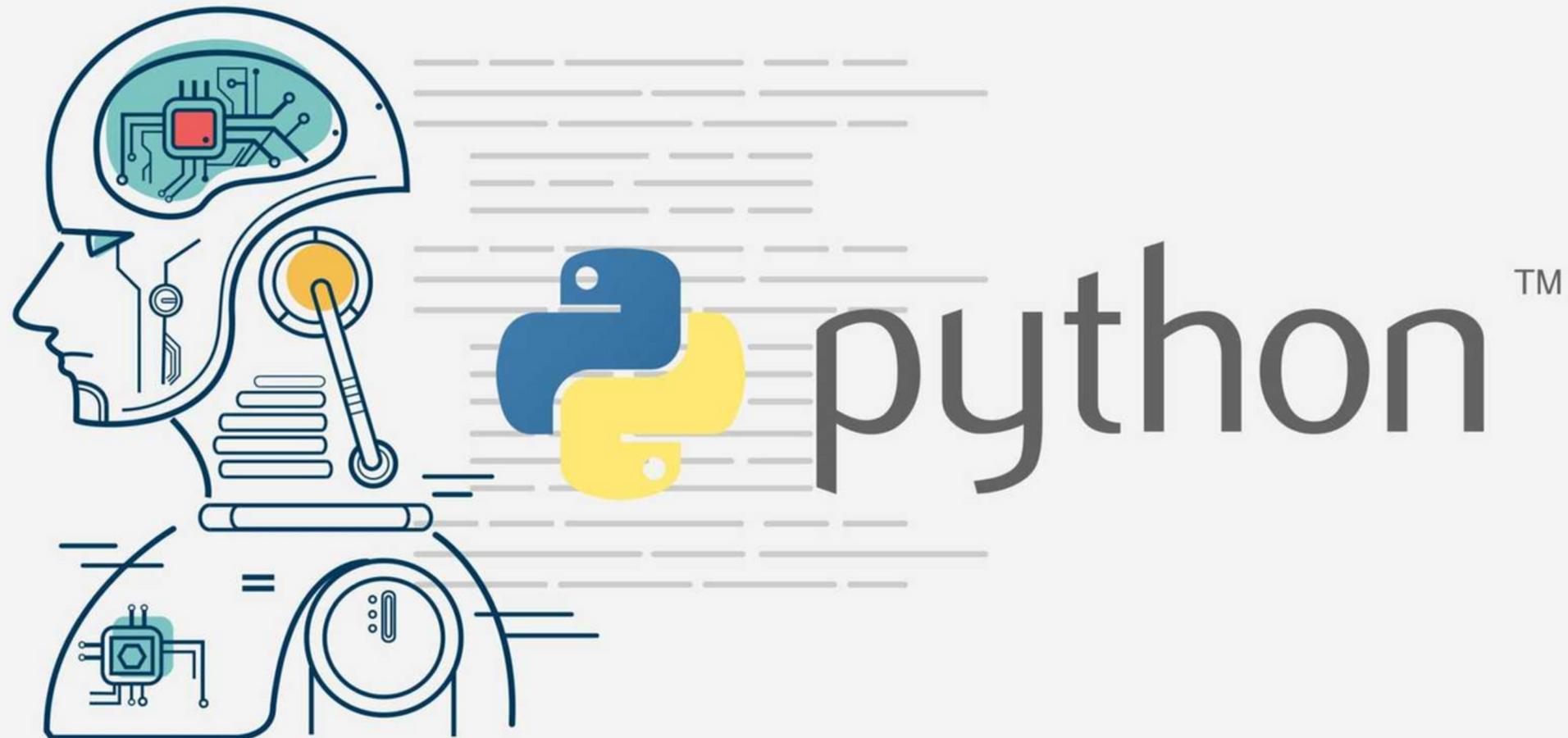


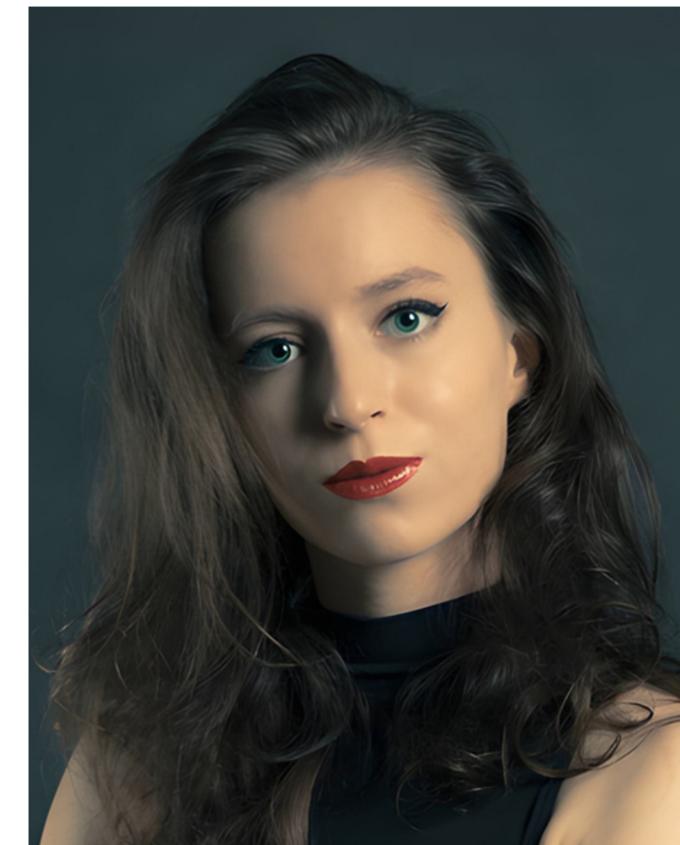
# Coding - Python

## Introduction



Jowita Drozdowicz

# About me



- Bachelor's (Informatics) and Master's thesis (Machine Learning) at the University of Warsaw
- I took part in many algorithmic and programming competitions
- Skilled in algorithmic, image-generating, and Natural Language Processing
  - Part of my master's thesis will be on the conference in the middle of October
- Currently, ML engineer at Snowflake Intelligence (Snowflake company)

# How to pass a course

- **Regular homework** (total 30 points)
  - after each class, one homework assignment
  - one homework = 3 points
  - crossing the limit of 30 points can give 3 additional points to the project section
- **Group Project** (15 points for code + 15 points for presentation)
  - teams of 2-4 people (most preferable 3)
  - divided into two parts
  - first part in the middle of the semester (5 points for code + 5 points for a short report)
  - second part is the presentation on the last lecture and the completed code
- **You can have 2 absences during the course**
- **Group project and its final presentation is mandatory**

# Requirements before the course

- Basics of Python
- If someone is totally new to Python, let's try some popular Python courses online
- <https://www.learnpython.org/>

# Python - good practises

- Installing packages - *pip install*
- Virtual envs:
  - Environments make work less chaotic
  - Every (drastically different) project has its own environment
  - Separate projects one from each other

# Github refreshment

- The best way to have good control of code versions
- Necessary to pass the course, the final project will be sent in it
- Basic to know:
  - git clone
  - git checkout
  - git commit
  - git pull
  - git push
  - git merge/git rebase

# Tools

## Code editors

# Text editors



Visual Studio Code



PyCharm



Cursor IDE

An AI-powered code editor



- Not a good practice
- Very limited
- Free
- You can have access even from a mobile phone
- Not a preferable option to this course
- Is limited to just one AI assistant (not very powerful)



- Popular option across programmers, even big corporations use it
- Free
- A computer is required (not very powerful)
- Ok option for the course (I might not be able to answer every question)
- Support any AI assistants, even with user interface support
- Support any programming language



