

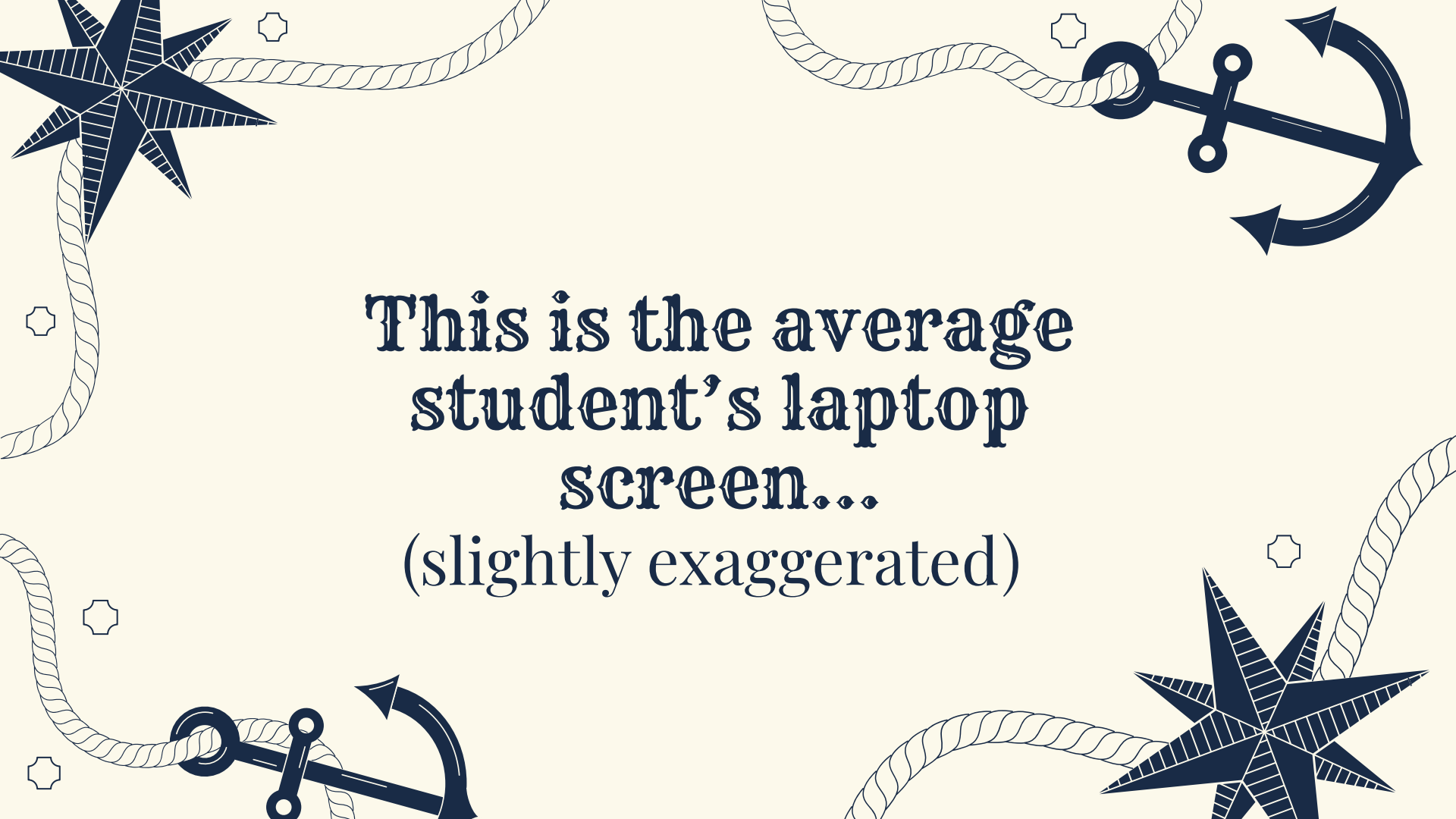


lighthouse

it's academic weapon season



Mehul, Samanvita, Samriddhi, Viraj

The background is a light cream color with a nautical theme. It features several dark blue ropes with white stitching, some forming loops and others trailing off. There are two large, dark blue, multi-pointed stars with internal line patterns. Two dark blue anchors are also present, one in the top right and one in the bottom left. Small, white, six-pointed star-like shapes are scattered throughout the design.

**This is the average
student's laptop
screen...**
(slightly exaggerated)

Law Di Gauss how d calcul New Li Log in Tr

tutorial.math.lamar.edu/Classes/DE/HeatEqnNonZero.a... Incognito (5)

old

Paul's Online Notes

NOTES QUICK NAV DOWNLOAD

< Prev. Section Notes Next Section >

We saw how to solve this in the previous section and so the solution is,

$$v(x, t) = \sum_{n=1}^{\infty} B_n \sin\left(\frac{n\pi x}{L}\right) e^{-k\left(\frac{n\pi}{L}\right)^2 t}$$

where the coefficients are given by,

$$B_n = \frac{2}{L} \int_0^L (f(x) - u_E(x)) \sin\left(\frac{n\pi x}{L}\right) dx \quad n = 1, 2, 3, \dots$$

The solution to (1) is then,

$$u(x, t) = u_E(x) + v(x, t) = T_1 + \frac{T_2 - T_1}{L} x + \sum_{n=1}^{\infty} B_n \sin\left(\frac{n\pi x}{L}\right) e^{-k\left(\frac{n\pi}{L}\right)^2 t}$$

r/AmttheAsshole • 9 mo. ago
Possible_Soil_3886

AITA for spending my son's university fund on a trip to Europe to drink beer like I always threatened instead of giving it to his step brother after he passed away.

Not the A-hole

My son was smart. Smarter than me. I almost requested a paternity test because he was so damn intelligent. THAT IS A JOKE.

My ex and I divorced when he was about 12. She remarried

mr beast

To begin the hibernating process.

Last To Leave Circle Wins \$500,000

Subway Surfers (2023) - () x +

yout... Incognito (5)

old

Search

Sign in

Subway Surfers (2023)

