

# **ABB - Session 1**

**Introduction, Software 1.0, Automation, Python**

**Shaw Talebi**

# Today's Session

## 1. About ↗

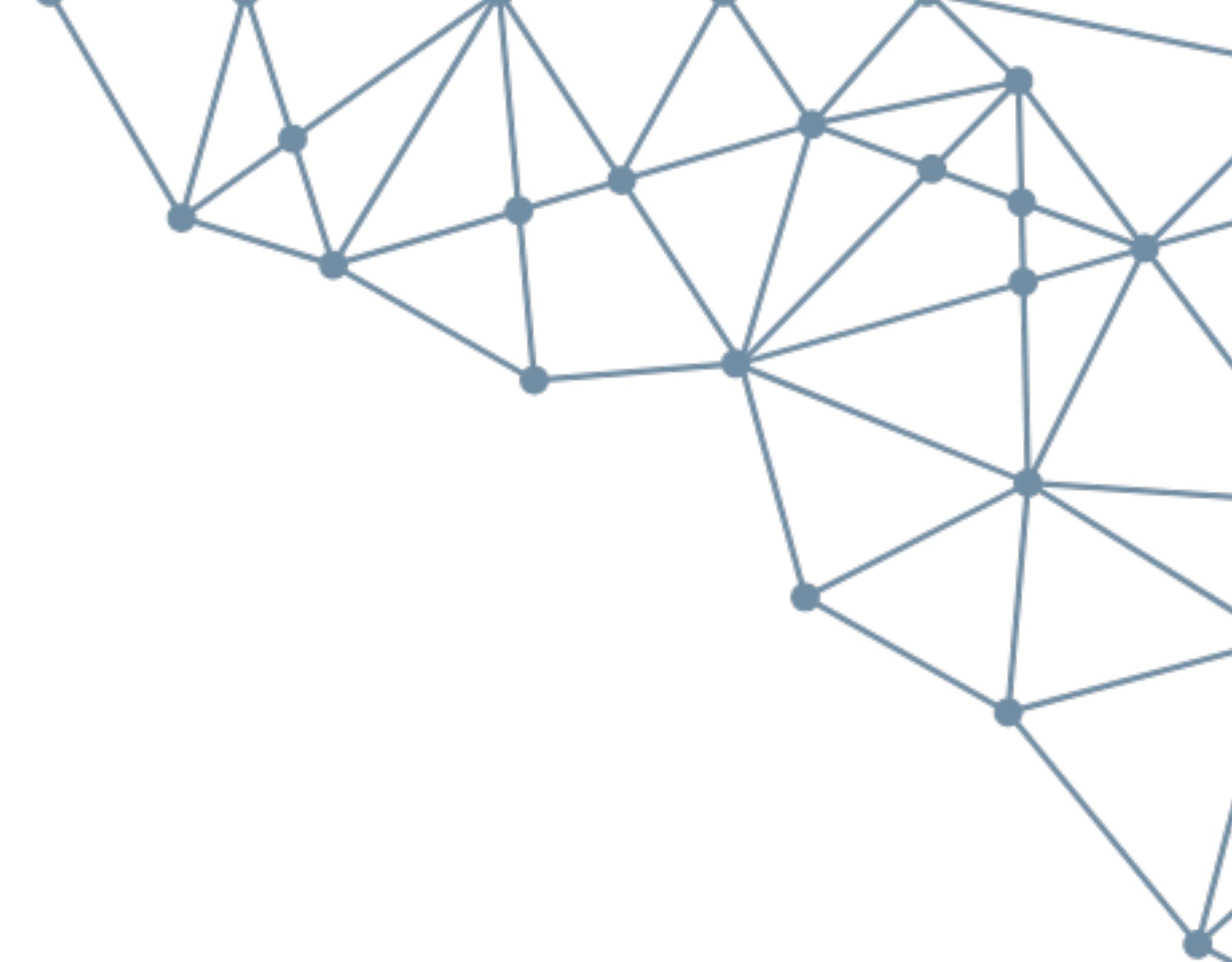
- 1.1. About Me
- 1.2. Course Expectations & Logistics

## 2. An Introduction to AI ↗

- 2.1. What is AI?
- 2.2. 3 Types of Software
- 2.3. Python

## 3. Example Code ↗

- 3.1. Scraping AI Job Board (from scratch)
- 3.2. Top AI Jobs Dashboard



# About

# About Me



Physics PhD  
AI Researcher

2018



Data Scientist

2022



Data Entrepreneur

2023



Helped over 100 clients

~15k followers

~45k subscribers



# What You Can Expect...

## Course Overview

|               |  |
|---------------|--|
| <b>Week 1</b> | <b>Session 1: Intro to AI, Software 1.0, Python</b>      |
| <b>Week 2</b> | <b>Session 2: Software 2.0, Data Engineering, ML</b>     |
| <b>Week 3</b> | <b>Session 3: Software 3.0, LLMs, Prompt Engineering</b> |
| <b>Week 4</b> | <b>Session 4: Software 3.0, RAG, Text Embeddings</b>     |
| <b>Week 5</b> | <b>Session 5: Software 3.0, Fine-tuning</b>              |
| <b>Week 6</b> | <b>Session 6: AI Project Management</b>                  |

More advanced ↓

\*We are here

**Weekly Sessions, Thursdays at 4PM CST**

# What You Can Expect...

## Homework (optional)

### Pre-work

(est. 1-2 hr/wk)

Watching videos or reading articles to prepare for upcoming lectures

#### Pros

Get preview of upcoming lecture topics

Prepare questions before lecture

### Projects

(est. 1-10 hr/wk)

Open-ended assignments aimed at applying learnings from lecture.

#### Pros

Solidify understanding of key concepts

Feature projects in portfolio

Receive feedback from instructor/peers

**Pro tip:** build projects on top of each other over multiple weeks

*Weekly pre-work & projects are made available **day of lecture***

# What You Can Expect...

## Course Logistics

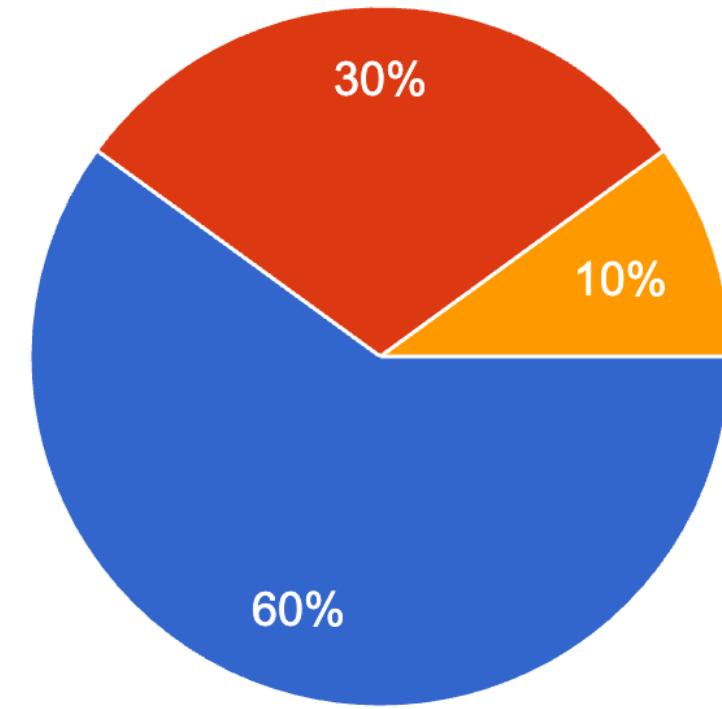
- **Weekly Sessions, Thursdays at 4PM CST**
  - ~30 min concepts, ~60 min code, ~25 min QA, ~5 min break
  - Please have **cameras on** during lecture (makes it more immersive) :)
  - **Class time is for questions**, discussion/comments can be saved for after
- 
- (Optional) 30 min post-lecture discussion
  - (Optional) **Small peer-groups** for accountability and discussions outside lecture

