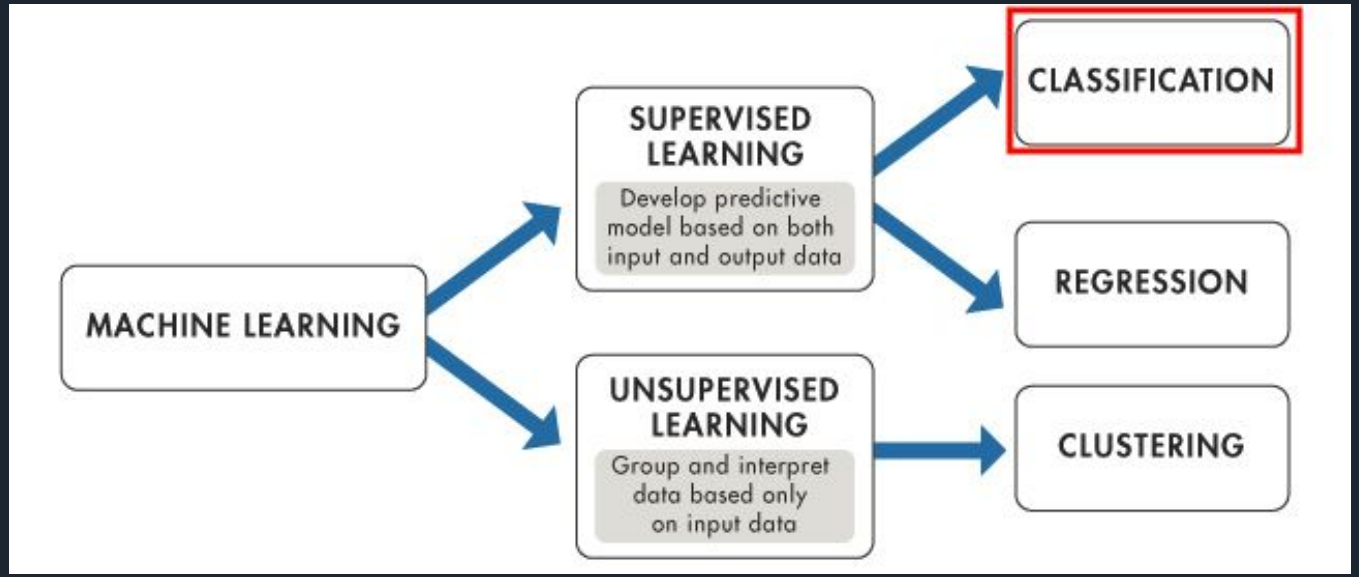
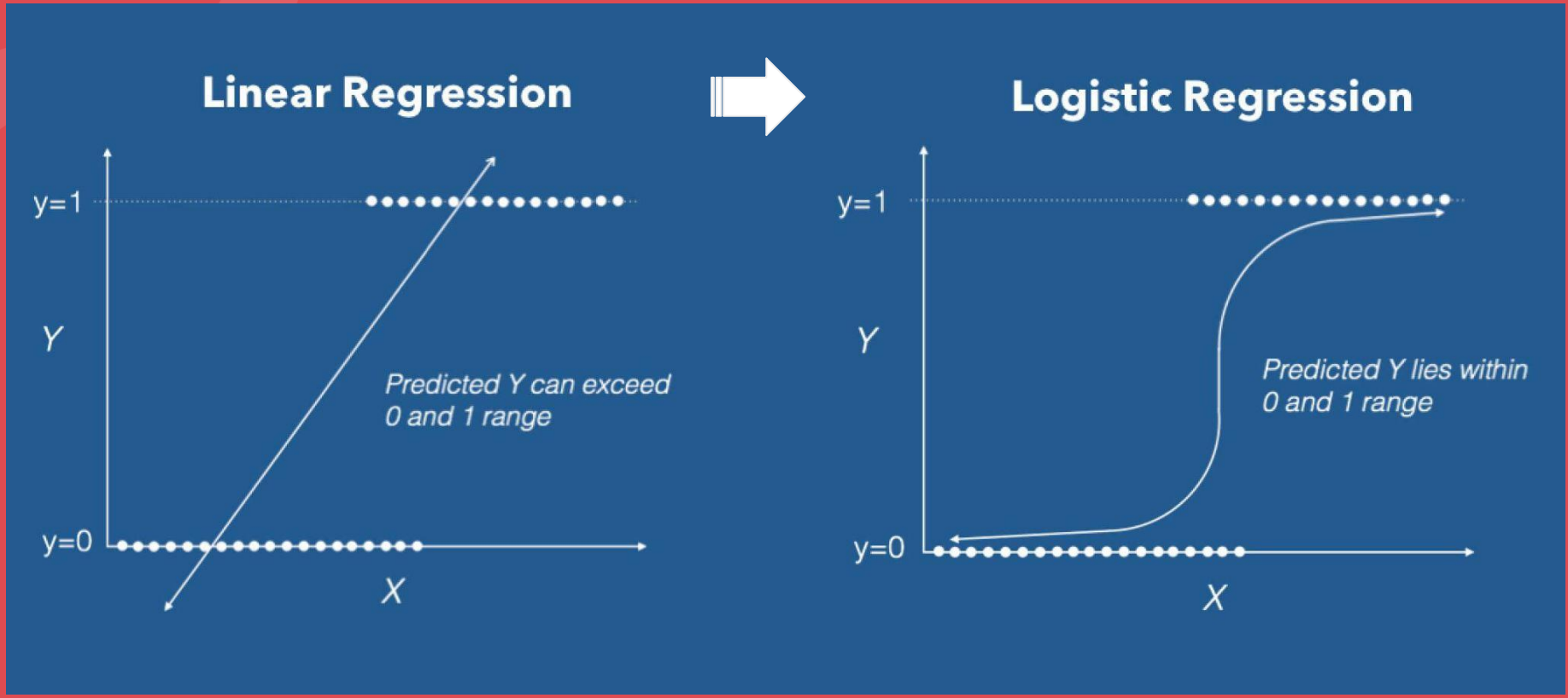
Classification

