

How AI influences you



Unit Overview

This unit is divided into a series of lessons that can be delivered individually or as an interdisciplinary topic.

1. What 'influence' is and what it means in offline contexts
2. Recommender systems: how AI uses our data to influence us
3. Understanding bias: exploring what bias is, who can be biased and the impacts of bias in online and offline contexts (3 part lesson).
4. Bias and AI algorithms: how human bias can affect AI systems, and the issues and problems arising from this.
5. Social media: how social media algorithms create personalised feeds (3 part lesson).



Experiences and outcomes

MNU 2-20b

I can use appropriate methods to collect, organise and display data and use my findings to make predictions.

TCH 2-01a

I can explore and experiment with digital technologies and can use what I learn to support and enhance my learning in different contexts.

TCH 2-03a

I can explore how digital technologies can be used to solve problems.

LIT 2-02a

I can engage with others, responding to different viewpoints and using evidence to support my ideas.

LIT 2-08a

To help me develop an informed view, I can distinguish fact from opinion, and I am learning to recognise when my sources try to influence me and how useful these are.

LIT 2-26a

By considering the type of text I am creating, I can select ideas and relevant information, organise these in an appropriate way for my purpose and use suitable vocabulary for my audience.



influence

What does the word "influence" mean?



Take 30 seconds to think quietly.



Talk to your partner:

- Have you heard this word before?
- What do you think it means?
- Can you think of an example?



Be ready to share your ideas.

Key vocabulary



Influence

To effect what someone thinks, feels, or does

Choice

A decision between two or more options

Recommend

To suggest something that someone might like or find useful

Media

Ways we share information and entertainment, such as TV, videos, websites, games and social media

Technology

Tools and devices created by people to solve problems or do tasks

Persuade

To try and convince someone to think or act in a certain way



Lesson 1: what is 'influence'?



Learning objective:

To explore how people, media and technology can influence the choices we make.

Success criteria:

- explain what **influence** means and give examples from everyday life.
- identify different people, media or technologies that **influence** my choices.
- describe how **influence** can have both positive and negative effects.

Dictionary Definition



The power to have an effect on people or things

Why do lots of people suddenly want these things?



Why?



Family

TikTok

Celebrities

Friends

Youtubers

Footballers

Advertisements

Four Corners

Statements:

"I started playing a sport because..."

"I chose my favourite food because..."

"I started watching a TV programme because..."

"I bought a game because..."

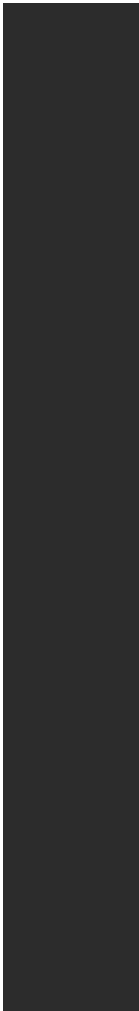


Lesson 1: writing task



Task: **identify** the ways in which people in your life **influence** you

Parent or carer	Teacher	Friends	
What language you speak	What you learn	What music you're into	



Lesson 1: discussion task

Influence is something that affects the choices, opinions or actions of another person.

Which **influences** in your life help you make...



Lesson 1: whiteboard task



Influence Detectives

Image No.

Who is influencing?

Positive or Negative

1



2



3



4



Lesson 1: plenary

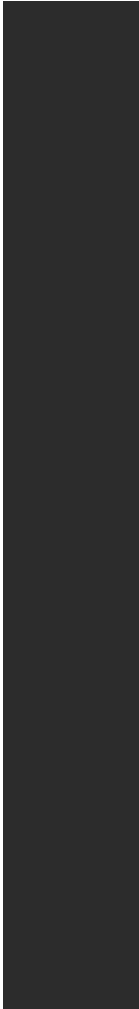


Human Continuum

Influence is always a good thing.

Stand along a line:

Agree $\longleftrightarrow$ Not Sure $\longleftrightarrow$ Disagree



Lesson 2:

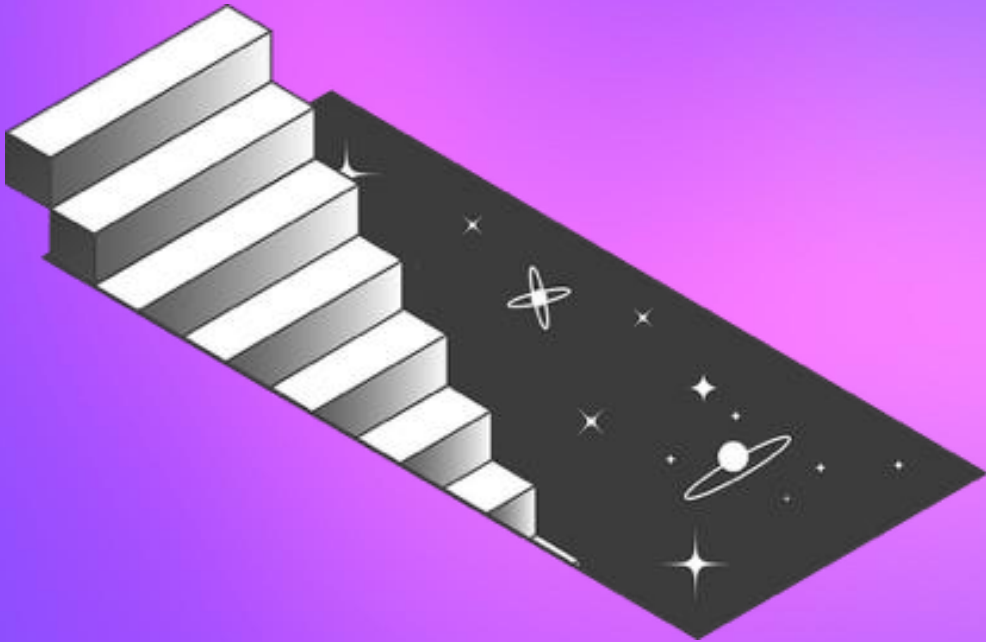
Recommender systems

Learning Objective:

Understand how AI uses our **data** to **influence** us

Success criteria:

- Use the words '**data**' and '**recommend**' correctly
- Identify some of the sorts of **data** that recommender systems collect about users
- Explain the difference between 'content filtering' and 'collaborative filtering'



Remember: Key vocabulary



Artificial Intelligence

Technology that allows computers to learn, think and make decisions like humans.

Algorithm

A set of step-by-step instructions a computer follows to solve a problem or make a decision.

Data

Information (usually facts or numbers) collected and used to make decisions.

Recommendation

A suggestion about what you might like or enjoy, based on data collected about your preferences.

Influence

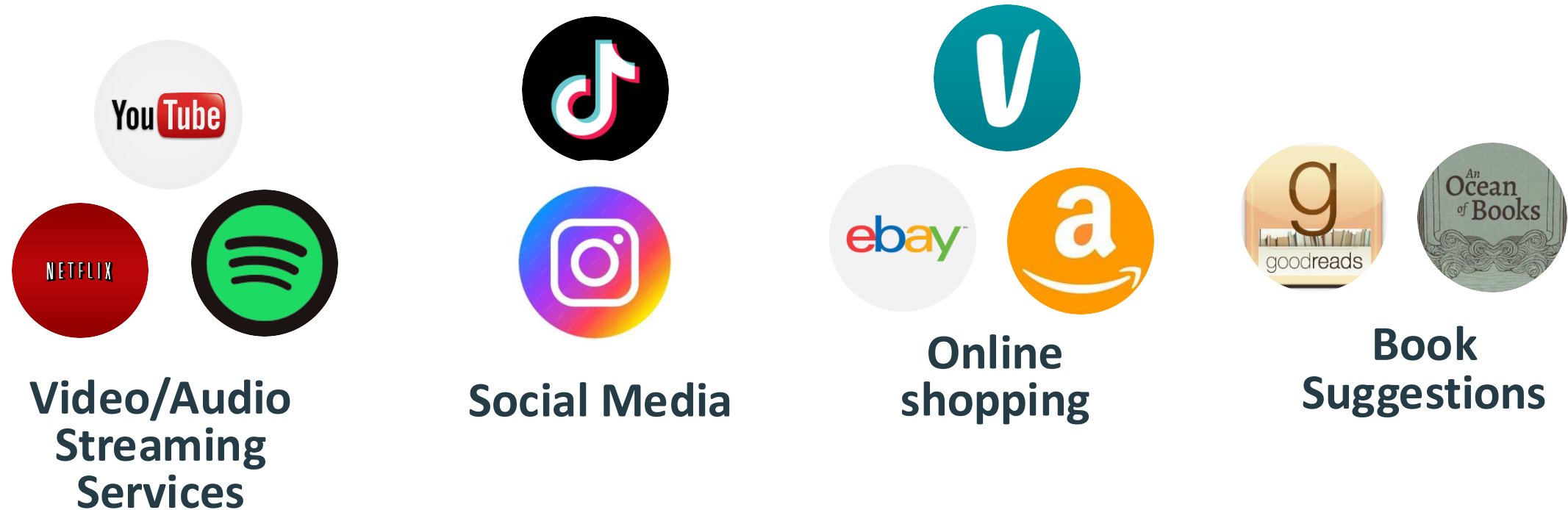
The power to have an effect on people or things

► What is a recommender system?

A “recommender system”, or “recommendation system”, is an **AI algorithm** that uses **data** to **recommend** content to consumers.



► Examples of recommender systems



What kind of **data** do you think these apps collect?

