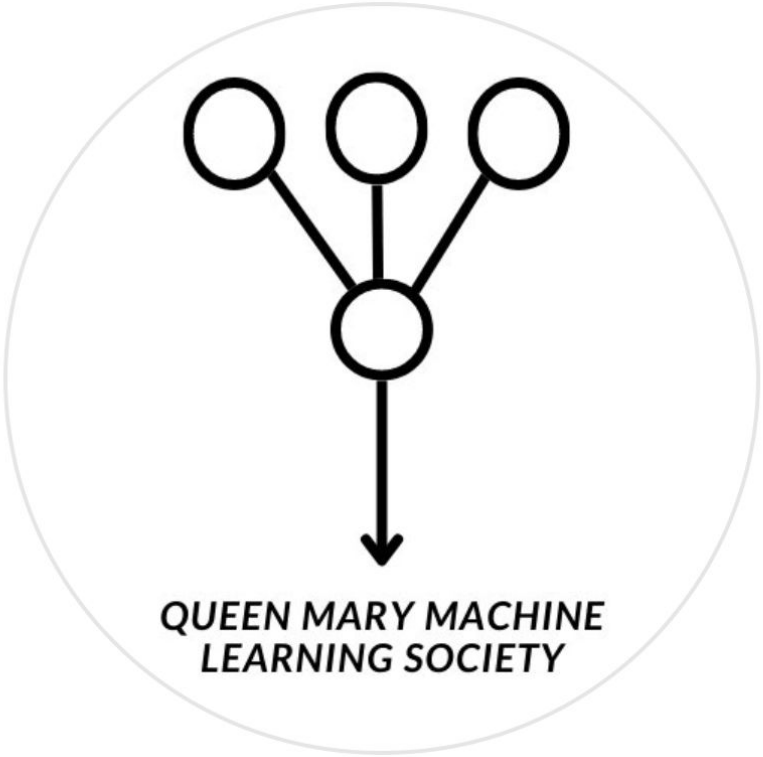
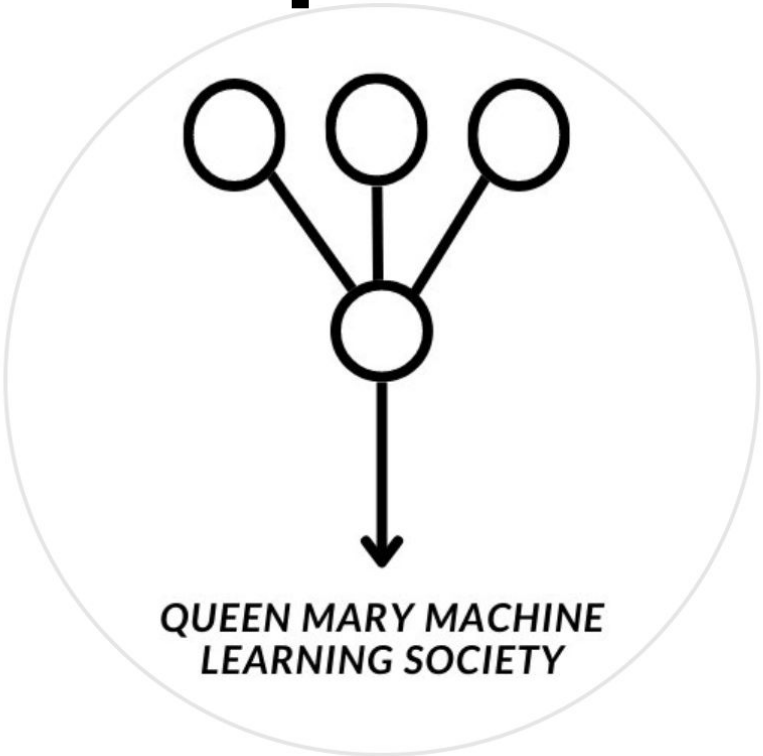
Kaggle Seasons #10



Industrial Kaggle Competitions



Drawing With LLMs

- Prize Money: 50.000$ distributed across the Top-5
- More importantly: Awards points & medals (recognition)
- Company: Kaggle
- Reason: Introduction of a new competitions mode

Source: https://www.kaggle.com/competitions/drawing-with-llms

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What Does Industry Need?

- Fully working AI systems
- Prototyping and proof-of-concepts (POCs) mainly in research
- What do you “submit” to a company?
  - Executable programs
  - End-to-end, integrated solutions

What Does Industry Need?

- Which attributes should such a system have?
  - Reliability & Robustness (Cost of downtime)
    - Security
    - Compliance
  - Maintainability (Cost of maintenance)
    - Extensibility
  - Scalability (Cost of scaling up/down)
    - Elasticity

What is a Package Manager?

- A distribution software to…
  - find software
  - install software
  - update software
  - remove software
- Examples include: Pip, npm, maven, apt, homebrew, etc.

What is a Package Manager?