- Popular option across programmers, even big corporations use it
- Free (even a pro version is free for students)
- Computer is required (a little more powerful than a VSCode)
- Most preferable option to this course (my full support with any problem)
- Supports many AI assistants
- Dedicated only to Python



## Cursor IDE

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An AI-powered code editor

- Popular option across programmers, even big corporations use it
- Paid
- Computer is required (not very powerful)
- Ok option to this course (my full support with any problem)
- Supports many AI assistants and has its own included
- Supports any programming language

# AI code assistance



Gemini



ChatGPT



deepseek



Claude



GitHub  
Copilot

# Free versions of models

- Gemini chat
- ChatGPT
- Claude
- DeepSeek
- Generally every model you would like to use



**GitHub**  
Copilot

- Your “first best friend”
- Free for students
- Great option for people who are starting
- Try it [here](#)
- [students version](#)



OpenAI Codex



# Claude



# Efficient prompting

## ChatGPT Prompt Formula

1 Context

2 Task

3 Instruction

4 Clarify

5 Refine

Ignore the previous prompts in this conversation. You are an experienced content writer with high levels of expertise and authority within the tech industry. Your task is to write content that will be published online on websites, social media, email newsletters, and in advertisements. Your writing style is informative, friendly and engaging while incorporating humor and real-life examples. I will provide you with a topic or series of topics and you will come up with an engaging article outline for this topic. Do you understand?

Rewrite using more natural, expressive language and include some examples to accompany this information

ChatGPT for Gmail

# Efficient prompting for engineers

- The task section must be very clear
- Don't give too long context - models will lose information
- If something is not obvious, give more explanations to the model
- If necessary add some examples

# Efficient prompting for engineers

Here's seattle-weather.csv. Figure out what's going on and show me a few good charts that tell the story

I'm dropping in seattle-weather.csv (daily data with date, precipitation, max/min temp, wind, and a weather label). Load it, do a quick EDA, and make clear charts that reveal trends, seasonality, and any anomalies—think monthly patterns, rolling averages, distributions, and relationships. Explain the findings in plain English and export the plots as PNGs. Keep the code tidy and reproducible in Python.

I'm giving you seattle-weather.csv, a daily dataset with columns like date, precipitation, temp\_max, temp\_min, wind, and a categorical weather label. Please load the CSV, validate types (parse dates), handle missing/outlier values sensibly, and create an organized exploratory analysis in Python (pandas + matplotlib). Keep the notebook/code clean and runnable start-to-finish.

Build a concise set of publication-ready visuals: (1) daily temps with 7-day rolling means and shaded min/max bands; (2) monthly seasonality of temp\_max and precipitation (line or boxplots); (3) distribution of temp\_max with key percentiles; (4) precipitation by weather category (bar chart); (5) scatter of temp\_max vs wind with a trend line and correlation. Label axes clearly, add readable titles/captions, and save each figure as PNG. If you transform data, briefly note what you did. Conclude with 5–8 bullet insights highlighting seasonal patterns (e.g., wetter months), notable extremes (top/bottom 5 days), relationships (temperature vs wind/precip), and any data-quality caveats. Keep explanations concise and business-friendly—assume I'll present this to a non-technical audience.

# Zero-shot vs few-shot

**Prompt:** “Analyze the sentiment of the following statement: ‘The movie was fantastic, and I would watch it again!’”

**Response:** Positive

**Prompt:** Classify the following statements as either Positive or Negative.

Example 1: “I love this product! It works perfectly.” → Positive

Example 2: “This is terrible. I want a refund.”  
→ Negative

Example 3: “The service was quick and the staff was friendly.” → Positive

New Prompt: “The product broke after one use. It’s a waste of money.”

**Response:** Negative

# Try on your own!

Hi! How can I help you today? 😊

Retry Undo Clear

Type a message...

Submit

Examples

Help me study vocabulary: write a sentence for me to fill in the blank, and I'll try to pick the correct option.

What are 5 creative things I could do with my kids' art? I don't want to throw them away, but it's also so much clutter.