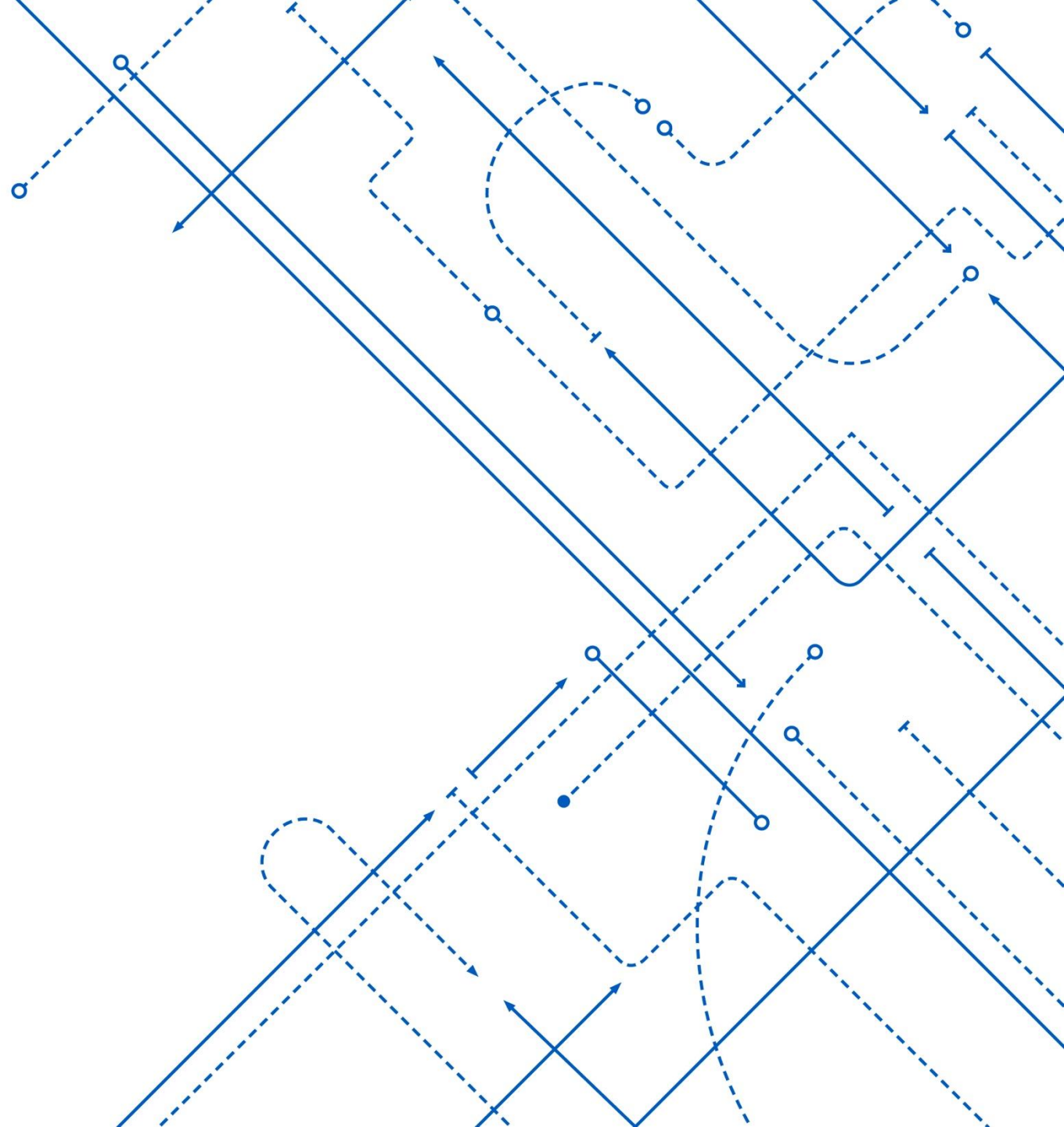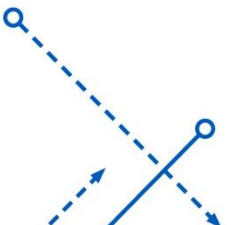# A Mish-mash of Things

Kenneth (Kenny) Joseph

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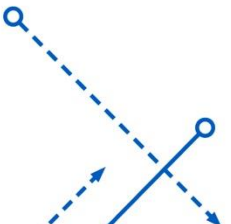
HW2 is up!