# What You Can Expect...

## Course Content

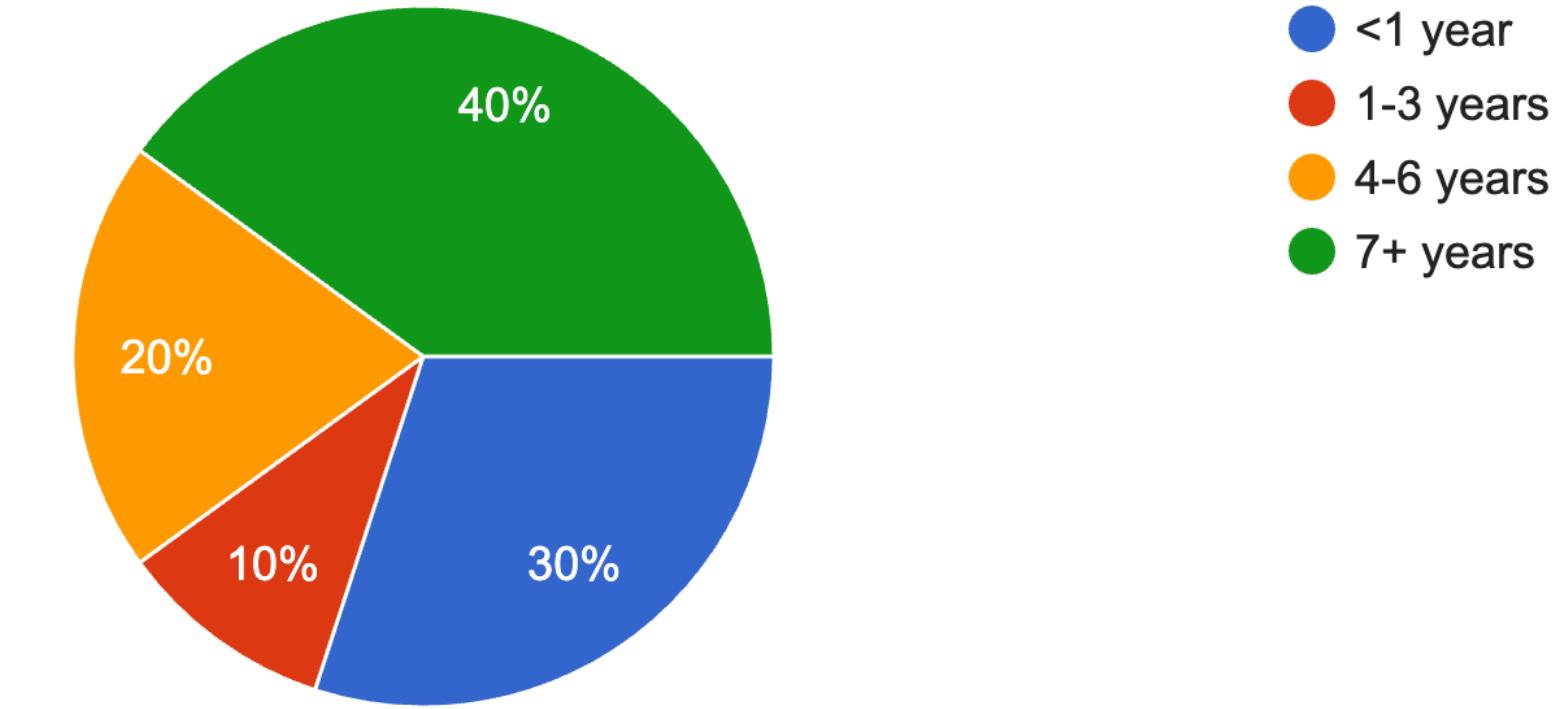
What is your current level of experience with AI/ML?

10 responses



How many years of programming experience do you have?

10 responses



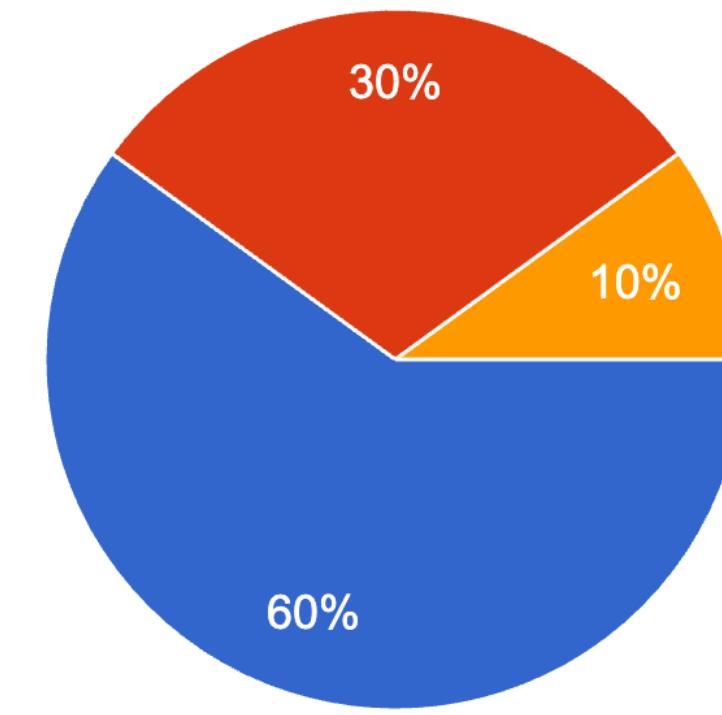
- Conceptual discussions are widely accessible
- Code walkthroughs will be in Python
- Experiment for technical slides

# What You Can Expect...

## Course Content

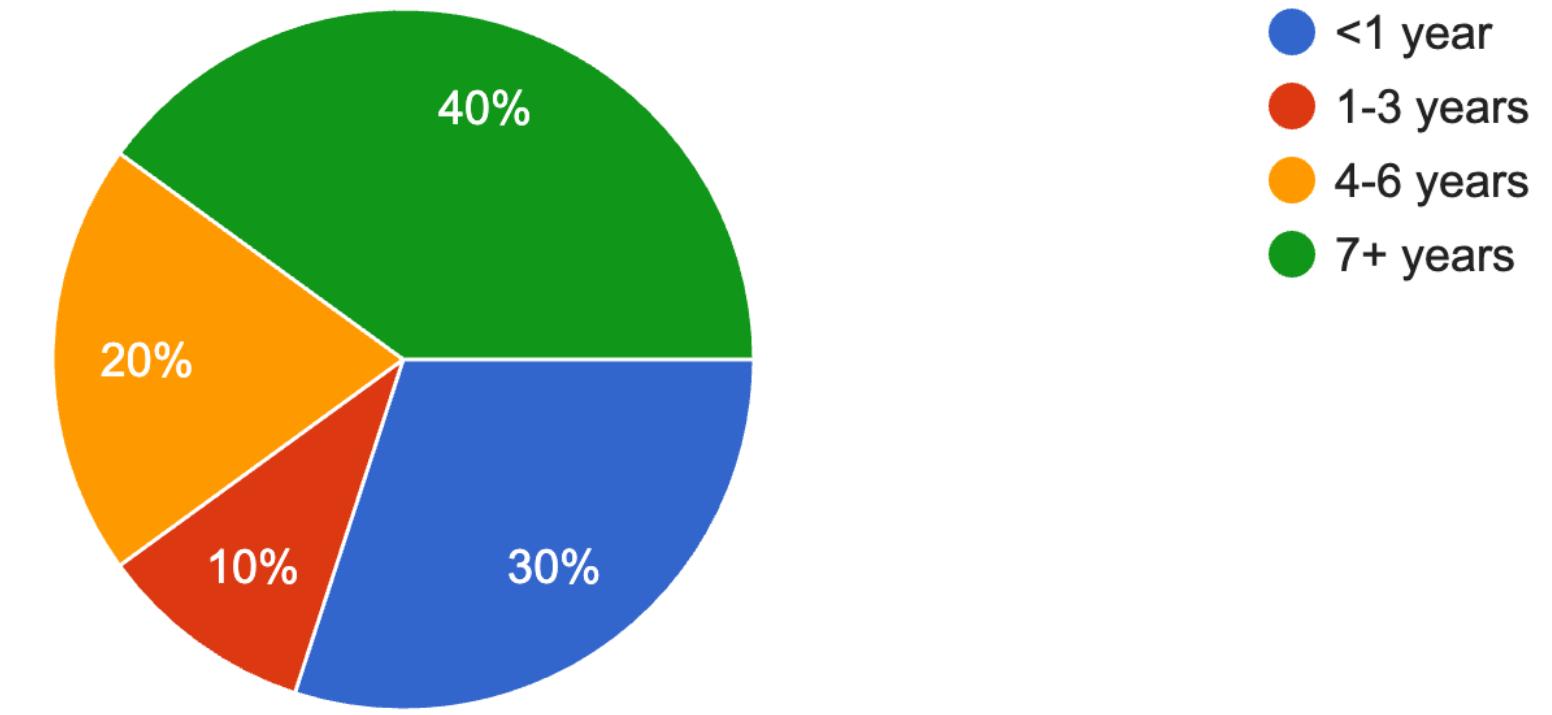
What is your current level of experience with AI/ML?

