Activity 2:

Discriminatory Design:

Lesson (1 hour and 40 minutes)

Objectives

- Students will identify different examples of discriminatory design.
- Students will learn how AI can be a form of discriminatory design.

Resources

- [Link to slides for this activity](#)
- The file name for the slides is titled, "Discriminatory_design_slides.pdf".

Vocabulary

- **Discriminatory Design:** Ruja Benjamin describes discriminatory design as the hidden prejudices that are built into aspects of society (products, tech, video games, etc.) and as a result, emergent technologies can preserve discrimination [1].

Preparation

Material	Description
Padlet	This is a discussion website, which allows the students to share their ideas anonymously.
Video titled "[Why cities are full of uncomfortable benches](#)"	"When designing urban spaces, city planners have many competing interests to balance. After all, cities are some of the most diverse places on the planet. They need to be built for a variety of needs. In recent years, these competing interests have surfaced conflict over an unlikely interest: purposefully uncomfortable benches. Enter the New York City MTA. They've installed "leaning bars" to supplement traditional benches & save platform space. But designs like this carry an often invisible cost: they rob citizens of hospitable public space. And the people who experience this cost most directly are those experiencing homelessness." (Vox)

Video titled "[From park bench to lab bench - What kind of future are we designing?](#)"	"Ruha challenges biases inherent to modern scientific research" (TEDx Talks)
Slides	Slides are about discriminatory design.

Introduction

This activity teaches students about discriminatory design. Ruja Benjamin describes discriminatory design as the hidden prejudices that are built into aspects of society (products, tech, video games, etc.) and as a result, emergent technologies can preserve discrimination [1]. First, students will learn how names are racially coded. Next, students will discuss how the government, companies, and the media attempt to mask discrimination. The following activities continue to allow students to expand their knowledge on the different forms of discriminatory design in data science. The instructions correspond with each slide in the presentation.

Instructions

Discuss the objective of the Discriminatory Design activity to students:

- Identify different examples of discriminatory design.
- Learn how AI can be a form of discriminatory design.

Activity 1: Story of Your Name : Understand how people can be discriminated against because of their name **[10 minutes]**	
Instructions	
[5 minutes]	Talk with the people in your group of 3-4 people about the history of your name. Each group will spend minutes sharing their answers in small groups. Answer any of these questions: 1. Who chose your name and why? 2. Does it have a meaning? 3. Was it always like this or has it changed? 4. Do people sometimes pronounce or write your name in the wrong way? 5. Do you like your name? 6. How would you like to be called? 7. What do your relatives and friends call you? 8. Is there a different way of writing/pronouncing your

	name in another language? 9. In which language do you like your name the most? 10. Is there a story connected to your name?

[5 minutes]	Reflection:
	● After, one student from each group volunteers to share their answers with the class for 7 minutes.
	● Discuss the following questions as a large group in class:
	  ○ Do you think someone can infer someone's race based on their name?
	  ○ Can you think of examples where someone may be discriminated against because of their name? One example is some people's unwillingness to hire someone based on their name[5].
	  ○ Answer to look for:
	    ■ Some people assume specific names belong to people of color[2]. Benjamin says, "As a result, people may take less time to learn how to pronounce their name or they may be less likely to get an interview for a job"[1].
	● The purpose of slide 5 is to show students how people can be discriminated against because of their name. :
	  ○ Moreover, researchers found that when someone with a name that most likely belonged to an African American was typed into Google, they were more likely to receive ads about criminal reports.
	  ○ For example, Sweeney states, "The first ad implied Latanya Farrell may have been arrested. Was she? Clicking on the link and paying the requisite subscription fee revealed that the company had no arrest record for her (figure 1b). There is no arrest record for *Latanya Sweeney* either, but there is for *Latanya Lockett*."[2].

	Essentially, names contain a vast amount of power. Benjamin states, "Whereas someone with a "normal name" is not judged immediately at the mention of their name and they reap the benefits but escape responsibility for their role in an unjust system. And some people, by virtue of their social position, are given more license to experiment with unique names"[1].
	○ Table 1 contains black-identifying and white-identifying first names. These names were used to reveal the racial name bias in online ad delivery. Dr. Sweeney states "Black-identifying and white-identifying first names occur with sufficiently higher frequency in one race than the other." [2].

