

Workshop 1

Build a social media post generator

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MIT 6.S093 How to ship almost anything with AI



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Class materials

⌚ 2:00 PM - 3:45 PM • 🏠 3-333

Workshop 1: build the agent

workshop

📄 Slides

</> Notebook

▢ Recording

By: Andrew Mead

iap.sundai.club/materials



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Did you set up Cursor/Copilot?

The screenshot shows a code editor interface with several tabs open:

- `materials-page.tsx`: The main file being edited.
- `schedule_config.ts`
- `page.tsx`
- `nate.jpeg`

The code in `materials-page.tsx` includes a `MaterialsPageProps` interface and a component implementation. A specific line of code is highlighted:

```
169 <Link href="https://docs.google.com/document/d/1n7rDMYnpgh...>
```

The `CHAT` pane shows a conversation with an AI:

Next to the "Hacker Dictionary" button pls add a new button saying "Portfolio" and leading to "log.iap.sundai.club".

Responses from the AI:

- Read `materials-page.tsx` and searched for text
- Edited `materials-page.tsx` +16 -7

The AI has added a new button:

```
I have added the "Portfolio" button next to the "Hacker Dictionary" button, linking to "log.iap.sundai.club". Let me know if you need any further adjustments!
```

The bottom right corner shows the AI's status: GPT-4o - 0x.

The left sidebar shows a list of GitHub repositories and changes, with a prominent blue button labeled "Sync Changes 1+".



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Colab Notebook

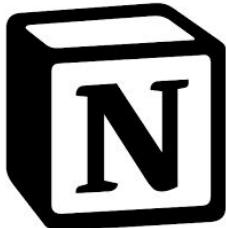
- Follow along with the code examples on Colab
- https://colab.research.google.com/drive/1Dui1hncBddzsyig1DWa82wpH14li_KHr?usp=sharing



RAG 🔥

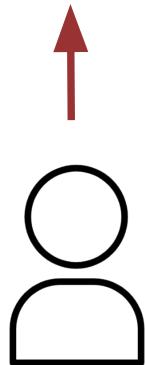


Replicate 🔥

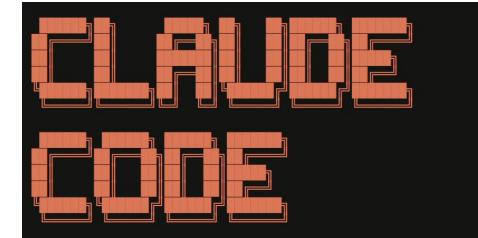
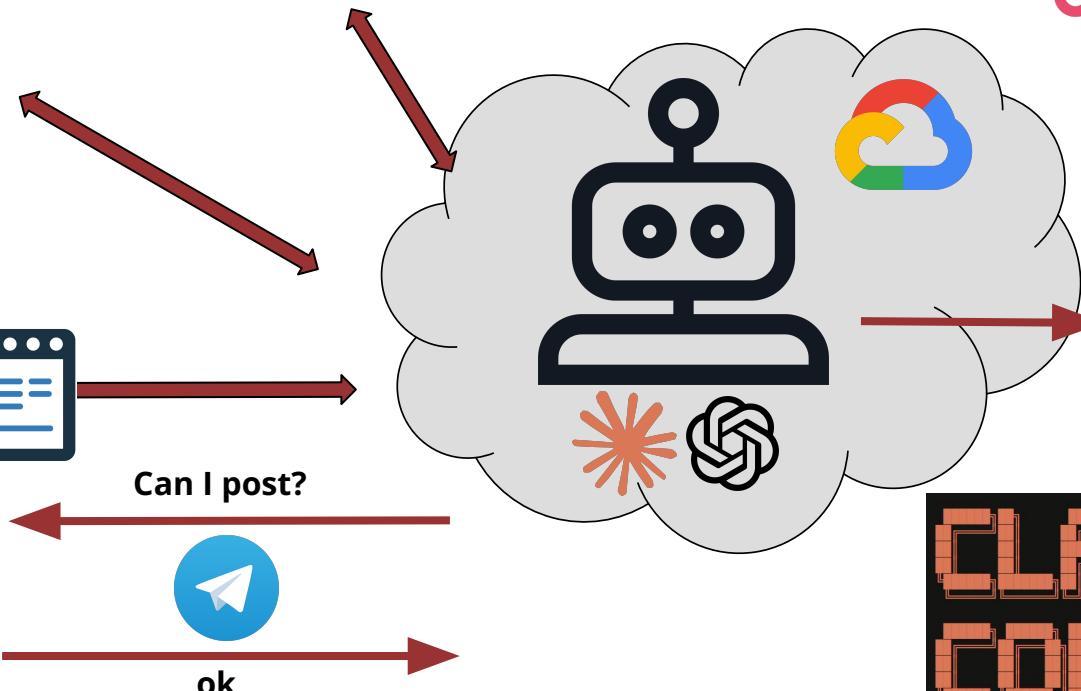