10 responses



How many years of programming experience do you have?

10 responses



- Conceptual discussions are widely accessible
- Code walkthroughs will be in Python
- Experiment for technical slides

*If this course doesn't turn out to be the right fit, happy to give a “no questions asked” refund by Feb 20*

# How to get the most out of this course...

## 4 Levels of Value

1. Attend live sessions (or watch recordings)
2. Complete pre-work
3. Share your projects in portal and share feedback to others
4. Connect with classmates outside class

## *How can I get help outside lecture?*

1. Post in learner community (Maven)
2. DM (via portal) or email me
3. 1:1 tutoring calls (discounted)

The screenshot shows a Slack channel named "AI Builders Bootcamp". On the left is a sidebar with channels: Home, Inbox, People, CHANNELS (admins, announcements, general, intros), questions (highlighted with a red arrow), projects, and MESSAGES + (Adam Rosenkoetter, Ali). On the right, a message from Shaw Talebi is displayed: "A good question came in via the pre-course survey that I wanted to share here. Q: Do I get help outside of classroom if I'm stuck (coding, etc)? A: Beyond asking questions during class, there are two ways to get additional help. 1. Post in the learner community. This is the best place to ask questions outside class because everyone can benefit from it. 2. DM/Email me. If you prefer to keep the question private, you can always DM via Maven or email me (shawhintalebi@gmail.com)". Below the message is a "Share questions" button and a "DM anyone" button, both highlighted with red arrows.

# GitHub Repository

Slides and example codes shared here

The screenshot shows a GitHub repository page for 'AI-Builders-Bootcamp-3'. The repository is public and has 1 branch and 0 tags. The main branch is selected. The commit history shows the following activity:

| Commit           | File                                       | Date                 |
|------------------|--|----------------------|
| ShawhinT         | Update customer_segmentation_example.ipynb | 5775d7d · 2 days ago |
| lightning-lesson | Update customer_segmentation_example.ipynb | 2 days ago           |
| .gitignore       | Update .gitignore                          | 2 weeks ago          |
| LICENSE          | Initial commit                             | 2 weeks ago          |
| README.md        | Update README.md                           | 2 weeks ago          |

At the bottom of the repository page, there is a section for the 'AI-Builders-Bootcamp-3' project, which is described as a 'Code repository for AI Builders Bootcamp #3.'

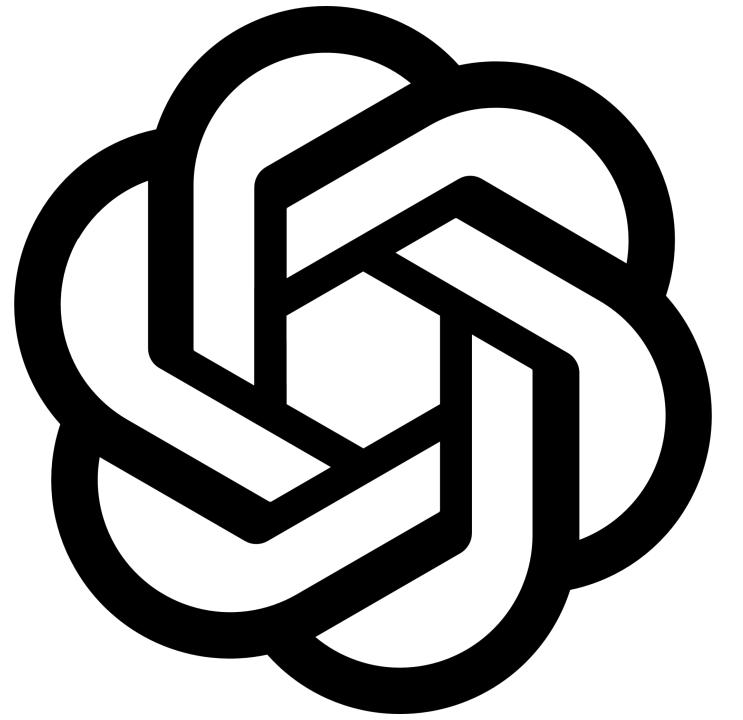


**Example code** uploaded the night before each lecture

**Slides** uploaded immediately after lecture

# An Introduction to AI

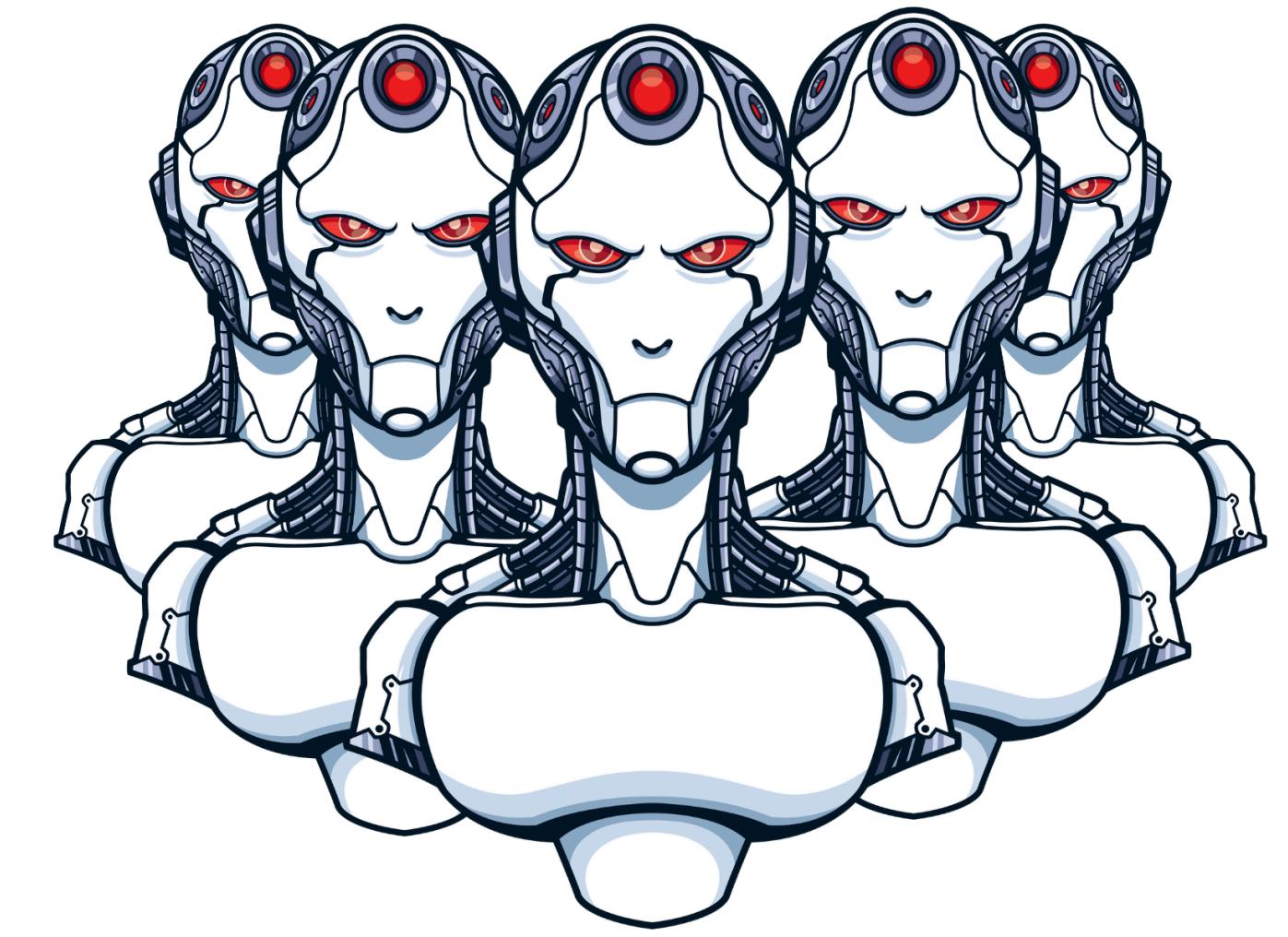
# What is AI?