031784
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tiktok.com



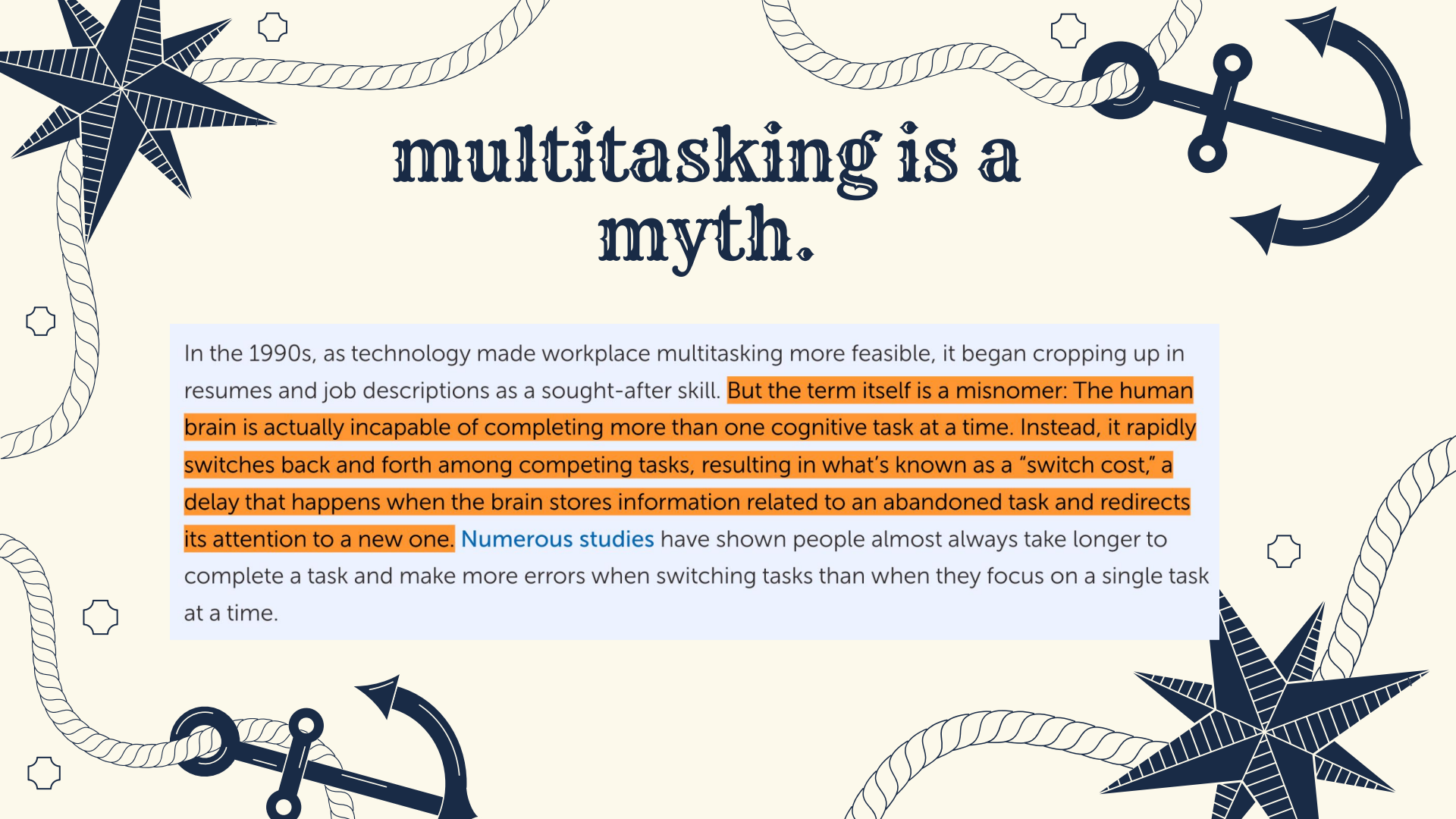
this is not good.

- Multiple sources of information
 - Multiple topics on screen
 - Many moving images
- In a word: DISTRACTING.



why is this bad?

- Studies have shown that short-form content decreases attention span
- This leads to reduced focus while learning



multitasking is a myth.

In the 1990s, as technology made workplace multitasking more feasible, it began cropping up in resumes and job descriptions as a sought-after skill. But the term itself is a misnomer: The human brain is actually incapable of completing more than one cognitive task at a time. Instead, it rapidly switches back and forth among competing tasks, resulting in what's known as a "switch cost," a delay that happens when the brain stores information related to an abandoned task and redirects its attention to a new one. Numerous studies have shown people almost always take longer to complete a task and make more errors when switching tasks than when they focus on a single task at a time.



productivity apps exist, but...

- Many only work in browser
- They're static: you're only able to block predefined sites
 - cannot define what you want to focus on for each work session.
- They're difficult to setup and customize
- They cannot differentiate between productive and unproductive behavior on the same site (ex: using youtube to watch educational videos vs memes)



solution?

- GOAL: focus on one thing at a time.
 - When you're working, just work. When you're taking a break, just rest up.
- That's where we come in :)
- lighthouse: an accountability buddy that watches you as you work

what we do



accountability
but fun!
(and annoying)



screen-level
tracking
not limited to the
browser - we identify
unproductive behaviour
on all windows!



intelligent
tracking
we'll figure out the
nature of your activity
without you having to
feed it to us

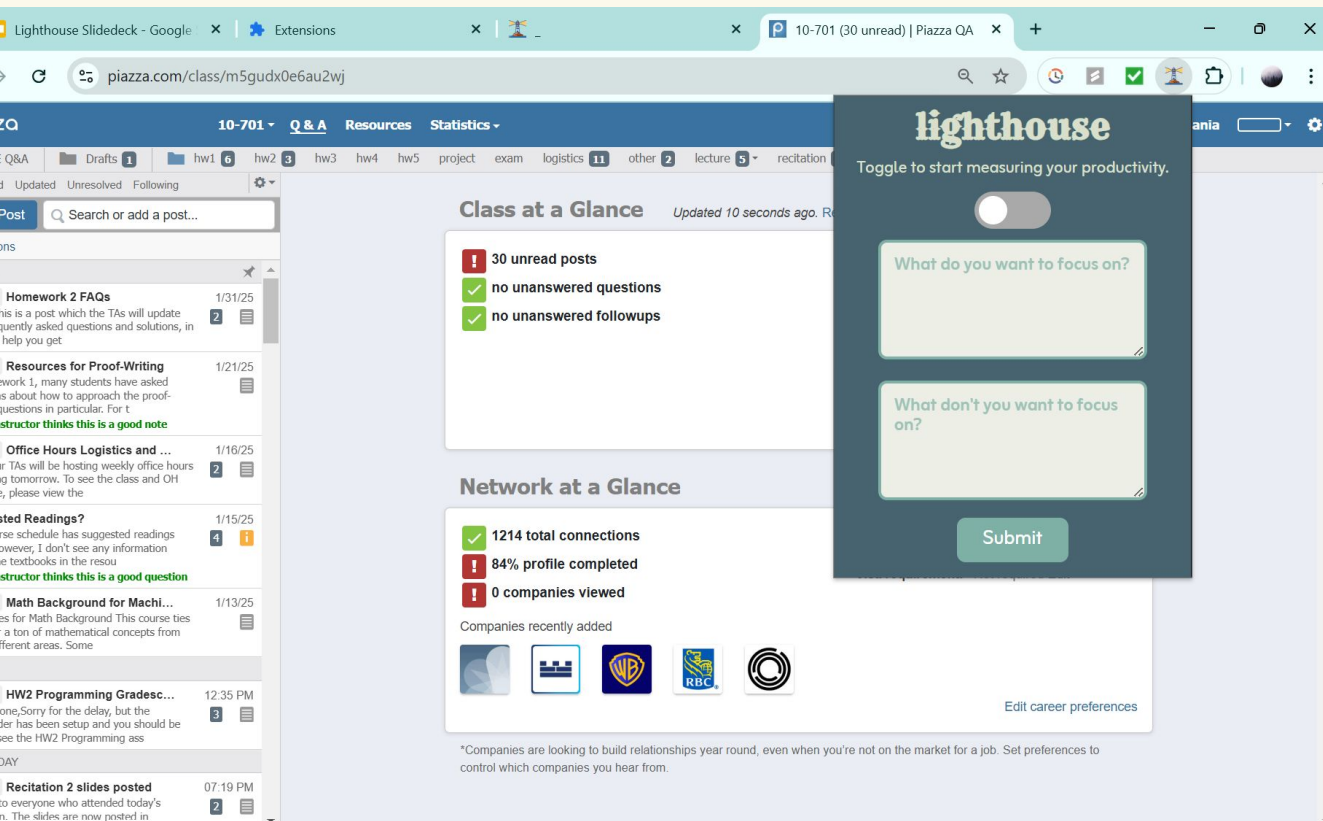


customizable
you define what you
want to work on - and
this can change every
work session