- Will discuss throughout class and at end

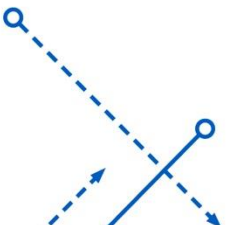- **Fully group project,** and you'll be dinged if it looks otherwise

@_kenny_joseph

Today

- Some reminders about your projects

- Reflections on HW1

- Discussion about last week

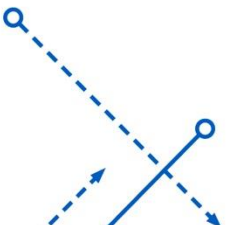- Returning to our toy examples

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Reminder: We're not just lecturing to lecture

- We expect to see concepts we've covered in class reflected in your HW (explicitly, in HW2, implicitly after that)

- Sample of relevant topics to your HW
  - Who/what/when you're optimizing for, and where such decisions are made
  - Foundation models vs fine-tuning/guardrails
  - Complexities of data production
  - Careful consideration of evaluation methods

- Sample of **non-**relevant topics
  - The technical details lecture (that's mostly just because it's good to know)

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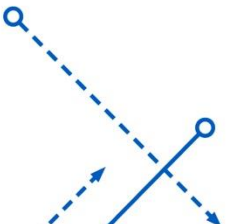
4

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Reminder: You're not just TQE'ing to TQE

- Our discussions are enriching for your understanding of the domain but also for your projects

- Examples
  - Incorporating class readings
  - Statements like "our class discussion about Reading X shaped our thinking on this by XYZ"
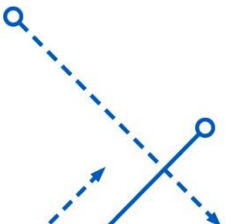 - …

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Reflections on HW1

- Nice work overall, in general
- What did you think?

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"What is a subproblem"?

- These were a bit all over the place (and that's OK! For now.)
- Want to show you some examples from last year…
- Their task: **End White Supremacy**

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Mission to end Healthcare disparity and White Supremacy

Tyler Landivar, Ethan Creig, Afzal Ahammed Syed

Problem

- There are disparities within healthcare and racial and ethnic minority groups are suffering from its effects. Major contributor is lack of diversity among healthcare workers.

History and Tech

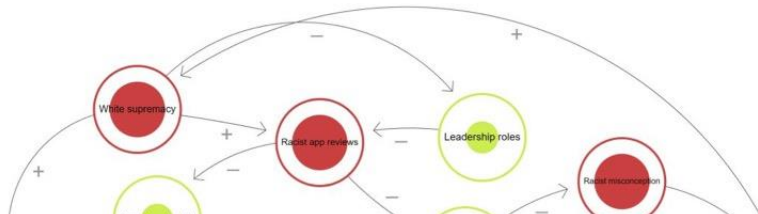Factors sustaining problem:
- Economic Disparity
- Traumatic History
- Biased ML Algorithms in Hiring/Admissions
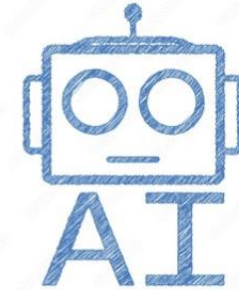
Current World

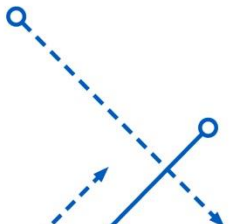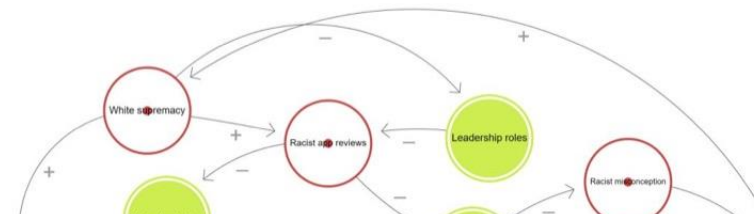Some problems in the world currently:

- Lack of Access to Healthcare
- Lack of Educational Opportunities
- Lack of Healthcare Worker Diversity

• Future World

We envision a world where there is:

- Universal Access to Healthcare and Education
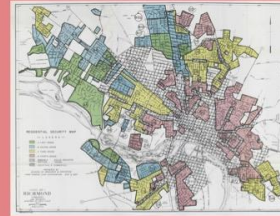- Equal Quality of Care
- No More Economic Disparity

y_joseph

EQUITABLE HEALTHCARE ACCESS:
BRIDGING RACIAL DISPARITIES FOR SYSTEMIC EQUALITY

THE SYSTEMIC RACIEST EXPLOTATION

History

REDLINING AND ABUSE FROM THE MEDICAL FIELD, MINORITES ARE FACING A LACK OF TRUST IN THE HEALTHCARE SYSTEM AND DISPARITIES IN QUALITY AND ACCESS

CREATE AN ALGORITHM TO ALLOCATE RESOURCES TO AREAS WITH LOW ACCESS AND QUALITY OF HEALTHCARE

Action Steps

CREATE LAWS TO REGULATE THE RESROUCES TO MAKE SURE IT GOES TO THOSE IN NEED

TARGET AREAS HEAVILY AFFECTED BY REDLINING AND RACIAL INEQUALITIES IN HEALTHCARE
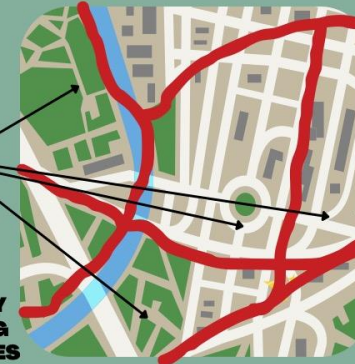
The Future

AFFORDABLE, QUALITY CARE FOSTERS TRUST, ERASING DISPARITIES IN HEALTHCARE ACCESSIBILITY.

GEOGRAPHICALLY ACCESSIBLE HEALTHCARE NEAR PUBLIC TRANSIT ENSURES EQUITABLE SERVICE DISTRIBUTION.

INSURANCE

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Empowering Grassroots
Harnessing Social Media Against Misinformation

By: Jabari Crichlow, Ryan Myers, Ria Gupta, Steven Wang

The Problem

- Misinformation within social media
- Grassroots becoming professionalized
- Radical right usage of social media

Current World

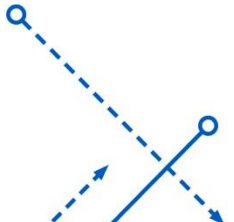Misinformation is being fought by many social media sites to this day, with evolving choices being made to subvert misinformation and disinformation. The problem has sustained from right wing agendas on platforms, and biased algorithms found in social media sites to this day to stop disinformation and misinformation

Birdwatch

Future World

We aim is to create a world in which the wealth of a few is not built on the suffering of the many. People of many races and religions living in harmony is not a far off fantasy, and I believe we can achieve a world like this through our app and partnership network that seeks to dispel racial prejudices and ideas, unifying humans as one race. :

The Pros and Cons of Capitalism

- The Best Products for the Best Price -
- Innovation is Often Rewarded -
- Lacks Equality of Opportunity -
- External Costs Are Ignored -

History

- The Myth of the Spanish Conquest (Superiority vs. Inferiority)
- Racist pseudosciences
- Institutions and Capitalism
- Political Cartoons (Spanish-American War)

Tech

- Misinformation in the algorithm of other social media platforms
- Birdwatch and the Youtube community guidelines
- The "Intelligence Desk"

FLOW CHART OF THE ALGORITHM

h
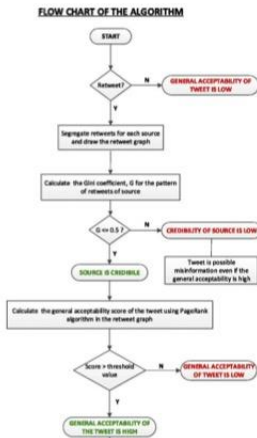
Solving Food Insecurity
Owen Lee, Daniel Eakes, & Johnny Lok

Problem

In 2021, 20% of Black American households suffered from food insecurity compared to white American households (National Institute on Minority Health and Health Disparities, 2024). This is because of food deserts, which affect racial minorities due to segregation caused by white supremacy.

Current World

Currently, minority communities lack infrastructure to obtain healthy foods like supermarkets. Things like community gardens and programs help fight against food insecurity.