- Asking: Is it ____ or not?
- From continuous target to categorical target

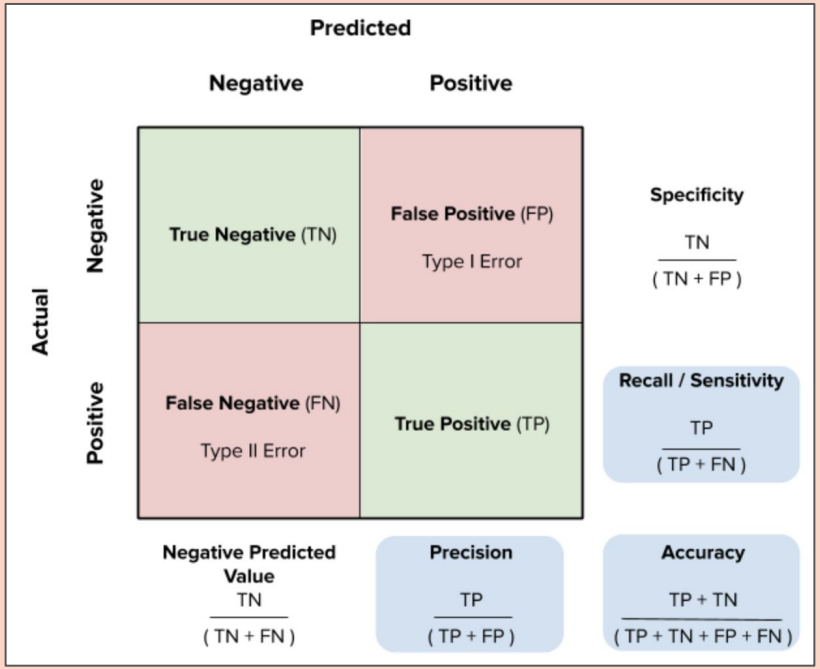


Logistic Regression



Classification Metrics

- New type of target - so, new metrics!



Student Progress and Assessments

Blog Post

Due next Tuesday (12/19)

- Write a tutorial with code
- See next slide

Checkpoints

1. Tuesday 12/12: Linear Regression
2. Thursday 12/14: OOP
3. Monday 12/18: ML Fundamentals
4. Wednesday 12/20: Logistic Regression
5. Thursday 12/21: Decision Trees

Code Challenge

Friday 12/22

1. Gradient Descent
2. Logistic Regression
3. Classification modelling
4. Decision Trees

Phase 3 Projects

Solo OR Group

- Option to select curated dataset
- OR find and use your own
- Classification Project
- Encourage exploration of other models

Phase 3 Blog Post

Write a tutorial (with a data set and code sample) on something that you think might be interesting to other people taking the course. It can be a topic we didn't cover at all, or can just go deeper into a topic that we did cover. Your tutorial can use the same tool/library from the previous blog post, or you can choose something new. Potential elements to include:

I. An introduction explaining why a data scientist would want to do what your tutorial does
II. A section explaining the data set you're working with (what are the features? if there is a target, what is it?)
III. A section explaining the libraries you're working with (ideally with links to documentation and/or tutorials for someone just getting started)
IV. Well-commented code
V. A conclusion section that recaps what you did and why

Feelings at the Start of Phase 3

Excited: Let's tackle Machine Learning!

Little Overwhelmed: Lots of new tools

Feelings at the End of Phase 3

Powerful: Modeling toolbelt

Capstone Stress Creep

Capstone Project

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- Sneaking up!
- What can you do now?
  - Explore data!
    - UCI Machine Learning Datasets Repository
    - Kaggle Datasets
    - Awesome Datasets Repo on Github
    - New York City Open Data Portal
    - Inside AirBNB
    - Data is Plural
    - Image Classification
    - Rec Systems - Ecommerce