The background is a light cream color. It is decorated with several nautical-themed elements: thick, coiled ropes in a light blue-grey color that curve across the frame; dark blue anchors with three flukes; dark blue eight-pointed stars with internal line patterns; and small, hollow, six-pointed star-like shapes. The central text is in a dark blue, serif font.

let's try it out!

the lighthouse popup



- Clean UI
- No setup required – just type in what you want to focus on!

with text filled in

The screenshot shows a web browser window with the Piazza Q&A page for a 10-701 class. The page is titled "10-701 | Q & A" and has a navigation bar with links to "Resources" and "Statistics". The main content area is divided into two sections: "Class at a Glance" and "Network at a Glance".

Class at a Glance (Updated 5 minutes ago):

- 30 unread posts
- no unanswered questions
- no unanswered followups

Network at a Glance:

- 1214 total connections
- 84% profile completed
- 0 companies viewed

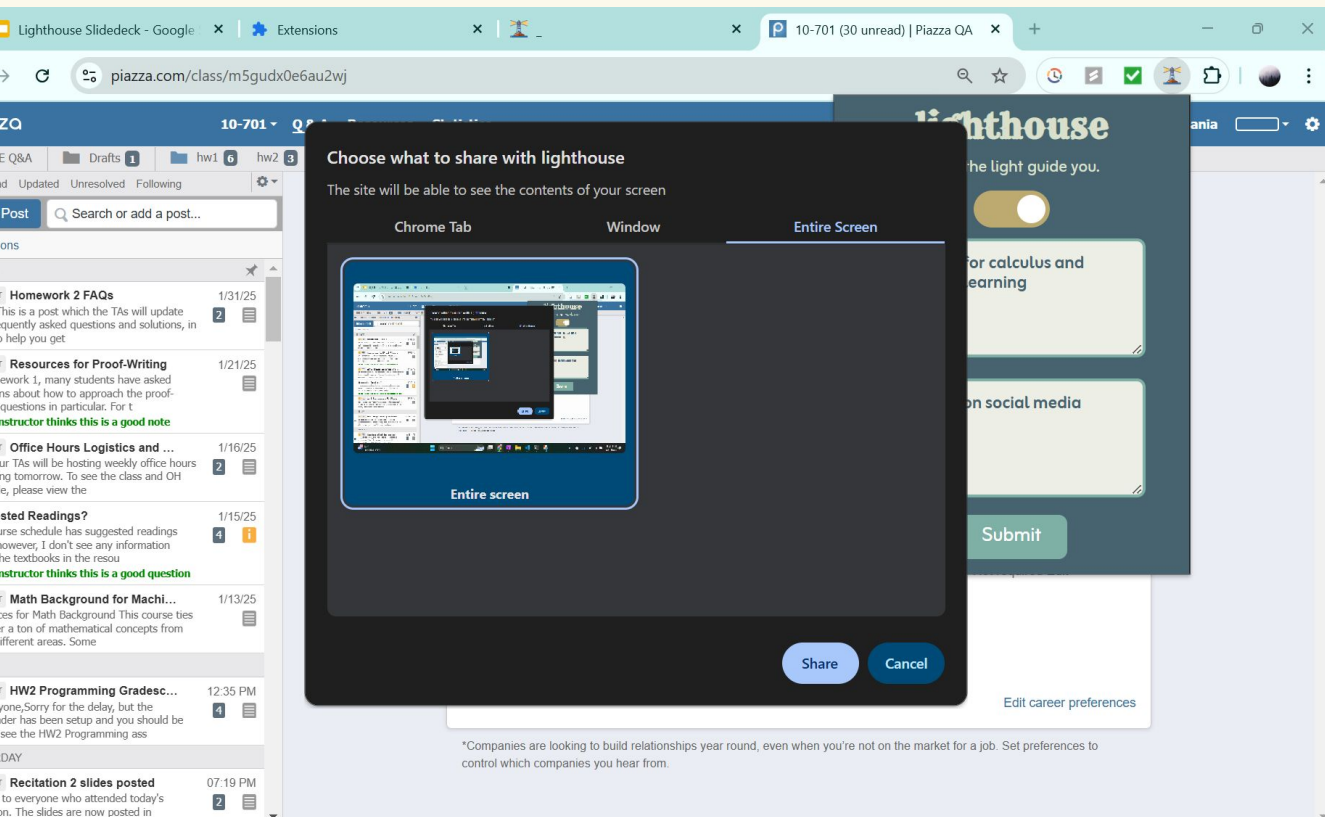
Below the network statistics, there is a section titled "Companies recently added" with logos for DE Shaw & Co. and a link to "Edit career preferences".

On the left side of the page, there is a list of posts. The first post is titled "Homework 2 FAQs" and is dated 1/31/25. The second post is titled "Resources for Proof-Writing" and is dated 1/21/25. The third post is titled "Office Hours Logistics and ..." and is dated 1/16/25. The fourth post is titled "Suggested Readings?" and is dated 1/15/25. The fifth post is titled "Math Background for Machi..." and is dated 1/13/25. The sixth post is titled "HW2 Programming Gradesc..." and is dated 12:35 PM. The seventh post is titled "Recitation 2 slides posted" and is dated 07:19 PM.