- Key features include:
  - Automated dependency control
    - Handle the installation, updates, and removal of software libraries easily
  - Consistency across environments
    - Ensure that all deployed systems use the same version
  - Simplified deployment
    - Facilitate smoother transition from development to production

```python
from ultralytics import YOLO

model = YOLO("yolo11n.pt")
results = model.predict("path/to/bus.jpg")
```

What are Kaggle Packages?

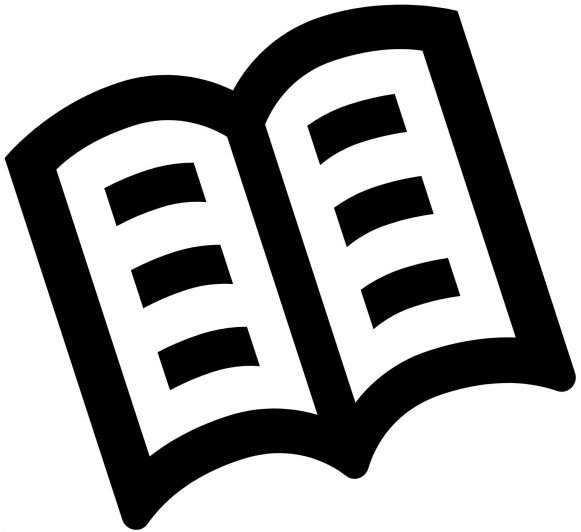
- A new feature to write Python Packages
- Can be imported and re-used anywhere
- It creates the base for a new competitions mode on Kaggle
- Previously:
  - Download a .csv for train/val/test sets
  - Train a model and perform inference on test set
  - Create a submission.csv and upload it
- Next:
  - Download a .csv for train
  - Train a model & write a package
  - Upload model weights & package

What to Do Next?

- Check out the Kaggle Packages documentation
  - https://www.kaggle.com/docs/packages
- Run and understand the starter notebook
  - https://www.kaggle.com/code/dster/drawing-with-llms-starter-notebook/notebook

What are SVG Files?

- Scalable Vector Graphics (SVG) is a format for 2D graphics.
- SVG images do **not** lose quality when scaled, unlike raster images (i.e. images made of pixels - e.g. PNG, JPG)
- SVG is based on **XML**, a markup language similar to HTML
- Used for web graphics, logos (e.g. Android), diagrams, charts, and more



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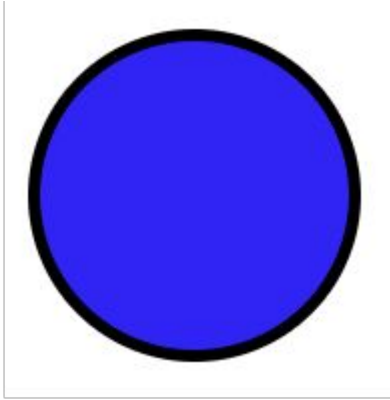
Basic SVG Syntax

- SVG files are written in XML format.
- Example code for a simple SVG file:

```
<svg width="100" height="100" xmlns="http://www.w3.org/2000/svg">
    <circle cx="50" cy="50" r="40" fill="blue" stroke="black" stroke-width="3" />
</svg>
```

- This generates a blue circle with a black outline:



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Generating SVG Codes in Python

- SVG files can be generated indirectly using Python libraries (e.g. svgwrite).
- Example code to generate a simple SVG file:

```
import svgwrite

dwg = svgwrite.Drawing("output.svg", profile='tiny')
dwg.add(dwg.circle(center=(50, 50), r=40, fill='blue'))
dwg.save()
```

- This generates a blue circle without an outline:

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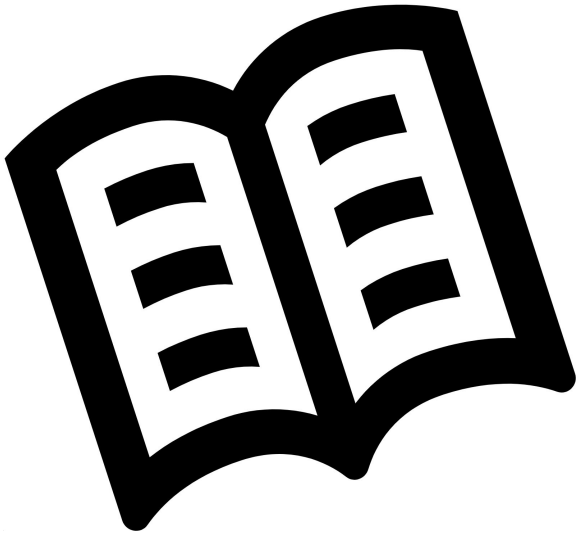
Why SVG?

Remember this image of a book from two slides ago?



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Why SVG?

