Inclusive Design

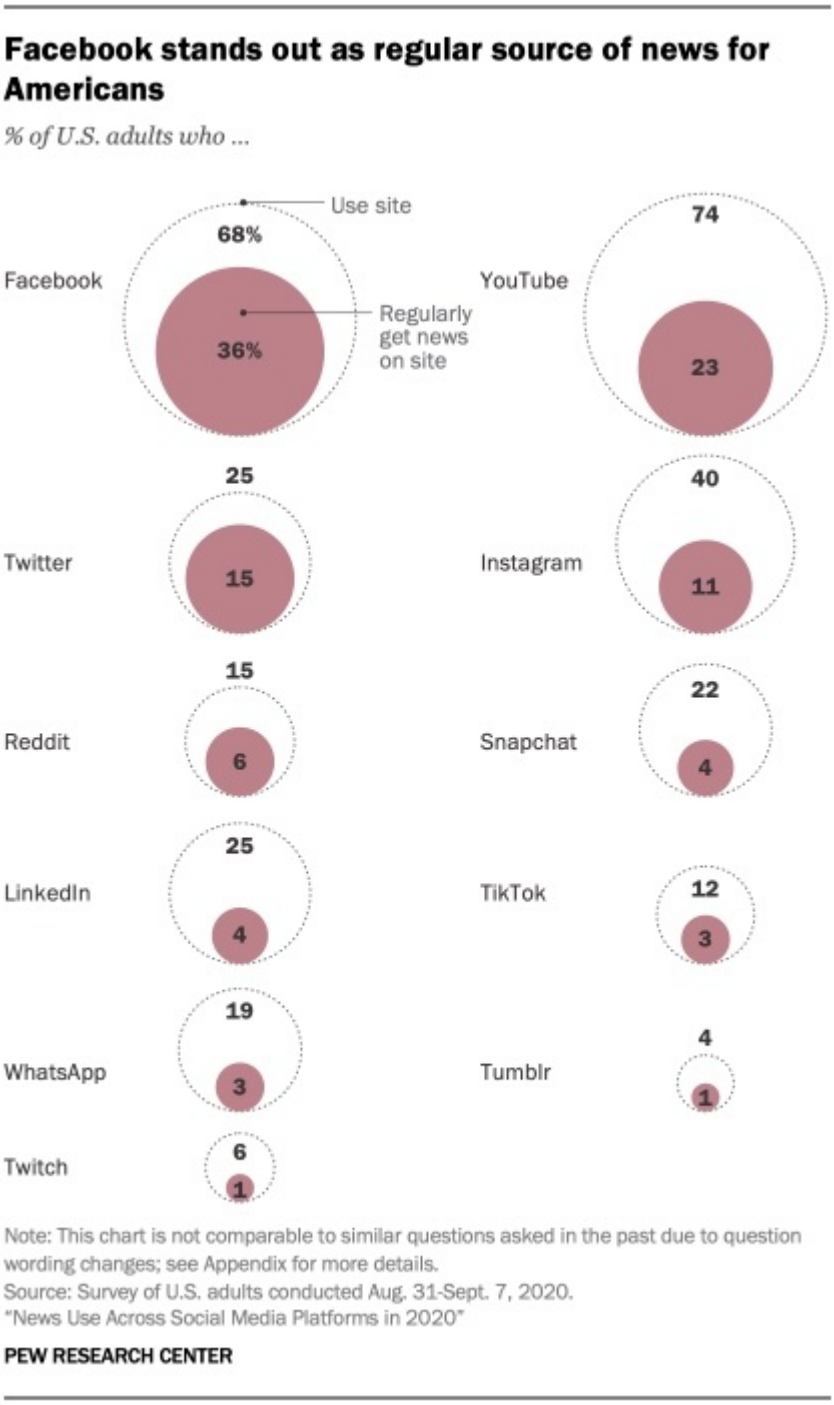
> Warm up question:
> What is the *primary way* you get your "news"?
>
> - A - newspaper
> - B - online news sites (currated by news media)
> - C - TV news channels
> - D - Podcasts/radio from news channels (NPR podcast/radio)
> - E - Social media / people sharing articles (Facebook, Reddit, TikTok, etc)

Content Delivery

A content delivery means news and information is directly sent to us.

- We wake up and information is available to us via
  - suggestions / personalized lists (google now)
  - via information currated based on our wants
  - information that is important to myself and my circles (friend/work groups)
  - based on **recommendation systems**
- Compared to having to search for the news
  - You go to the sports section in the newspaper
    - But you still see the main story before going there

71% of Americans (in 2020!)