ChatGPT



AI Agents



Killer Robots

# **Artificial Intelligence**

# Artificial Intelligence

Made by humans

# **Artificial Intelligence**

**The ability to solve problems and make decisions**

# Artificial Intelligence

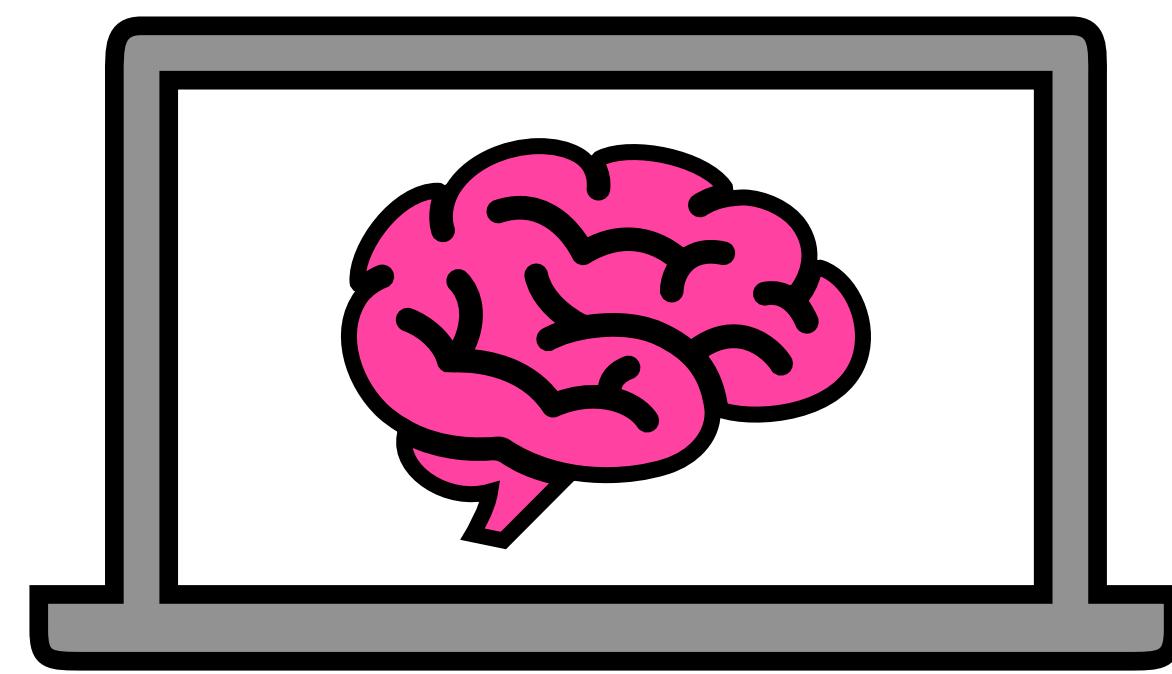
A computer's ability to solve problems and make decisions