Nationwide Supermarket Availability
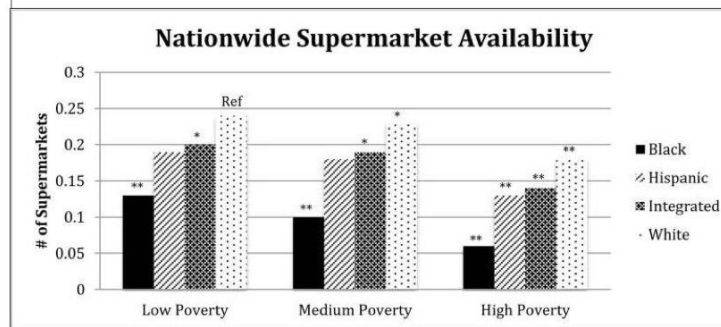
Future World

In our future world, we hope to create a society without white supremacy where our communities are built on interdependence and mutual trust.
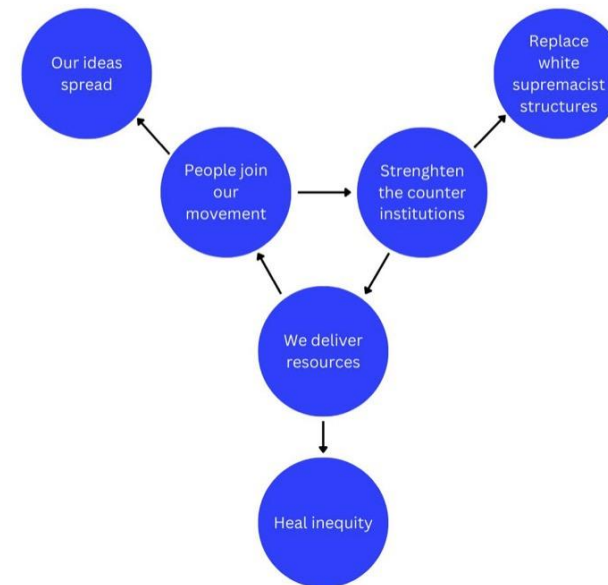

Tech

We will create a welcoming, inclusive, and collaborative computing space to design technological infrastructure for the future. Our design values are:
- Data privacy
- Optional technology
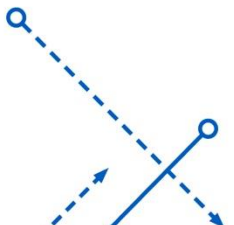- Design from communal knowledge
- Minimal consumption

Plan

Tools

Machine Learning: Computer simulations can quantify and

COMBATTING BLACK MATERNAL MORTALITY

"If Black women were free, it would mean that everyone else would have to be free since our freedom would necessitate the destruction of all the systems of oppression"
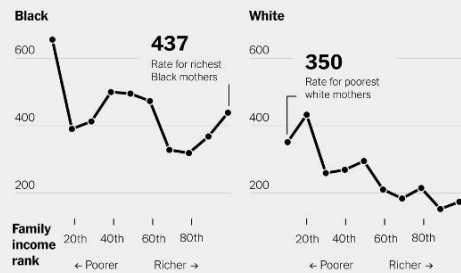
Combahee River Collective

AUTHORS
Samiha Islam, Benson Cai and Rina Zhang

PROBLEM

White supremacy is a structural, violent, fundamentally prejudiced and discriminatory approach to the treatment of other races. Stemming from flawed predictive algorithms, they perpetuate historical and ongoing biases and disparities by reinforcing disparities in healthcare and falsely suggesting subpar treatments for Black patients in comparison.
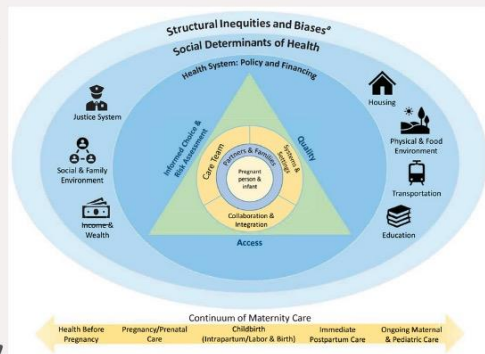
Infant deaths per 100,000 for mothers who are …

Black

437
Rate for richest Black mothers

600

400

200

Family income rank 20th 40th 60th 80th
← Poorer   Richer →

White

350
Rate for poorest white mothers

600

400

200

20th 40th 60th 80th
← Poorer   Richer →

HTTPS://WWW.NYTIMES.COM/INTERACTIVE/2023/02/12/UPSHOT/CHILD-MATERNAL-MORTALITY-RICH-POOR.HTML

HISTORY + TECH

Historical injustices, such as involuntary sterilization, have inadvertently perpetuated technological biases in healthcare through flawed medical records. By refining these algorithms, we can mitigate disparities in maternal healthcare outcomes for all.