Source: SocialMediaToday: New Research Shows that 71% of Americans Now Get News Content via Social Platforms

Discussion Item: Which Artificial Intelligence Bias?

If we are building a system to recommend news sources, which bias do we risk the most?

- A. Dataset Bias - the data to train the recommendation system is flawed
- B. Associations Bias - tools make assumptions based societal associations (gender assumptions on jobs)
- C. Automation Bias - assumes society norms in the algorithm repetition
- D. Interaction Bias - humans intentionally try to break the system

- E. Confirmation Bias - gives recommendations based on past preferences to ensure continued liking

Just because it works, doesn't mean it is right...

In [ ]:
```
favorite = "apple"
fruit = "pineapple"

if fruit.find(favorite):
    print(f"We recommend you try out a {fruit}.")
else:
    print(f"We didn't find anything related today, you should stick with your {favorit
```

```
We recommend you try out a pineapple.
```

The Ethical Dilemma of Computer Science

- Programmers have
  - Phenomenal ability to influence society
    - Especially in a **content delivery** society
  - Influence groups they never expected
    - World wide audience
  - This power often is unintentional
    - First law of technology: *Technology is neither good nor bad; nor is it neutral.*

> *Ethical Question*
> Can technology fully meet a group's needs or preferences, if members who identify with that group are not part of the creation of that techology?

Discussion Item: Who do you picture?

- For each column of traits (A,B,C)
  - First **by yourself** write down what you think
    - gender? race? education? hobbies? hair color? sexual preferences? pronouns? clothes? ability levels?
    - or one a TA loved to answer, "what movies do they watch"?
  - Be open and honest with yourself!
    - first thing that comes to mind!

A	B	C
First plane travel was on a family private jet	Lived in grandparents basement, due to family not having a home	Regularly participates in Rocky Horror Picture Show Shadow Casts for fun
Highly educated	Attended school in a very poor school district (> 60% free/reduced lunch)	Dresses up regularly

A	B	C
Attended a predominately white school	Only afforded the Christmas meal by raiding the coin savings jar.	Often attends Pride events
Attended a private elementary school	Has regularly worked in manual labor	Relationships are not considered society normal
Stays up-to-date on financial markets	Always struggled with math and reading	Has had slurs yelled at them
Occasionally listens to podcasts	Constantly worried about money	Has had eyes operated on to see
Drives an electric vehicle variant (PHEV)	Roman-Catholic family	Grew up singing and dancing in musicals and has been paid in professional theater
Rarely cooks	One of four children, and tons of cousins - food often center of gatherings	Has won cooking competitions
Entrepreneur	Drug addict family members in and out of jail	Certified life coach

BE HONEST and OPEN First thing that comes to mind, and yes, most of us will often feel bad about the first thing that comes to mind.

- Now the hard part - and why we have had warmup questions all semester
  - Share your list with table
  - What did you have in common?
  - What did you see differently?

Unconcious Bias

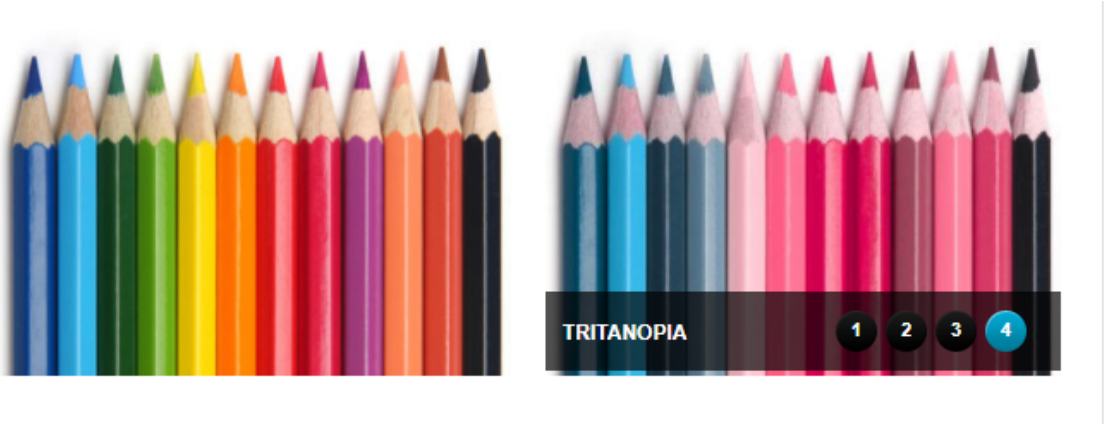
Make the Unconcious concious

- We all have it
- Psychology
  - Sees lion eat friend, forms opinion on brain that hairy things with sharp pointing things are bad
  - Better stated, our brain likes to put things in labels and boxes for understanding
- This is brain using 'pattern matching' and learning association

- What makes it bad?