# 3 Types of AI



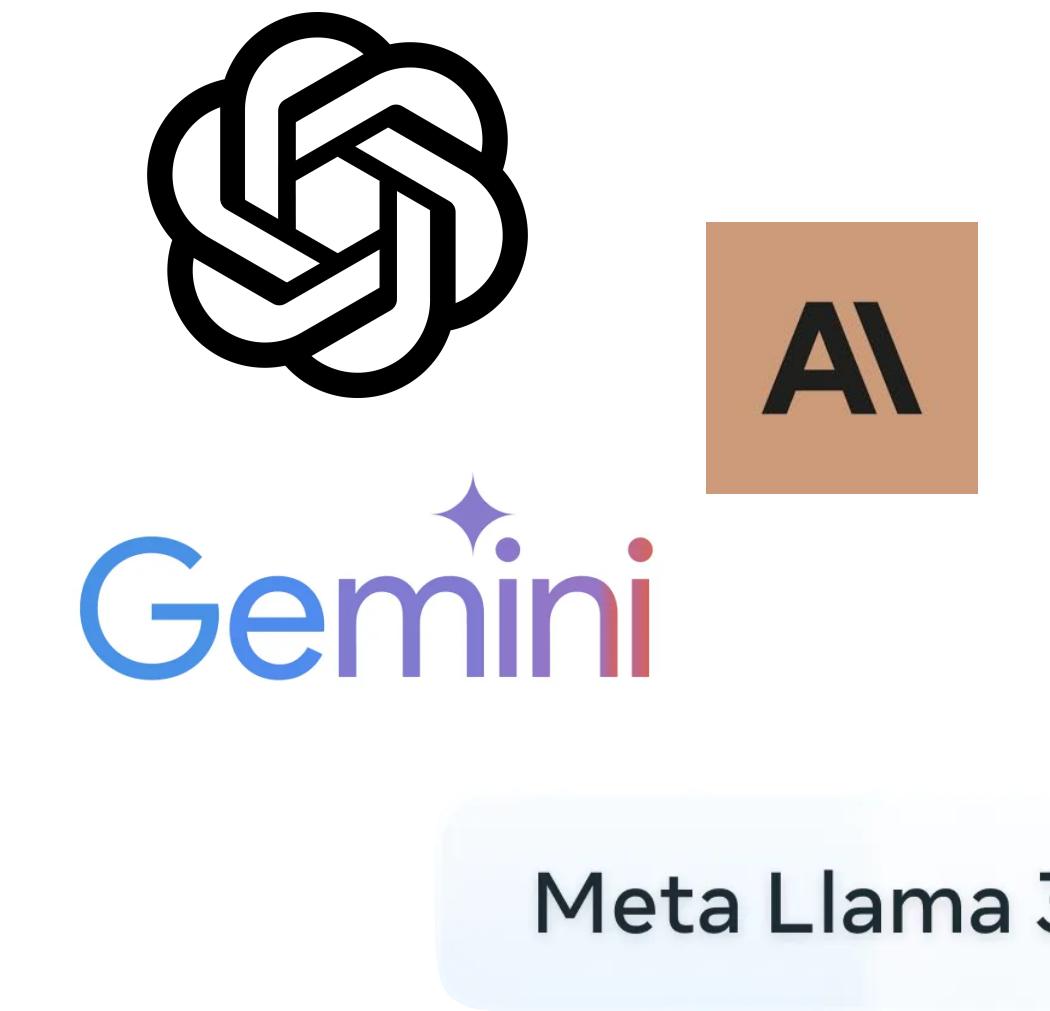
## Software 1.0

Rules-based Systems



## Software 2.0

Machine Learning



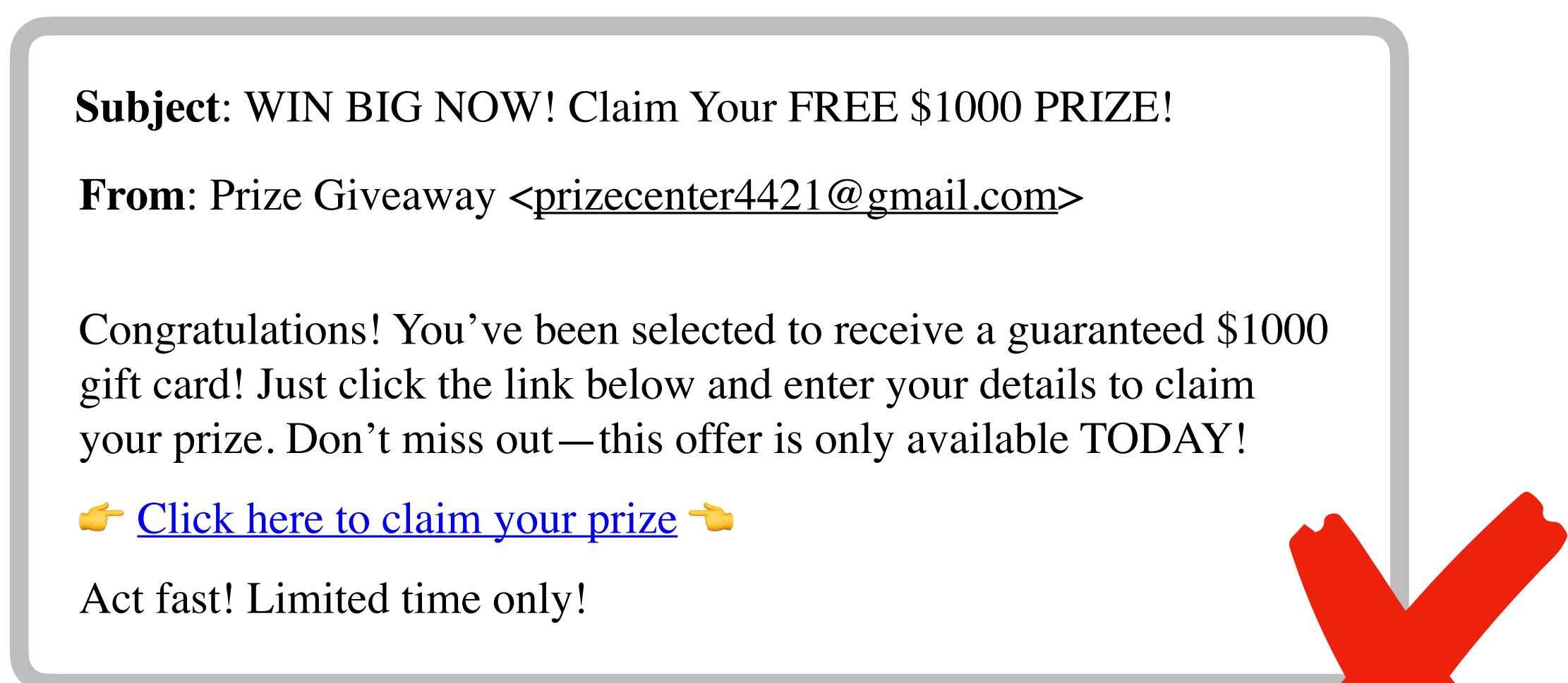
## Software 3.0

Generative AI

# Software 1.0

Rules are explicitly programmed into computer

## Example: Spam Email Detection



## Rules:

1. Subject contains: "free", "urgent", "win", "guarantee", "prize", "click here"
2. Sender has suspicious domain: e.g. ".ru", ".xyz", ".icu"
3. Message contains more than 3 links



# Software 1.0

Rules are explicitly programmed into computer

## Example: Spam Email Detection

**Subject:** Congratulations on Your New Offer! Special Opportunity Just for You

**From:** Service Center <[rewards@service-center.com](mailto:rewards@service-center.com)>

Hi there!

We're excited to let you know that you've been selected for an exclusive deal. This offer is designed to match your preferences, and it's available for a limited time.

Simply follow our instructions to learn more about how you can take advantage of this unique opportunity.

To proceed, you only need to confirm your email by visiting the link below:

[Confirm Email](#)

For more details, please check the terms on our website or feel free to reach out with any questions.

We look forward to hearing from you soon!

Best Regards,  
The Service Center Team



**Creating robust  
rules is challenging**

## Rules:

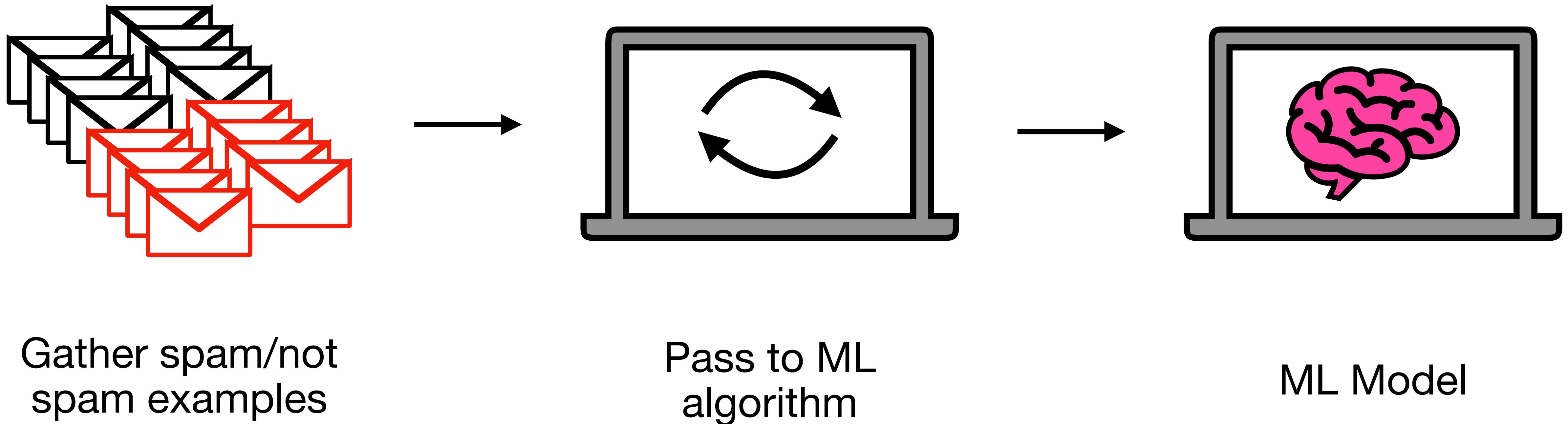
1. Subject contains: "free", "urgent", "win", "guarantee", "prize", "click here"
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# Software 2.0