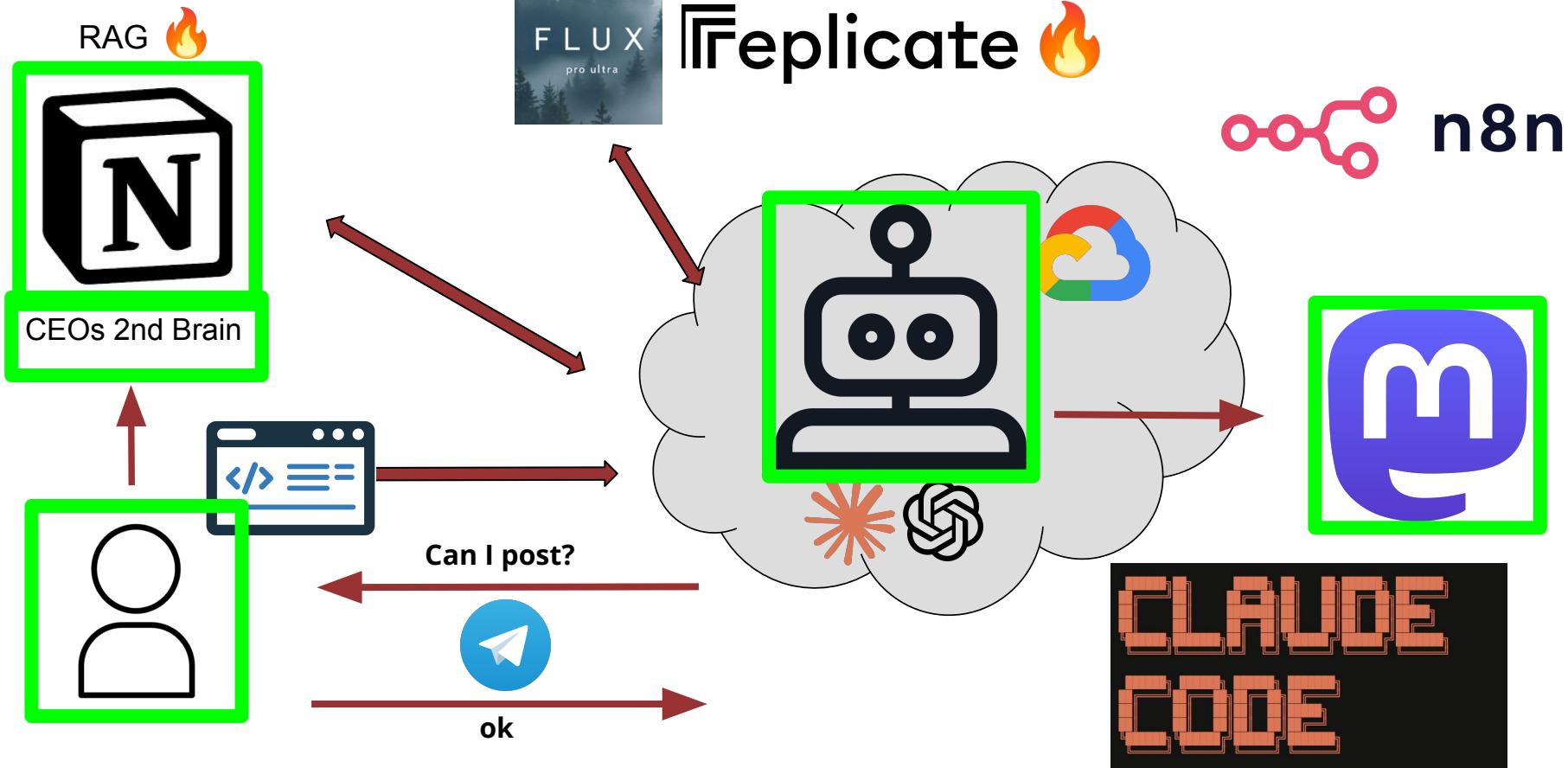
CEOs 2nd Brain

n8n



Can I post?





What we will be building today

- Generate real (or fake) docs about yourself or your company (1 point)
- Use an LLM to generate social media posts (2 point)
- Post on your social media account (1 point)
- Get top article for your niche and generate comments for some of them (1 point)



Reminder

- You can probably do this entire workshop in a single prompt
 - You won't learn anything though
 - You should understand what you are doing
- Focus on the design and AI portions of the code
 - Don't worry about external API integrations (like Mastodon)



Where to get our LLMs

- OpenRouter!
- One api key, every LLM
- Has many free models
 - Recommendations
 - Nvidia Nemotron (fast)
 - GLM 4.5 Air (smart)