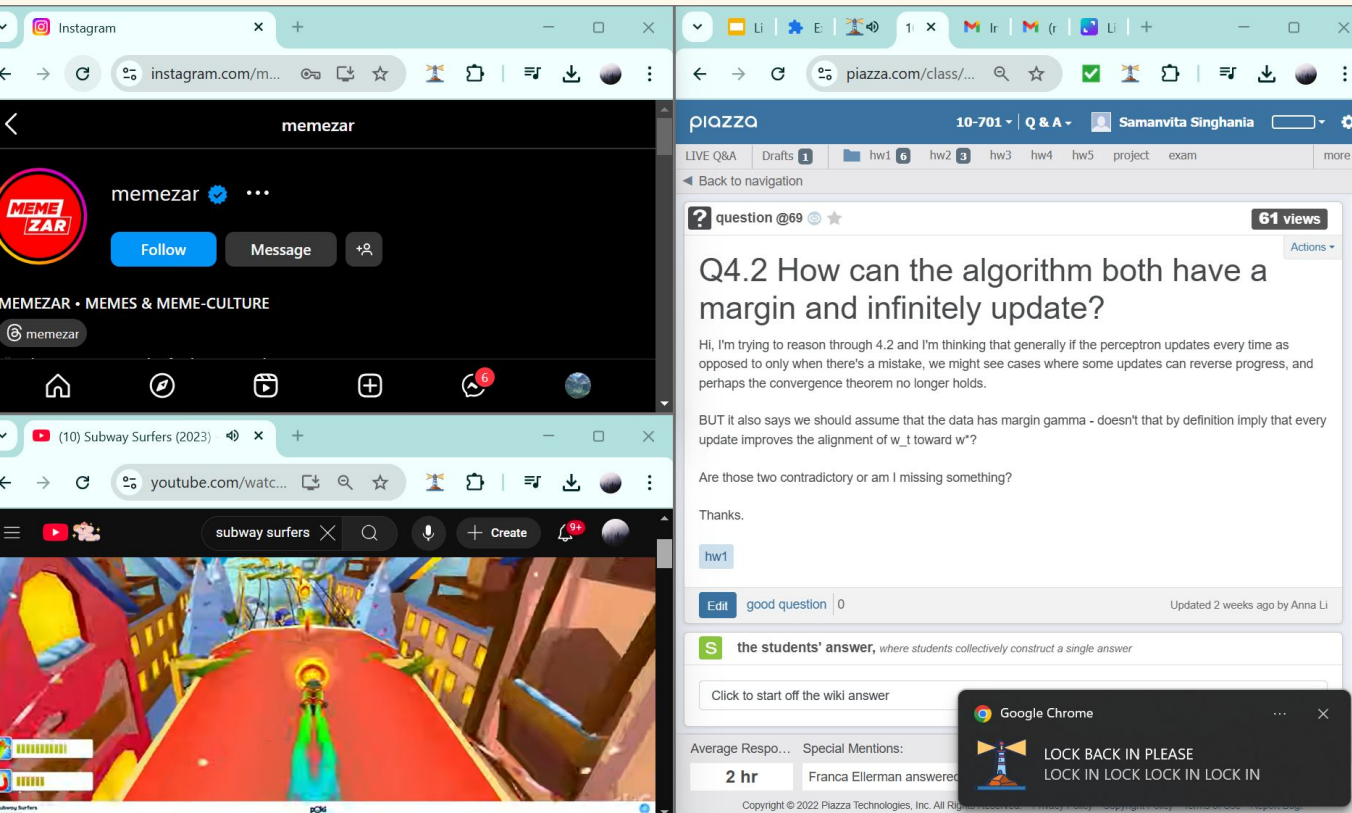
A Lighthouse extension notification is overlaid on the right side of the page. It has a dark blue header with the Lighthouse logo and the text "Light the light guide you.". Below the header is a toggle switch. The notification contains two text boxes: "studying for calculus and machine learning" and "scrolling on social media". At the bottom of the notification is a "Submit" button.

screen sharing via chrome API

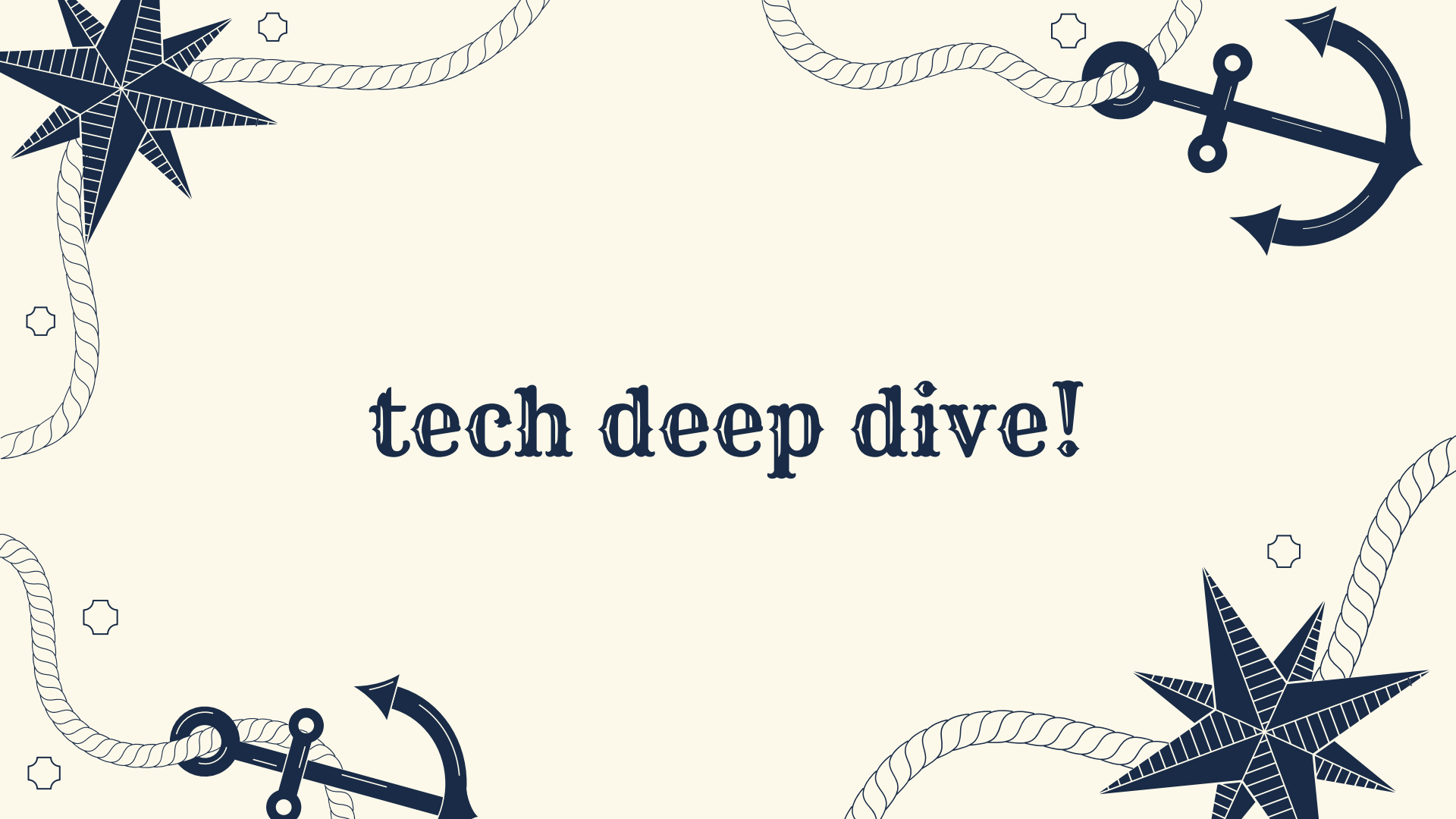
- Modular tech stack
- Reliable and secure data capture method