Programming computers by example

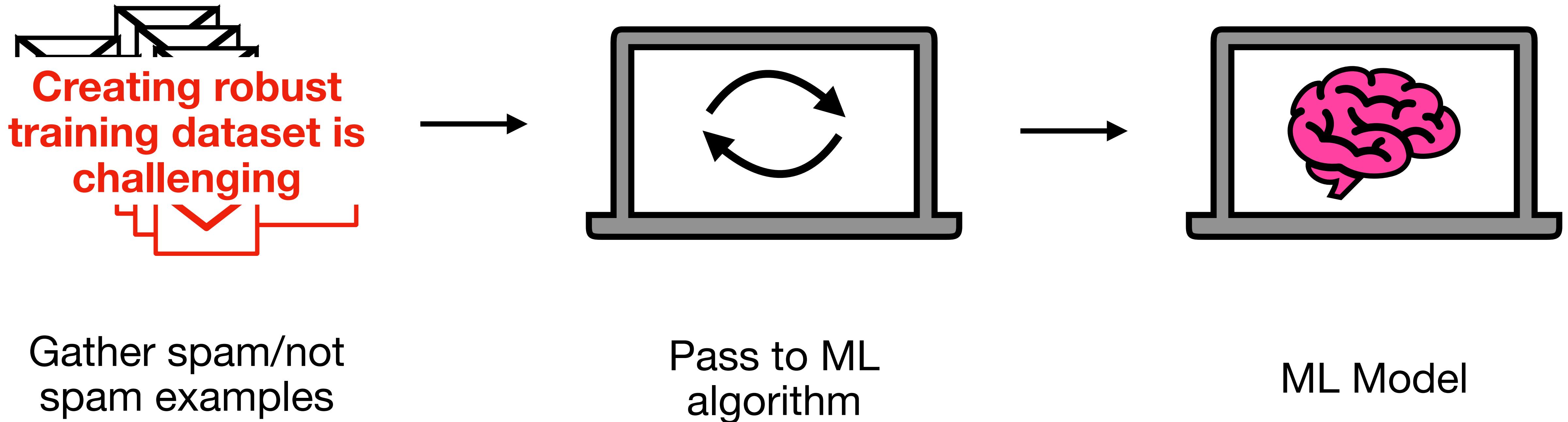
## Example: Spam Email Detection



# Software 2.0

Programming computers by example

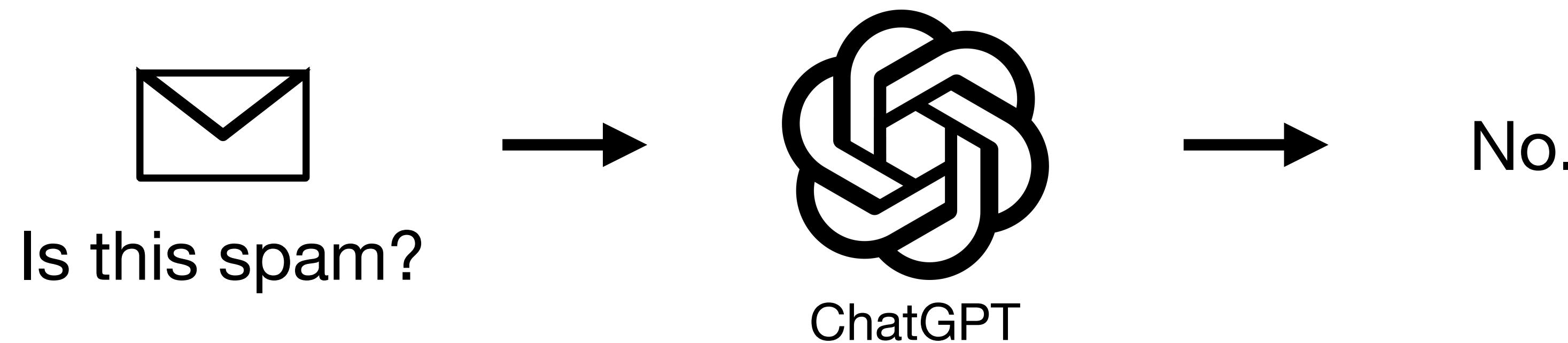
## Example: Spam Email Detection



# Software 3.0

Adapting generic models for specific use cases

## Example: Spam Email Detection

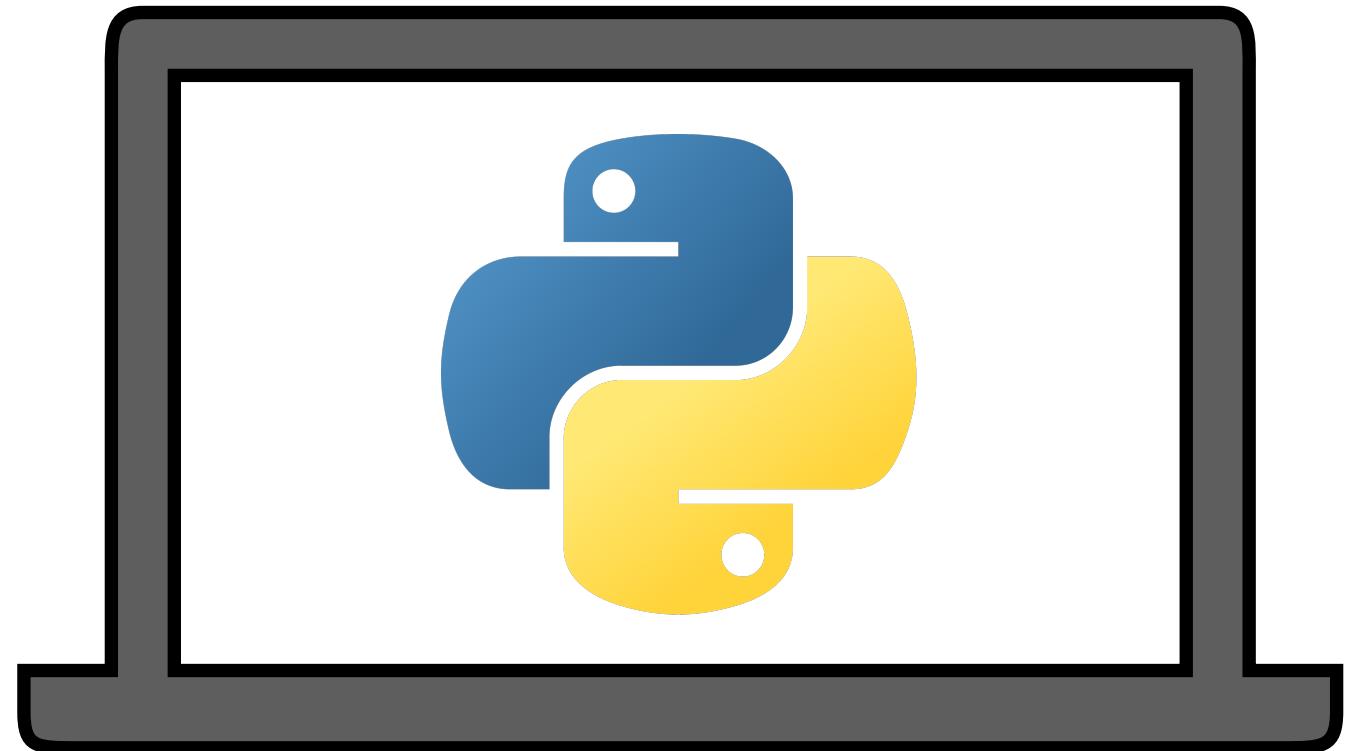


**Easy but may have  
suboptimal performance**

# Software 1.0 (Python)

# Python (Programming Language)

A way to give computers precise instructions to do things we can't (or don't want to) do



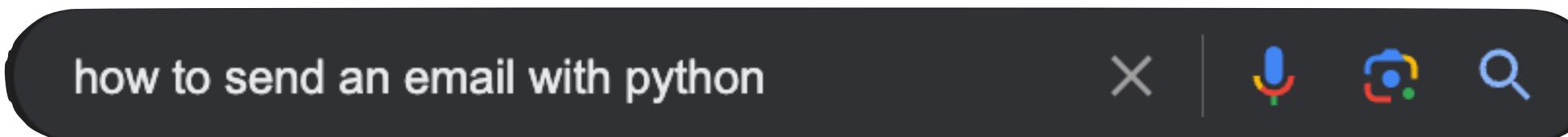
## Why?