 OpenRouter



NVIDIA®



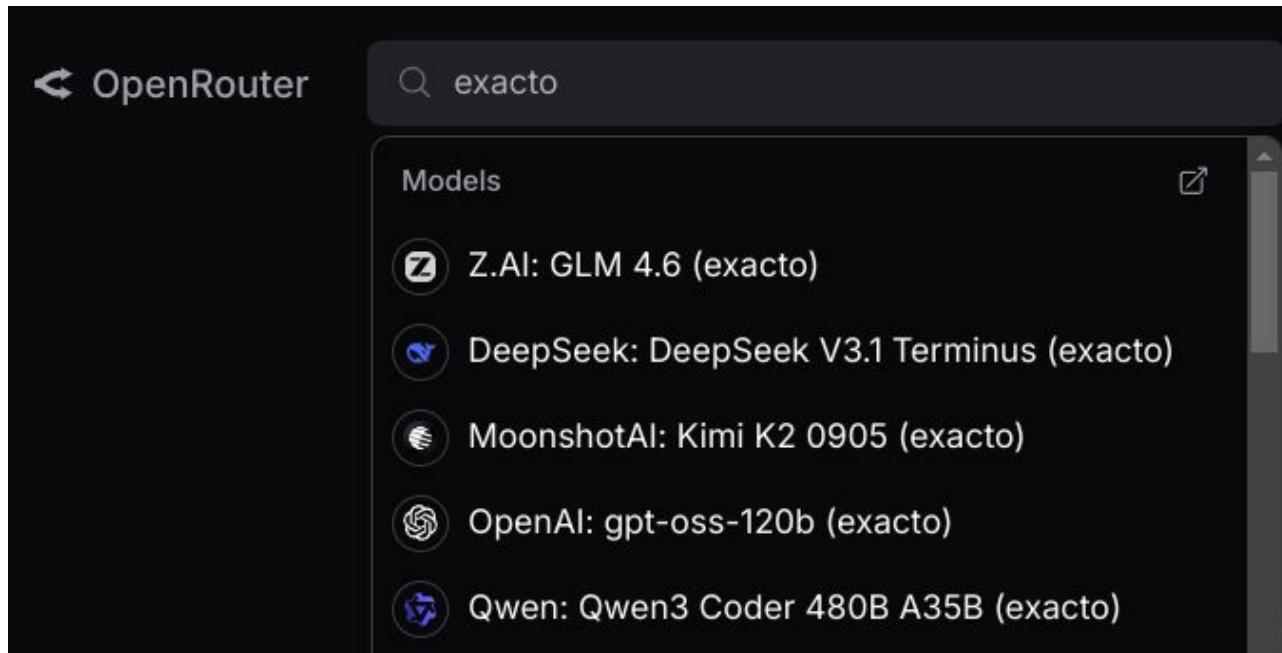
Bad providers

- Everyone can host models
 - Competition means cheaper pricing
 - They don't need to be implemented correctly

Model Name	Providers	Tool calls test					
		Count of Finish Reason stop	Count of Finish Reason Tool calls	Count of Finish Reason others	Schema Validation Error Count	Successful Tool Call Count	Similarity compared to the official Implementation
kimi-k2-0905-preview	MoonshotAI	2679	1286	35	0	1286	-
	Moonshot AI Turbo	2659	1301	40	0	1301	99.26%
	NovitaAI	2717	1279	4	195	1084	92.87%
	Groq	2739	989	26	0	989	89.39%
	Fireworks	2546	1443	8	347	1096	88.83%
	Baseten	2598	1396	6	358	1038	88.57%
	DeepInfra	2552	1446	2	374	1072	88.05%
	Volc	2572	1368	60	376	992	87.59%
	Together	2725	1271	1	369	902	86.60%
	SiliconFlow	2626	985	389	1	984	86.08%
	Infinigence	2729	860	411	2	858	82.17%
	Nebius	3327	633	37	82	551	70.49%
	Chutes	3866	131	0	27	104	49.12%
	AtlasCloud	3867	128	2	33	95	48.93%

Good Providers

- Exacto models



Fast providers

- Cerebras, Groq, Sambanova, and other

Z.ai



Latency
2.28s
Throughput
42 tps
Uptime

Total Context	Max Output	Input Price	Output Price	Cache Read	Cache Write	Input Audio	Input Audio Cache
200K	131.1K	\$0.60	\$2.20	\$0.11	--	--	--

Cerebras



Latency
0.75s
Throughput
237 tps
Uptime

Total Context	Max Output	Input Price	Output Price	Cache Read	Cache Write	Input Audio	Input Audio Cache
200K	200K	\$2.25	\$2.75	--	--	--	--

Basic LLM call with OpenRouter

```
1  from openai import OpenAI
2
3  client = OpenAI(
4      api_key=os.environ["OPENROUTER_API_KEY"],