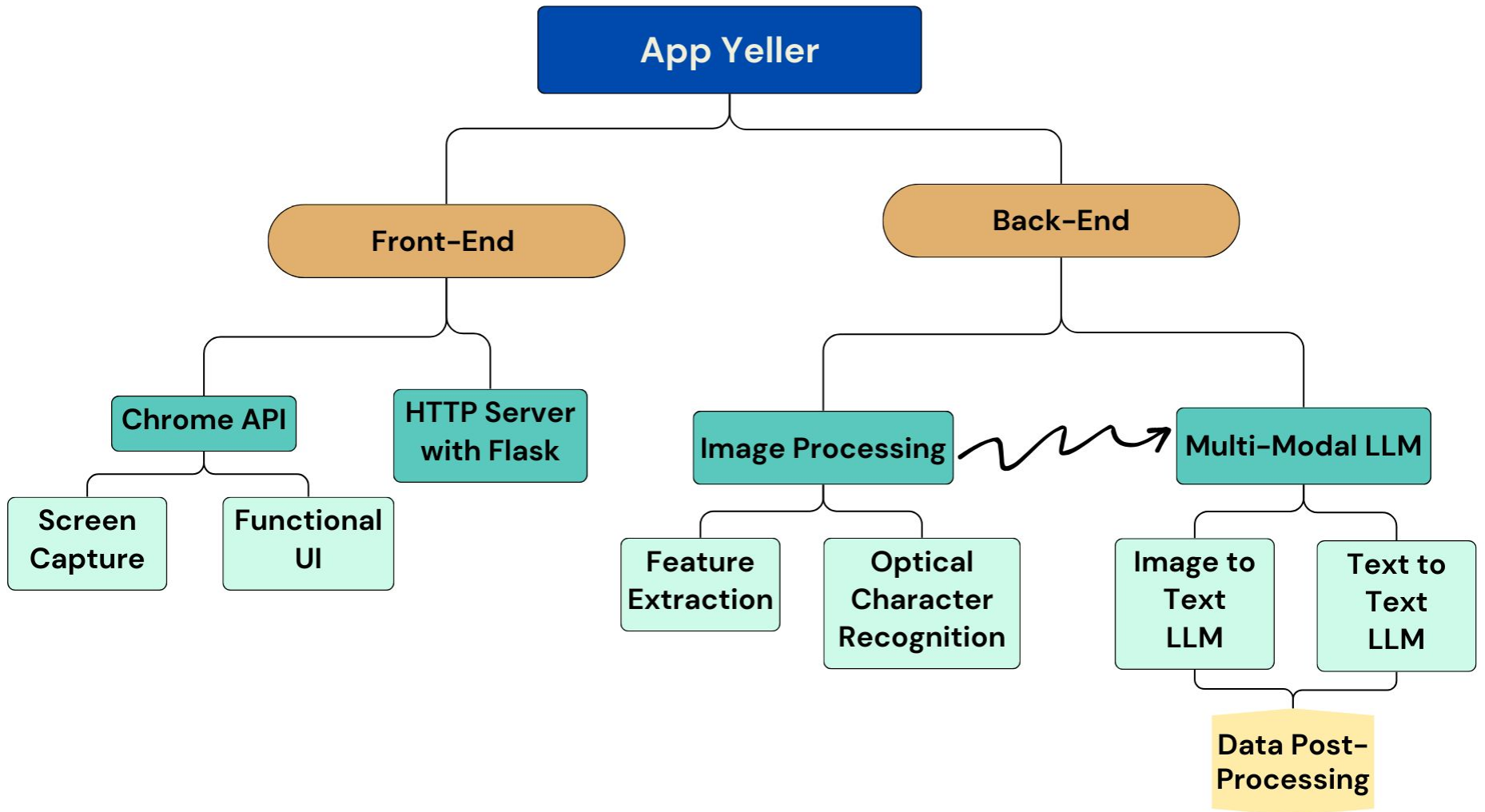
Detection and Notification!

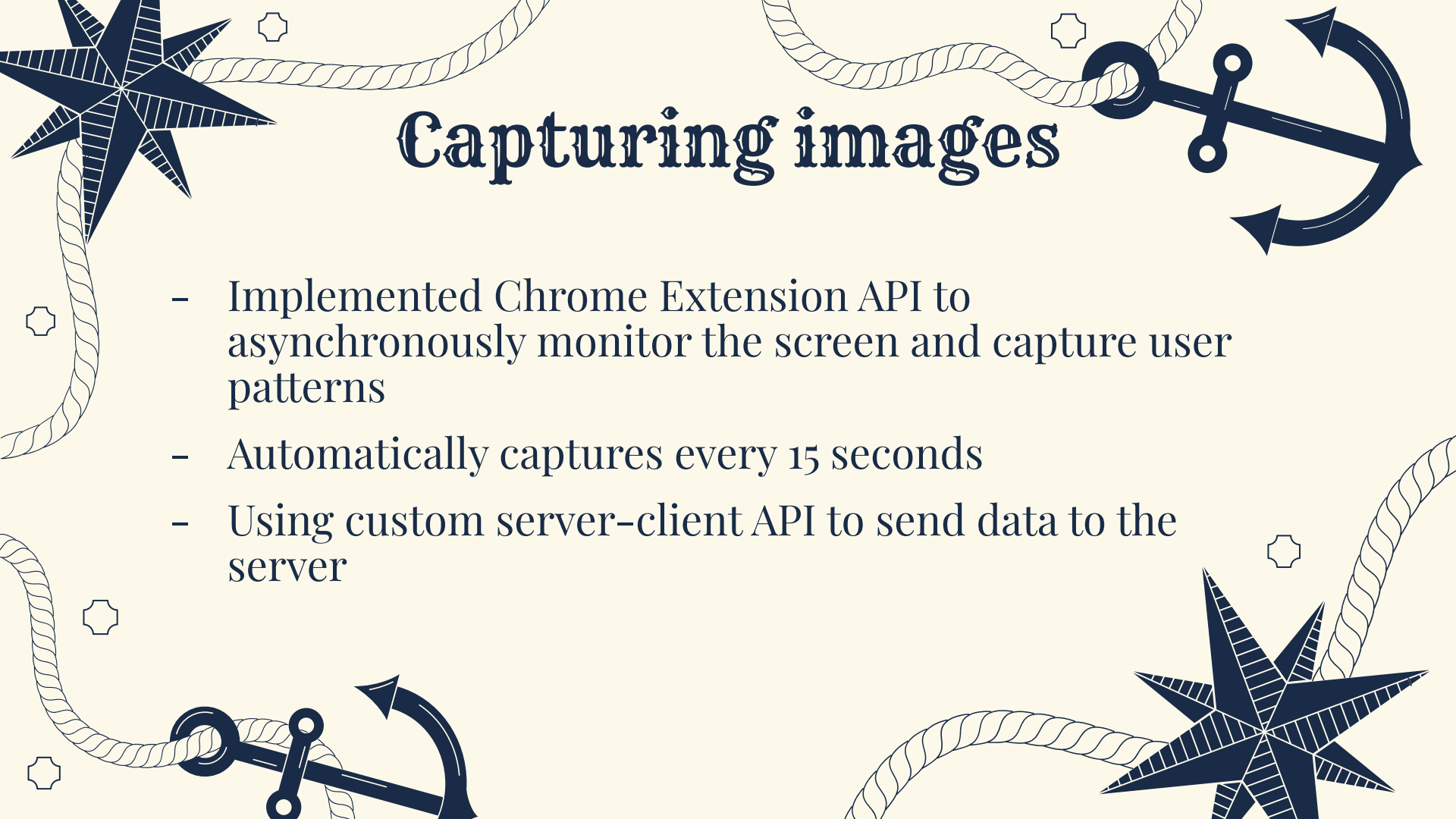


- There are also audio notifications
- Can detect across multiple windows
- Makes inference every ~15 seconds