This is what happens when I ask the cutting-edge ChatGPT o1 model to recreate the image in SVG format:

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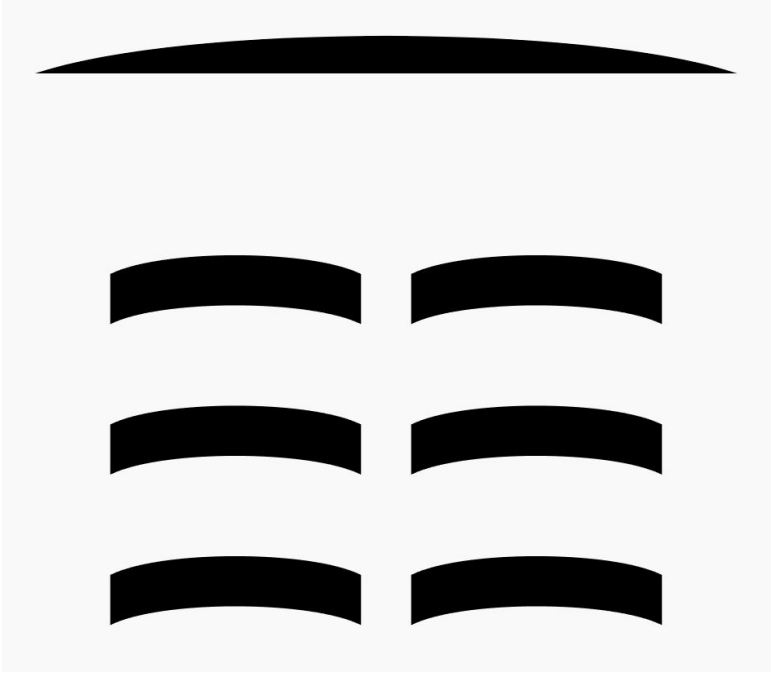

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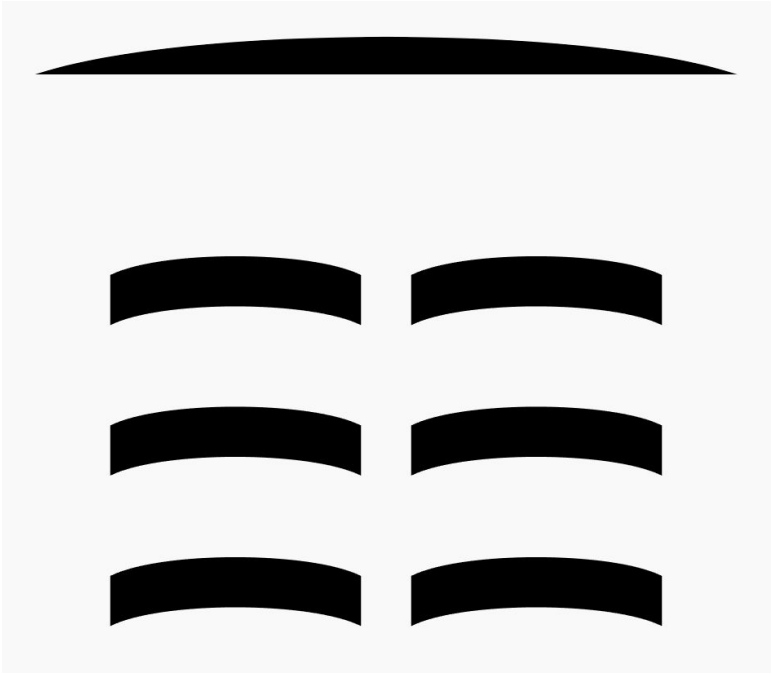
Why SVG?

Not bad, but certainly room for improvement!



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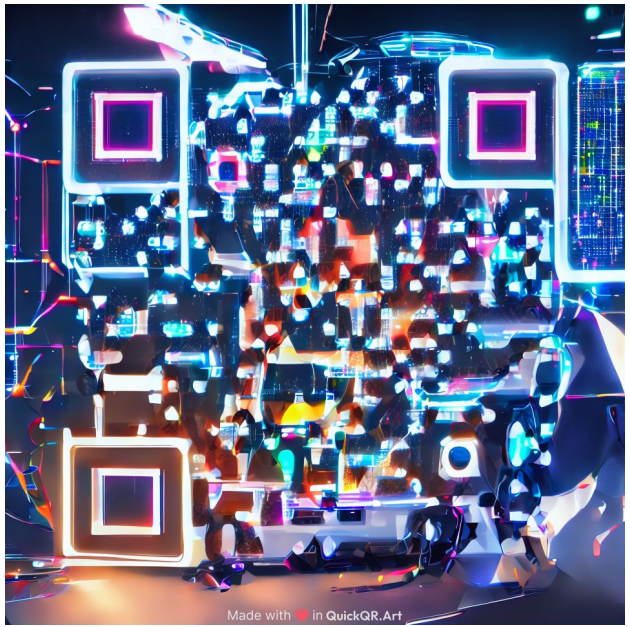
New Communications Platform

- Join our Discord:
  - Link: https://discord.gg/xcfp4UHGWa
  - QR-Code:



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Thanks for Listening!