Activity 2: Discriminatory design examples: Students will identify different examples of discriminatory design. **[45 minutes]**	
Instructions	
[5 minutes]	Share slides about discriminatory design in benches.
[5 minutes]	Students will watch the following video: "Why cities are full of uncomfortable benches"

[10 minutes]	Ask students whether they know why each slide is an example of discriminatory design. Answers:
	1. Slide #11:
	   a. Oftentimes, left-handed people have ink on their hands because they have to write from left to right. Some people argue that the world wasn't made for left-handed people.
	2. Slide #12:
	   a. The blood pressure monitors at CVS were designed to only be used for people with left

	arms. People with sensitive left arms would not be able to use these blood pressure monitors. For example, some breast cancer survivors who had a mastectomy on their left breast would not be able to use these blood pressure monitors because they have a sensitive left arm. c. Explanation of how the slide with the pulse oximeter is an example of discriminatory design:
	
	3. Slide #13:
	    a. Pulse oximeters are less accurate on darker skin. Researchers at the University of Michigan state, "Black people are 3 times more likely to experience pulse oximeter errors" [4].
	
	4. Slides #14 and #15:
	    a. Also, the instructor should be prepared to explain how these are examples of discriminatory design: sidewalk spikes, highways, barred corners, surveillance, mounted spikes, pay public toilets, "crime" lights, the North Brooklyn Pipeline, and the HP Face Tracking Camera.

[5 minutes]	Explain to students that Dr. Ruja Benjamin coined the term "discriminatory design" (1 minute)

[20 minutes]	● Watch the Youtube video titled, "From park bench to lab bench - What kind of future are we designing?"
	
	While they are watching the video, have students take notes using the 3,2,1 framework on Padlet:
	
	The 3,2,1 Framework
	    ● *three facts from the video*
	    ● *two facts they never knew*
	    ● *one question they have after watching the video*
	
	After students finish typing their 3,2,1 on Padlet, instruct the students to discuss their answers in small groups for 5 minutes.

	Then, the instructor should lead a large group discussion for another 5 minutes.

Activity 3: Part 2 of Discriminatory design examples: Students will identify different examples of discriminatory design. **[45 minutes]**	
Instructions	
[30 minutes]	● Students will have to work in small groups of 3-4 people to discuss the answer to the following question: **"What are some examples of discriminatory designs?"** Answers may include: 　○ Many places don't take cash anymore because of COVID. As a result, you have to go to a bank to get a credit card. Not everyone has a bank account. 　○ Sometimes people have to purchase tickets online to take their family members to sports games. However, not everyone has internet access to purchase tickets online. As a result, some kids may not be able to participate in some games. 　○ In the Declaration of Independence the statement, "all men are created equal", did not apply to African Americans because they were considered property. ● Afterwards, students have to explain each answer to the class.
[5 minutes]	● Reflection: Encourage students to share their experience doing the activity: 　○ What did you learn? 　○ What was challenging?
[3 minute]	● Possible closing statement: As a class, we will learn how "those things dubbed "just ordinary" are also cultural, as they embody values, beliefs, and

	narratives, and normal names offer some of the most powerful stories of all …. and infused with meaning and experience – particular histories, longings, and anxieties." (Ruja Benjamin) ○ Provide 2 minutes for students reflect on this quote.

References

[1] Benjamin, R. (2019). *Race after technology: Abolitionist tools for the new Jim code*. Polity.

[2] Latanya Sweeney. (2013). Discrimination in Online Ad Delivery: Google ads, black names and white names, racial discrimination, and click advertising. Queue 11, 3 (March 2013), 10–29. https://doi.org/10.1145/2460276.2460278

[3] Bajaj, Simar. "Racial Bias Is Built into the Design of Pulse Oximeters." *The Washington Post*, WP Company, 27 July 2022, https://www.washingtonpost.com/made-by-history/2022/07/27/racial-bias-is-built-into-design-pulse-oximeters/.

[4] Valley, Thomas, et al. "More Health Inequality: Black People Are 3 Times More Likely to Experience Pulse Oximeter Errors." *Institute for Healthcare Policy & Innovation*, https://ihpi.umich.edu/news/commentary-more-health-inequality-black-people-are-3-times-more-likely-experience-pulse.

[5] Lubbers, Payne. "Job Applicants with 'Black Names' Still Less Likely to Get the Interview." *Bloomberg.com*, Bloomberg, 29 July 2021, https://www.bloomberg.com/news/articles/2021-07-29/job-applicants-with-black-names-still-less-likely-to-get-the-interview.