5      base_url="https://openrouter.ai/api/v1"
6  )
7
8  system_prompt = "You are a helpful assistant that answers in 2 concise bullet points."
9  user_message = "Give me 2 ideas for a cozy rainy-day activity at home."
10
11 response = client.chat.completions.create(
12     model="gpt-5.2",
13     input=[
14         {"role": "system", "content": system_prompt},
15         {"role": "user", "content": user_message},
16     ],
17 )
18 print("ASSISTANT:", response.output_text)
19 # ASSISTANT:
20 # - Make a "movie café" night with blankets, hot cocoa, and popcorn.
21 # - Bake something simple (cookies or banana bread) while listening to a mellow playlist.
```



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Structured outputs

- What if we want to generate 5 posts at once?
 - Deterministic structure we can parse would be nice
 - Structured outputs!

```
1  {
2    'name': 'Science Fair',
3    'date': 'Friday',
4    'participants': ['Alice', 'Bob']
5 }
```



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Structures outputs example

- We want to add events to a calendar based on natural language
- Example input: "Alice and Bob are going to a science fair on Friday."
- Desired output:

```
1  {
2    'name': 'Science Fair',
3    'date': 'Friday',
4    'participants': ['Alice', 'Bob']
5 }
```

Pydantic

- Allows us to easily define structured outputs and parse them
- Directly integrates in with openAI Api library (supported by all models)
- Allows us to supply additional validators after the initial JSON is parse (i.e. making sure date format is correct, users exist in the db, etc)