  - When we unconsciously do it
  - When we don't self-reflect and see we are doing it
  - When we let it affect our decisions
    - Especially towards people and products
  - The most common one?
    - Not race, gender, or social-economic background

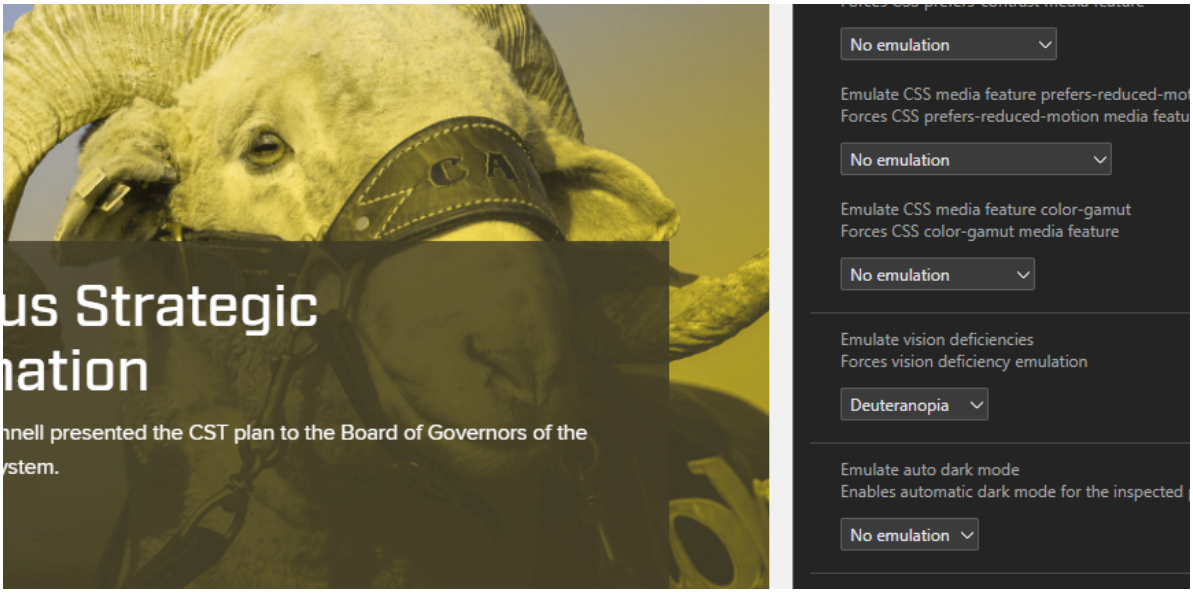
- The most common is for individuals who need special services (hearing or vision impaired, etc)



In [ ]:
```
from IPython.display import HTML as hprint # allows me to print in colors

def colorized(s, color='green'):
    return f"<text style=color:{color}>{s}</text>"

def convertRGB2HTML(red, green, blue):
    return f"#{red:02X}{green:02X}{blue:02X}" # html color codes use hex values of 0-2

## the following is a bit oversimplified, look at the supplemental reading for a much
def tritanopiaColor(red, green, blue):
    return convertRGB2HTML(red, green, 0)

def deuteranopiaColor(red, green, blue):
    return convertRGB2HTML(red, 0, blue)

def protanopiaColor(red, green, blue):
    return convertRGB2HTML(0, 0, blue)

red = int(input("Enter red (0-255): "))
green = int(input("Enter green (0-255): "))
blue = int(input("Enter blue (0-255): "))

standard = colorized("Standard", convertRGB2HTML(red, green, blue))
tritanopia = colorized("Tritanopia", tritanopiaColor(red, green, blue))
deuteranopia = colorized("Deuteranopia", deuteranopiaColor(red, green, blue))
protanopia = colorized("Protanopia", protanopiaColor(red, green, blue))


hprint(f"Standard: {standard}<br>" \
        f"Tritanopia: {tritanopia}<br>" \
        f"Deuteranopia: {deuteranopia}<br>" \
        f"Protanopia: {protanopia}")
```

Out[ ]:
Standard: Standard
Tritanopia: Tritanopia
Deuteranopia: Deuteranopia
Protanopia: Protanopia

Cam!



You can pull up the above tool in the "Dev Tools" of Chrome based browsers - This was microsoft edge.

Verify that a page is usable by people with color blindness

So what can we do? We will talk about that next time.