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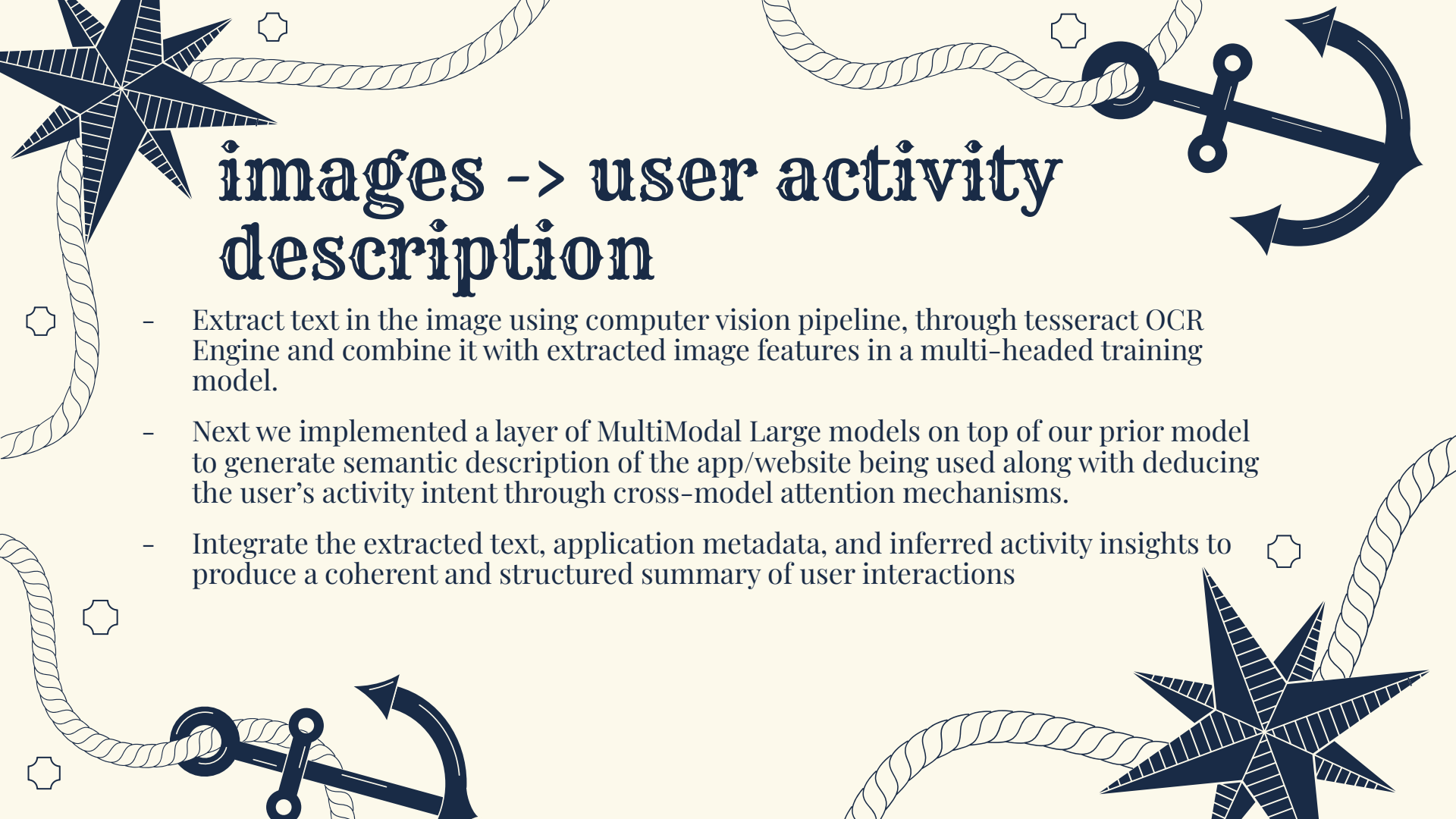
tech deep dive!



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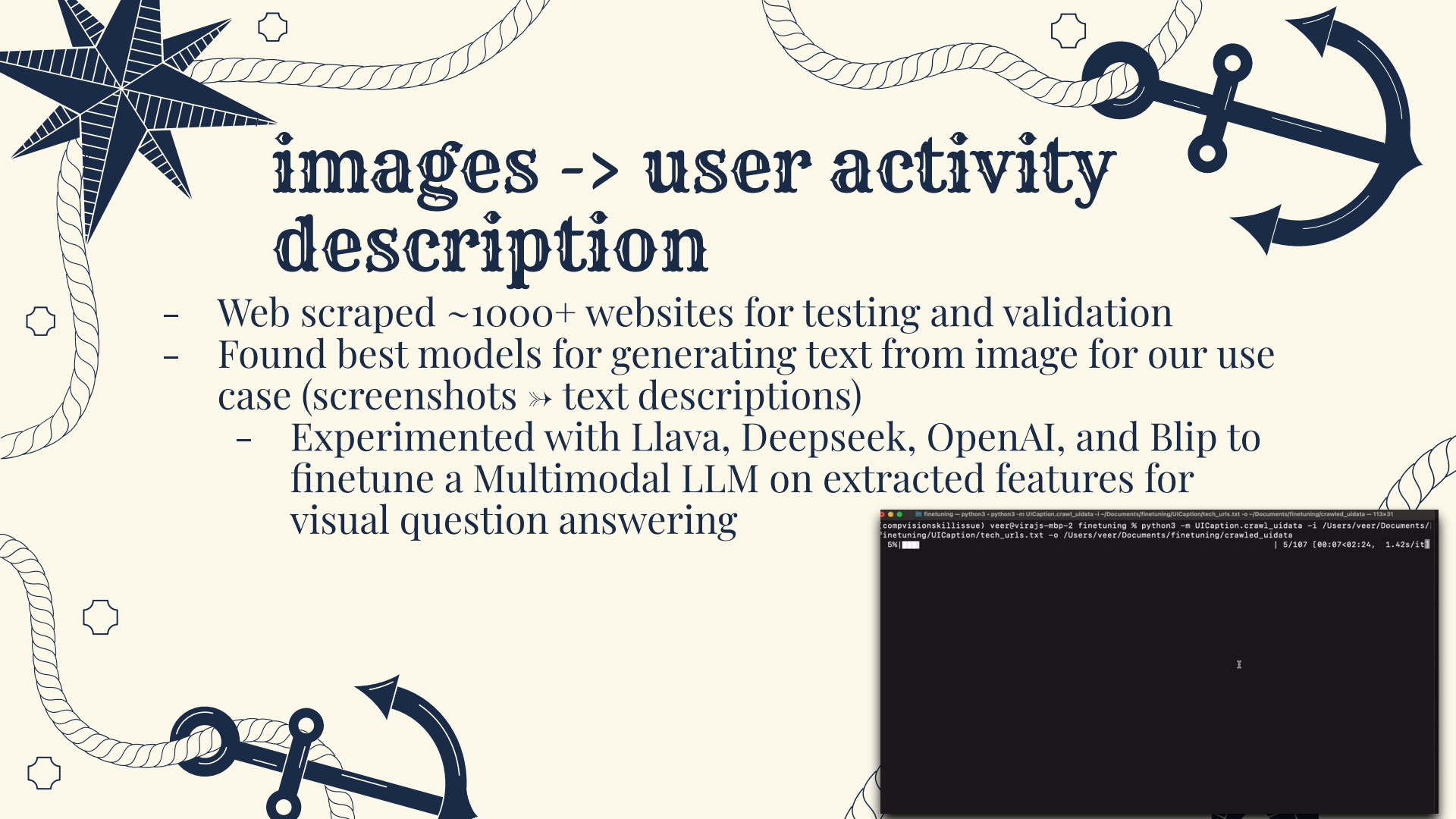
Capturing images