- 1) Easy to learn (high-level language)
- 2) Strong community support
- 3) Industry standard for AI and ML
- 4) Robust selection of libraries

# Learning Python is Easier Than Ever

## Thank you Google + ChatGPT

### Google

A screenshot of a Stack Overflow search results page. The query 'how to send an email with python' is at the top. Below it, there's a section titled 'How to send an email with Python?'. It contains a snippet of text: 'I recommend that you use the standard packages `email` and `smtplib` together to `send_email`. Please look at the following example (reproduced ...)' followed by several code snippets and their dates. At the bottom, there's a link to 'Python Docs'.

Wisdom of the crowd i.e. Stack Overflow

### ChatGPT (or the like)

how to send an email with python

To send an email with Python, you can use the built-in `smtplib` library along with the `email` package. Below is a basic example of how to send an email using these libraries.

**Steps:**

1. Set up the email content: Use the `email.mime` classes to format the email.
2. Use `smtplib` to send the email: This handles the connection to the mail server.

**Code Example:**

```
python
Copy code

import smtplib
from email.mime.multipart import MIMEMultipart
from email.mime.text import MIMEText

# Email settings
sender_email = "your_email@example.com"
receiver_email = "receiver_email@example.com"
password = "your_password"
subject = "Test Email from Python"
body = "This is a test email sent from Python!"
```

(Ask follow-up questions)

# Why Learn Python Given No-code Tools?

Both have their place...

## No-code Tools

Easy to use

Fast Prototyping + Deployment

Limited Customization

Limited Performance Potential

## Python

Startup Cost

Longer Development Time

Fully Customizable

SOTA Performance Potential

# Examples

# Example 1

## Scraping AI Job Board with Python (Motivation)

### Motivation

Trying to get an AI job and...

- ... looking for top paying roles
- ... seeking for AI forward companies
- ... don't know what skill to highlight
- ... want to keep up with industry trends



# Example 1

## Scraping AI Job Board with Python (Problem)

### Problem

Manually reading job postings is tedious and difficult to analyze rigorously

Jobs and Talents in AI, ML, Data Science and Big Data. 🧠🐱💻🤖🚗🚀

Analyst Architecture Big Data Computer Vision Consulting Data Science Deep Learning Engineering  
Generative AI Leadership Machine Learning MLOps NLP Product Research Visualization

Cities Countries Regions / Remote Job types

Keywords Experience Salary Perks / Benefits

17,559 jobs found (last 30 days)

Reset Share Subscribe Search

murmuration  
Staff Software Engineer **Featured**  
APIs Architecture AWS CI/CD Computer Science Docker  
Engineering +11  
Career development Equity / stock options Flex hours Flex vacation Gear +7

Remote - anywhere in the U.S.  
Full Time Senior-level USD 135K - 165K

Elancourt Guynemer, France  
Full Time EUR 34K - 79K \*

THALES  
Ingénieur en Deep Learning F/H  
Classification Computer Science Computer Vision Deep Learning GPU  
Machine Learning MLOps +4

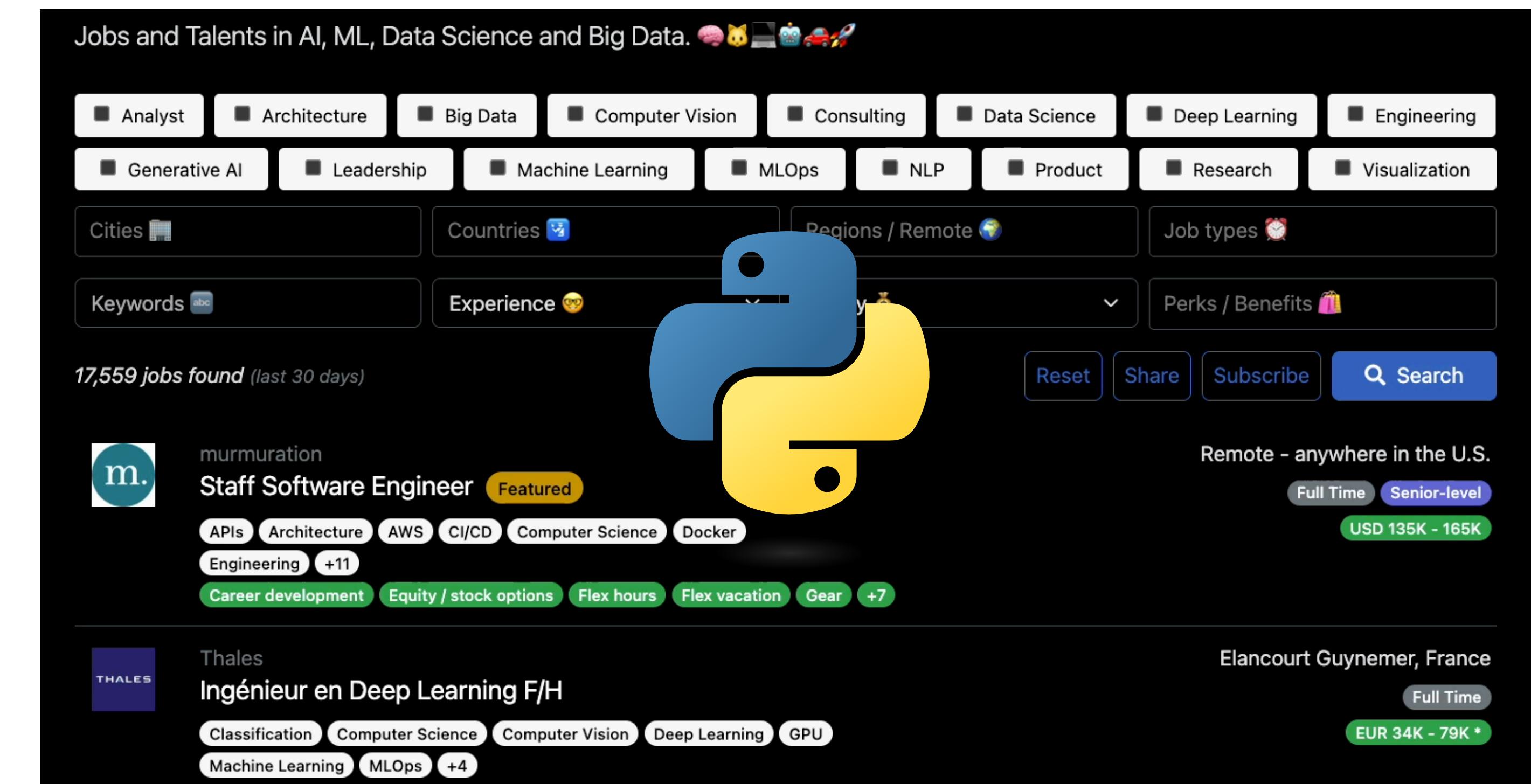


# Example 1

## Scraping AI Job Board with Python (Solution)

### Solution

Automatically extract job data from the web using Python



# Example 1

## Scraping AI Job Board with Python (Code Walkthrough)



### Goals

- Share my idea to building approach
- Demonstrate how I use LLMs for coding
- Show how I debug and learn on-the-fly

# Example 2

Top AI Jobs Dashboard with Plotly Dash (Problem)

**We got the data we needed...**

| Job Title | Company | Description | Salary |
|-----------|---------|-------------|--------|
|           |         |             |        |
|           |         |             |        |
|           |         |             |        |
|           |         |             |        |
|           |         |             |        |
|           |         |             |        |
|           |         |             |        |