Structural Inequities and Biases
Social Determinants of Health
Health System: Policy and Financing

Justice System

Social & Family Environment

Income & Wealth

Informed Choice & Risk Assessment

Care Team
Partners & Family
Pregnant person & infant
Collaboration & Integration

Quality Science & Evidence

Housing

Physical & Food Environment

Transportation

Education

Access

Continuum of Maternity Care
Health Before Pregnancy | Pregnancy/Prenatal Care | Childbirth (Intrapartum/Labor & Birth) | Immediate Postpartum Care | Ongoing Maternal & Pediatric Care

(SCRIMSHAW, 2020)

CURRENT WORLD

The persistence of Black Maternal Mortality stems from structural racism in both historical and ongoing practices, as well as implicit biases within healthcare systems and socioeconomic barriers.
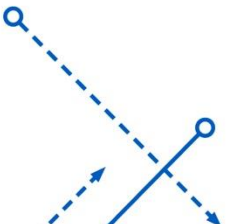
"in New York State, black women are four to five times more likely to die from a pregnancy-related cause, and that in our community, we're seeing similar mortality rates. What's more, the CDC noted that more than 80% of pregnancy-related deaths are preventable" (The Buffalo News)

FUTURE WORLD

In a world devoid of white supremacy, equality prevails, eliminating disparities in maternal mortality, education, and public safety and transportation. Additionally, it enables equitable access to healthcare, schooling, and fosters safer and healthier communities.
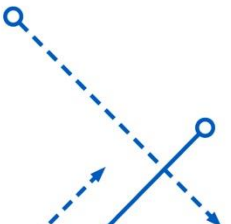
nny_joseph

Brain break

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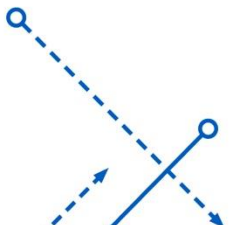School of Engineering and Applied Sciences

Reflections on Last Week

- Five minutes, chat with folks next to you…

- Some prompts:
  - How did she approach things differently from us?
  - How does it feel in comparison to the ways Atri and I have asked you to think about these things?
  - What was most useful?
  - What was most interesting?
  - What was most confusing?

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Break!

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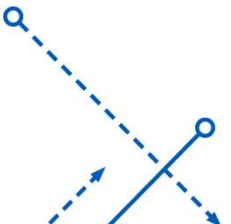and Engineering
School of Engineering and Applied Sciences

Reminder- Your Toy example

Imagine you are a new company tasked with designing an AI tutor for first-year college students. Do the following [thinking about the *why* for each]:

- Outline a population you want to target (e.g. "students who are good at math")

- Define a way you'll build the model (e.g. "start with GPT and then finetune using…"), and what guardrails you will put in place

- Define your "secret sauce" … why should I use your tool instead of others?

- Explain how you'll evaluate the effectiveness of your approach ~~*not* using the Design Justice Principles~~

- ~~Consider an evaluation, now, using at least one of the Design Justice principles~~

- Describe one group of people that are *not* likely to benefit from your tool, and why that is(n't) OK

- Consider the 4 roles of social change. Which, if any, does your app fit into?
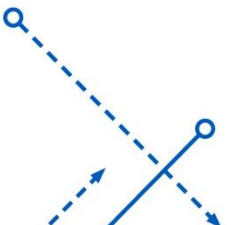 - **Can find these in the Lecture 2 slides**

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Some reflections

- [From last week] – very clear "who"

- Only one group thought to ask, "how do I actually get buy-in from multiple important stakeholders?"

- Evaluation was vague
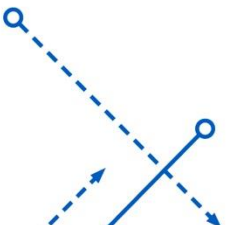
Extension #1

1. Add in a Design Justice Principle
2. Add in a different and more concrete evaluation

How *could* we evaluate it differently?

- We're going to give you some tools to think through this throughout the course. Here's one

  https://designjustice.org/read-the-principles

- Activity: You will be assigned one principle. Answer two questions
  - Do you think ChatGPT **as-is** encompasses this principle?
  - If so, why? If not, what could you change to make it that way?

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