- Implemented Chrome Extension API to asynchronously monitor the screen and capture user patterns
- Automatically captures every 15 seconds
- Using custom server-client API to send data to the server



images -> user activity description

- Extract text in the image using computer vision pipeline, through tesseract OCR Engine and combine it with extracted image features in a multi-headed training model.
- Next we implemented a layer of MultiModal Large models on top of our prior model to generate semantic description of the app/website being used along with deducing the user's activity intent through cross-model attention mechanisms.
- Integrate the extracted text, application metadata, and inferred activity insights to produce a coherent and structured summary of user interactions



images -> user activity description

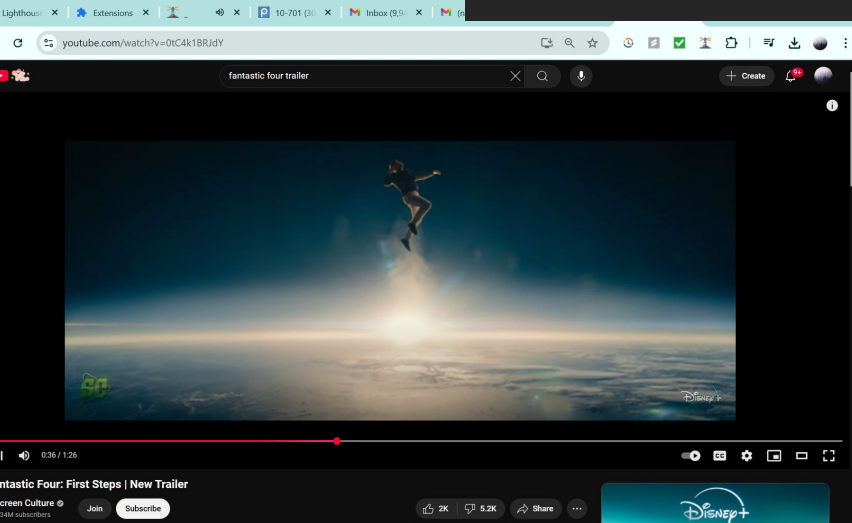
- Web scraped ~1000+ websites for testing and validation
- Found best models for generating text from image for our use case (screenshots » text descriptions)
 - Experimented with Llava, Deepseek, OpenAI, and Blip to finetune a Multimodal LLM on extracted features for visual question answering

```
finetuning -- python3 -m UICaption.crawl_uidata -i ~/Documents/finetuning/tech_urls.txt -o ~/Documents/finetuning/crawled_uidata - 115x31
compvionskillissue) veer@virajs-mbp-2 finetuning % python3 -m UICaption.crawl_uidata -i ~/Users/veer/Documents/
finetuning/UICaption/tech_urls.txt -o ~/Users/veer/Documents/finetuning/crawled_uidata
5% | ██████████ | 5/107 [00:07<02:24, 1.42s/it]
```