**... but not the insights**



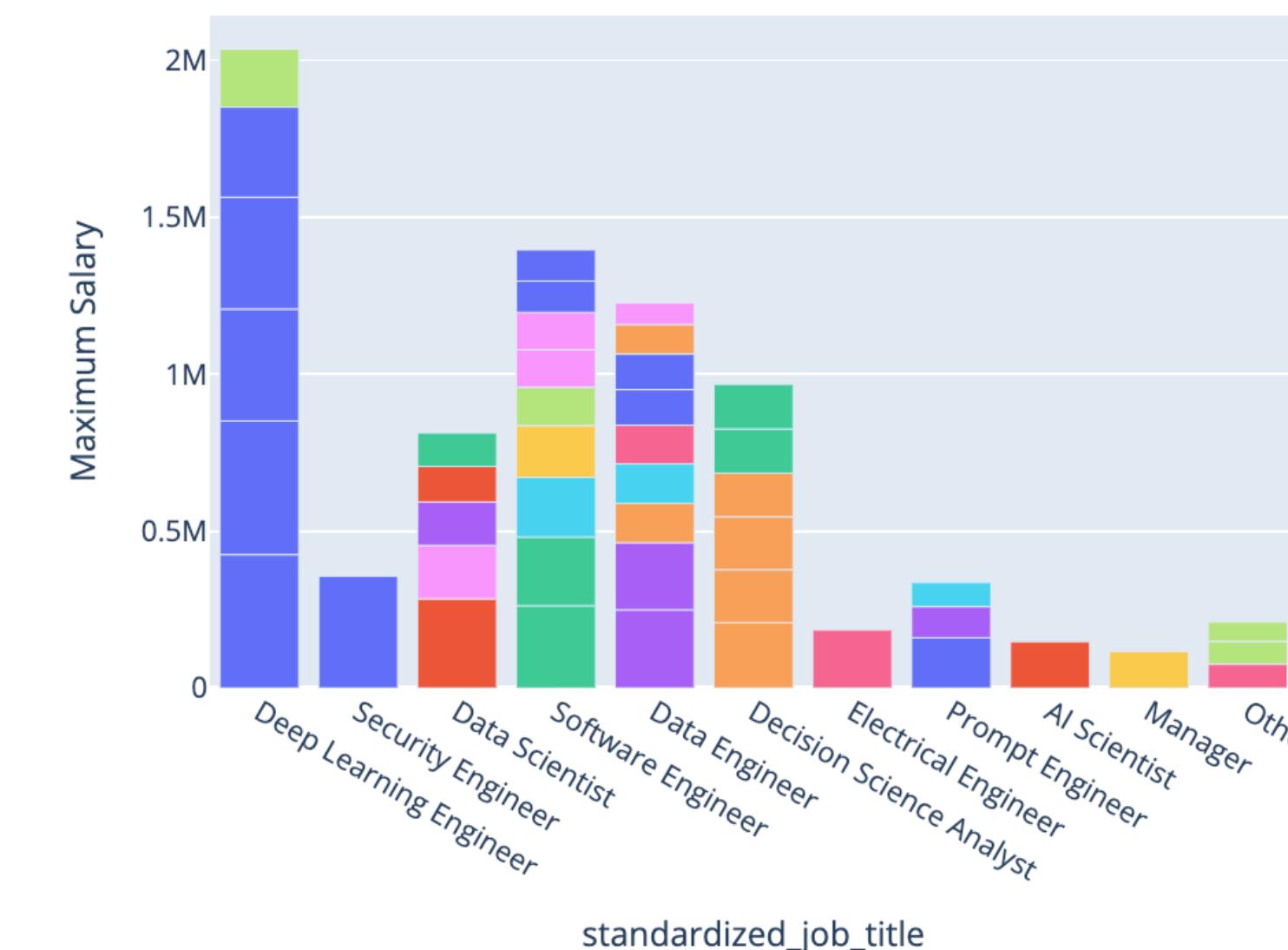
# Example 2

## Top AI Jobs Dashboard with Plotly Dash (Solution)

| Job Title | Company | Description | Salary |
|-----------|---------|-------------|--------|
|           |         |             |        |
|           |         |             |        |
|           |         |             |        |
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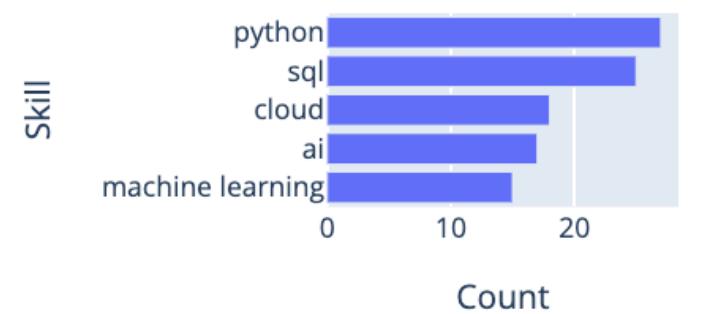
Highest Paying AI Jobs



Top 5 Roles



Top 5 Skills



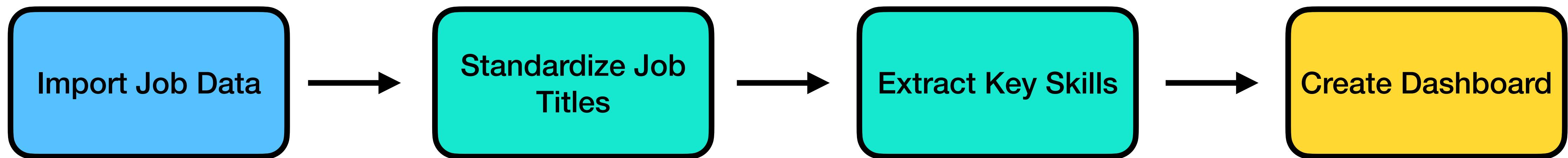
Data

Interactive Dashboard



# Example 2

## Top AI Jobs Dashboard with Plotly Dash (Workflow)



# Example 2

Top AI Jobs Dashboard with Plotly Dash (Code Walkthrough)



# More Examples

Sending emails with Python (Cohort 1)

1) Automated Email Sender

2) Automated Report Builder and Emailer

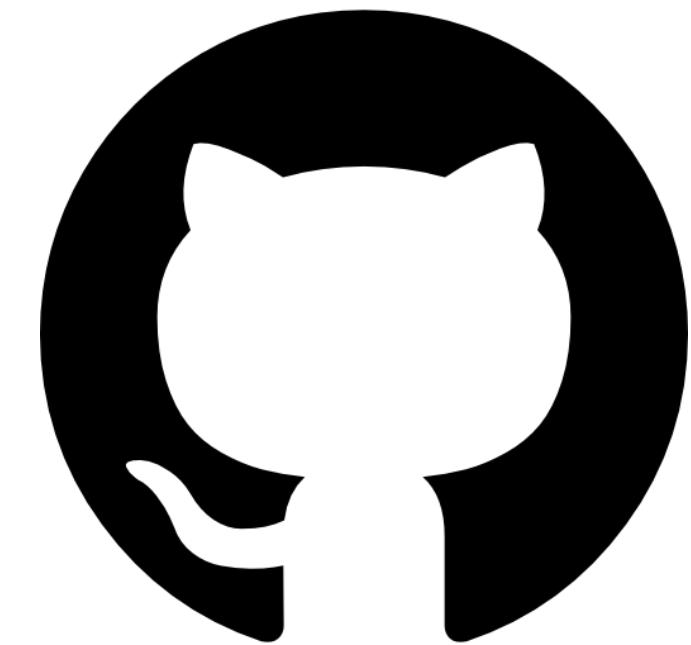


ABB1 GitHub Repo

# Homework 1

## Project

Build a Python Automation (using only Software 1.0)

## Pre-work

Session 2: Data Engineering

Session 2: Machine Learning

# References

- [1] [AI for Business: A \(non-technical\) introduction](#)
- [2] [Software 2.0 by Andrej Karpathy](#)
- [3] [But What is AI... really? by Shaw Talebi](#)
- [4] [Python QuickStart for People Learning AI \[Mini-Course\]](#)