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Pydantic code example

```
1  from openai import OpenAI
1  from pydantic import BaseModel
2
3  client = OpenAI()
4
5  # Define output schema
6  class CalendarEvent(BaseModel):
7      name: str
8      date: str
9      participants: list[str]
10
11 # Generate response
12 resp = client.responses.parse(
13     model="gpt-5.2",
14     input="Alice and Bob are going to a science fair on Friday.",
15     text_format=CalendarEvent,
16 )
17
18 # Parse output into pydantic class
19 event: CalendarEvent = resp.output_parsed
20 # {"name": "science fair", "date": "Friday", "participants": ["Alice", "Bob"]}
```



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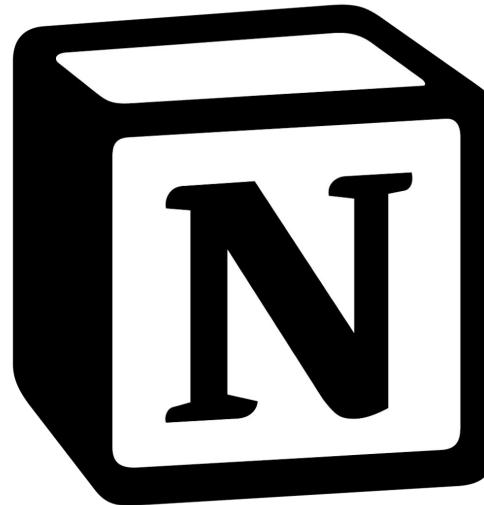
Pydantic Validators

```
 1  # Define output schema
 2  class CalendarEvent(BaseModel):
 3      name: str
 4      date: str
 5      participants: list[str]
 6
 7      # constraint (runs during parsing)
 8      @field_validator("participants")
 9      @classmethod
10      def must_have_participants(cls, v):
11          if len(v) < 1:
12              raise ValueError("participants must have at least 1 name")
13          return v
14
15      # verifier step (business rule beyond basic types)
16      @model_validator(mode="after")
17      def no_duplicate_participants(self):
18          if len(set(p.lower() for p in self.participants)) != len(self.participants):
19              raise ValueError("participants must be unique (case-insensitive)")
20          return self
21
```



Notion

- Place to write and store business docs
- Easy to use API



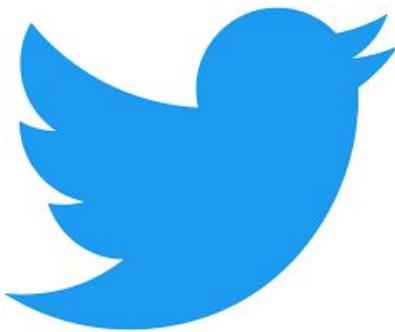
Social Media Connection

- Mastodon
 - Not the sexiest or highest traffic, but is the easiest
 - Start with this to verify your AI pipeline is working as you would like, then integrate other services as desired
 - Make sure not to spam!
 - Per mastodon policy, you need to disclose your posts are AI generated



There is more to the world

- Twitter, linkedin, Instagram, Whatsapp, etc
 - These are all much harder, as they dont have free, easily accessible public API



reddit



Misc Consideration

- Keep secrets secret
 - Use a .env file that is in .gitignore
- Use uv for python dependency management



Tasks for today

Goal 0:

- Make a Notion, OpenRouter, and Mastodon account

Goal 1:

- Make 1-5 docs describing your company, what you do, and what your brand is
 - Use an LLM to help you with this!
 - Add these docs to Notion



Tasks for today (pt 2)

Goal 2:

- Feed these docs into an LLM that generates social media posts for your company

Goal 3:

- Integrate with Mastodon to post the LLM made social media post



Tasks for today (pt 3)

Goal 4:

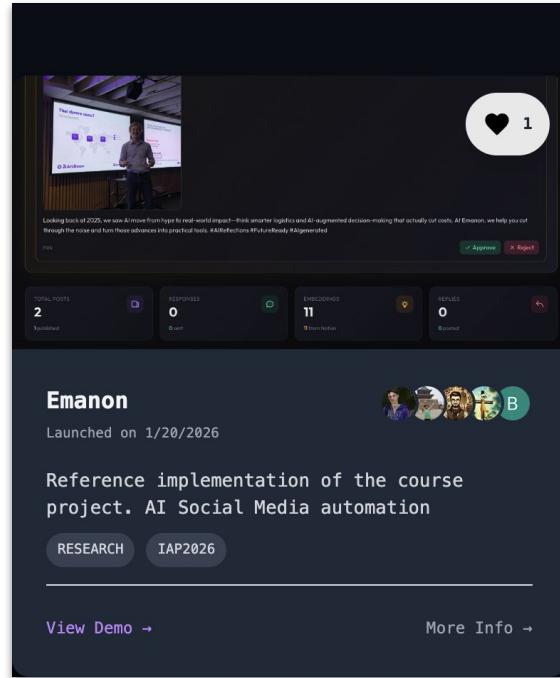
- Get the 5 most recent posts for a keyword related to your business and make a reply to them
 - Use structured outputs to get responses to all of them at once

(Optional) Goal 5: Integrate with other social media platforms



How to submit

- 1. Create a card on
log.iap.sundai.club**
- 2. Submit a link to your card
through Canvas**



How to submit

Project Thumbnail

Recommended: 1280x720px or larger, 16:9 ratio

Full Description

Supports Markdown! Use the toolbar.

B I ⚡ </> 🖼

Workshop 1:

<Tell us what you learned in this workshop!>

<What was surprising?>

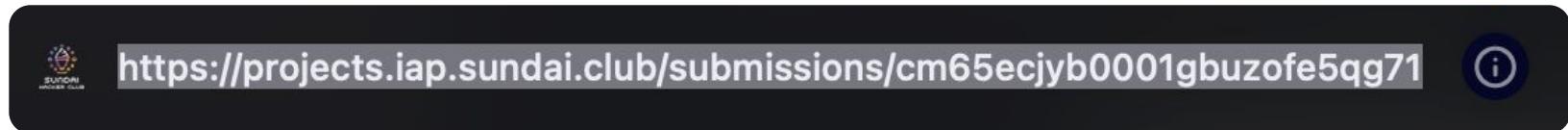
[Link to Mastodon Acc](Insert the link here)

[Link to your GitHub](Insert the link here)

Publish the card!

A screenshot of a project card interface. At the top left is a video thumbnail showing a man speaking at a podium. To the right are two buttons: "Edit Project" and a green "Submit" button with a checkmark, which is highlighted with a red rectangle. Below the video is a text block: "Looking back at 2025, we saw AI move from hype to real-world impact—think smarter logistics and AI-augmented decision-making that actually cut costs. At Emanon, we help you cut through the noise and turn those advances into practical tools. #AIReflections #FutureReady #Algenerated". Underneath this is the project title "Emanon". To the right are "Approve" and "Reject" buttons. Further down are "Started 1/20/2026" and "Reference implementation of the course project. AI Social Media automation". On the far right is a heart icon with the number "1". At the bottom are three buttons: "View Demo" (purple), "Blogpost" (grey), and "Share" (green). To the right of these is a "Team" section.

How to submit



A screenshot of a web browser window. The address bar contains the URL <https://projects.iap.sundai.club/submissions/cm65ecjyb0001gbuzofe5qg71>. To the right of the URL is a blue circular icon with a white 'i' inside. The rest of the browser interface is dark.



A screenshot of a Canvas assignment page. At the top, there's a header with a red icon and the word "UNDATED ASSIGNMENTS". Below it, a section titled "Workshop 1" is shown with a checkmark icon, the title "Workshop 1", and a grade of "-/10 pts".

TAs



Questions?



Fireside chat with class alumni

3:45-4pm



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