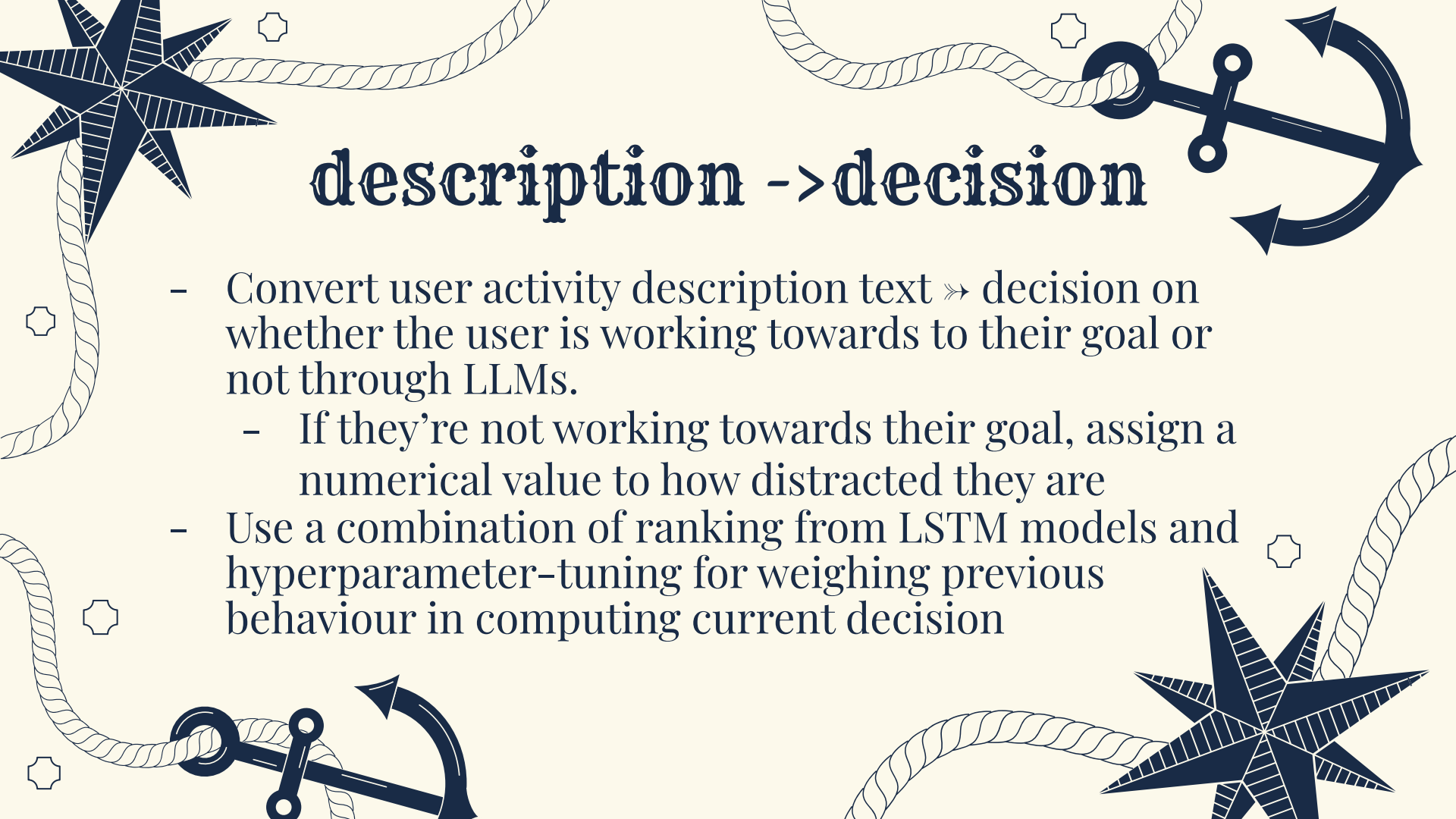
Text Parsing and Image Description

auto-detects website

('youtube.com', "The image shows a **YouTube** page open in a web browser, specifically Google Chrome, displaying a trailer for '**The Fantastic Four: First Steps**'. There is a video with a space or sci-fi theme playing, likely a Disney+ production. The video is uploaded by a channel called 'Screen Culture' which has over a million subscribers. The user interface shows typical YouTube features such as **Like and Dislike** buttons, as well as options to Share the video. There are **multiple open tabs** in the browser and a visible Google Chrome notification pop-up in the bottom right corner with a message about locking in. It contains an object YouTube with attribute Video streaming website. It contains an object Google Chrome with attribute Web browser. ", ['Google', 'Chrome', 'i<@'])

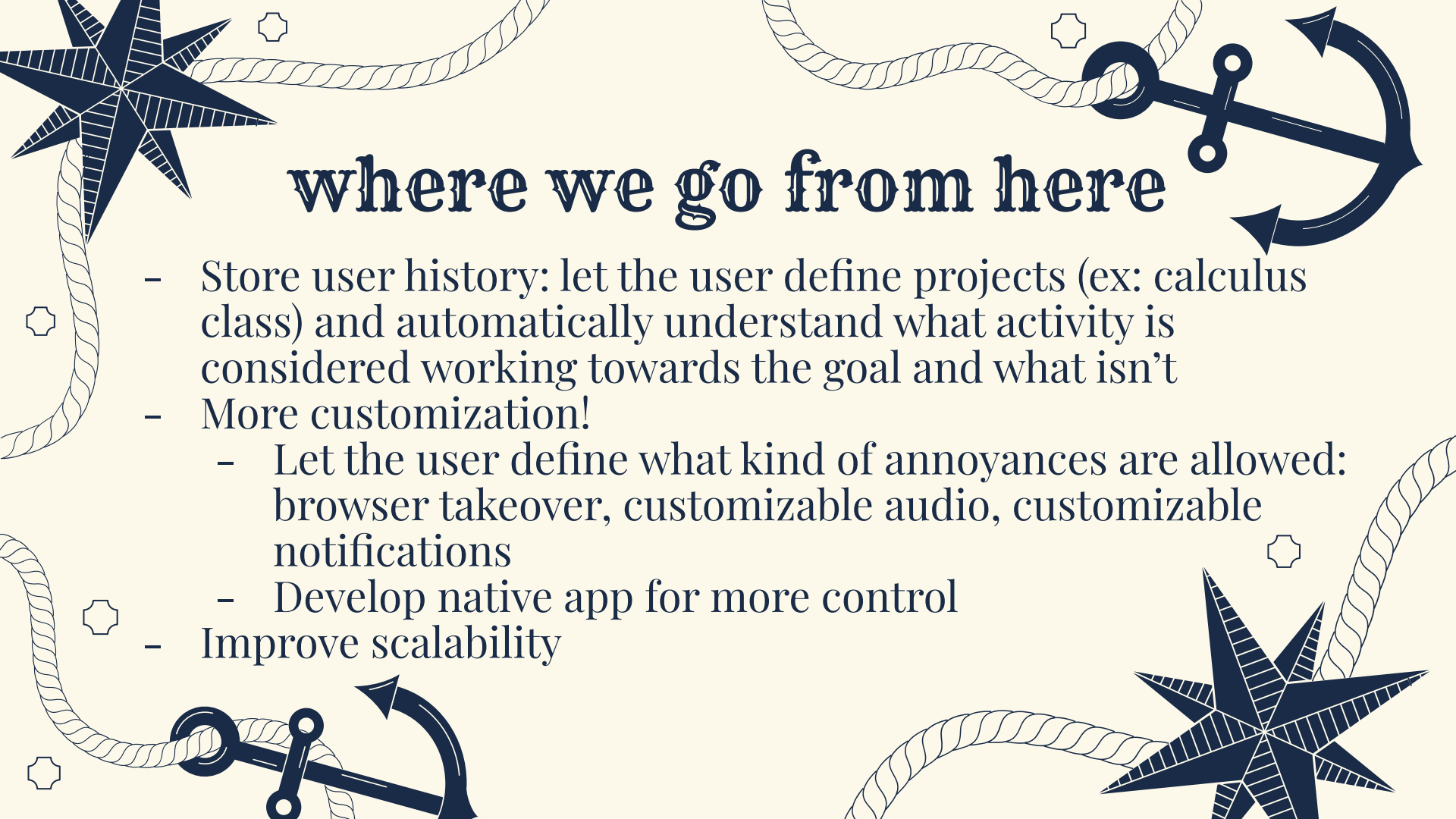


parses largest + centered text



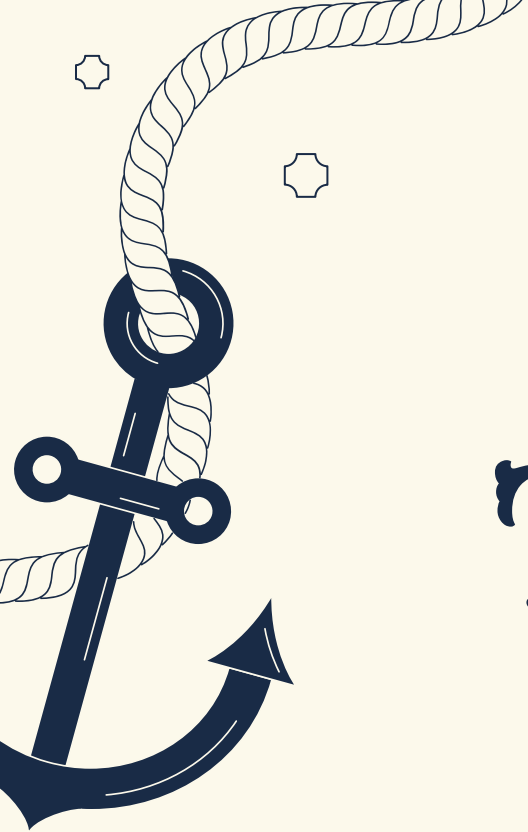
description -> decision

- Convert user activity description text $\Rightarrow$ decision on whether the user is working towards to their goal or not through LLMs.
 - If they're not working towards their goal, assign a numerical value to how distracted they are
- Use a combination of ranking from LSTM models and hyperparameter-tuning for weighing previous behaviour in computing current decision



where we go from here

- Store user history: let the user define projects (ex: calculus class) and automatically understand what activity is considered working towards the goal and what isn't
- More customization!
 - Let the user define what kind of annoyances are allowed: browser takeover, customizable audio, customizable notifications
 - Develop native app for more control
- Improve scalability



THANKS!