► Video



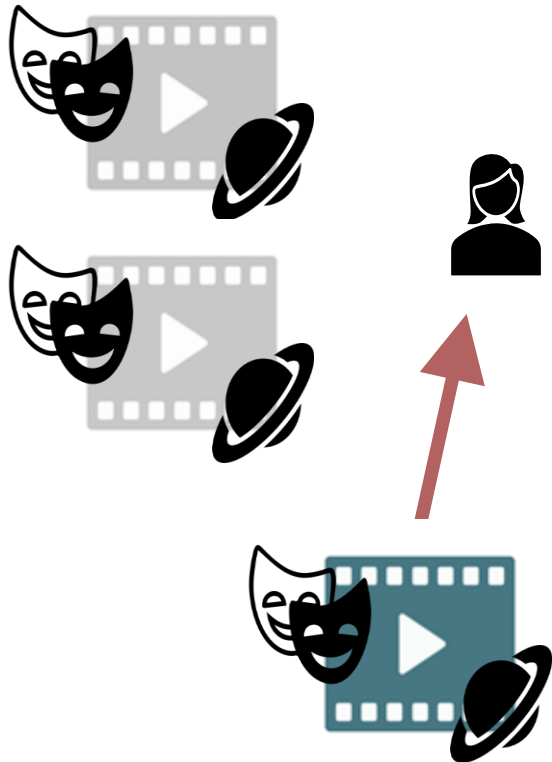
A short (1.14 min) introduction to what recommender systems are and how they work.

[How Do Recommendation Systems Work? A Simple Guide for Beginners](#)

► Two main types of filtering

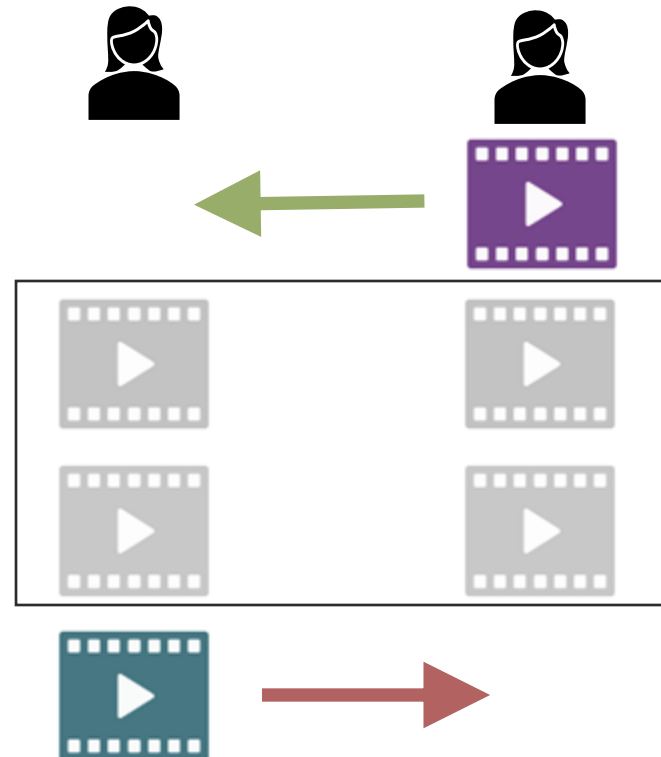
Content Filtering:

suggests things similar to things you have liked in the past



Collaborative Filtering:

identifies people who like some of the same things as you, and makes suggestions to you based on other things they like



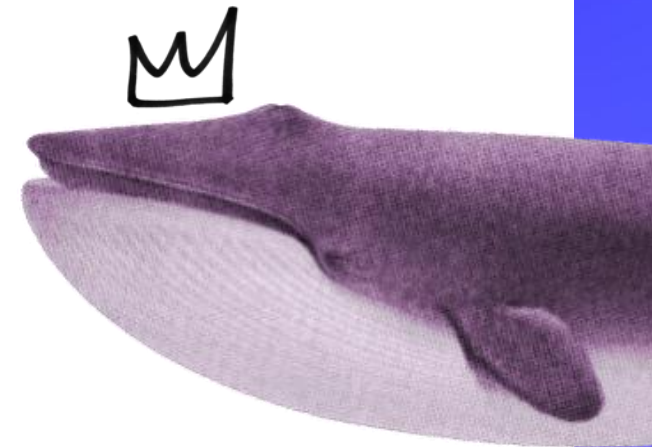
These can also be combined. This is called “**hybrid filtering**” and it uses a mixture of your **data** and **data** collected from others like you to make **recommendations**.

► Movie Night Activity

It's movie night at home and you're faced with endless options to scroll through. How do you choose a new film to watch?

You know what you've already seen and liked, but how do you know whether you'll actually like a film you've never seen before?

Luckily, you've got access to some very useful **data** – the films that your classmates have seen and liked!



► Movie Night Activity



In this activity, you'll first create a recommender system using the “**collaborative filtering**” method (based on films other people like, who like some of the same films as you), and then one using the “**content filtering**” method (based on films you like).



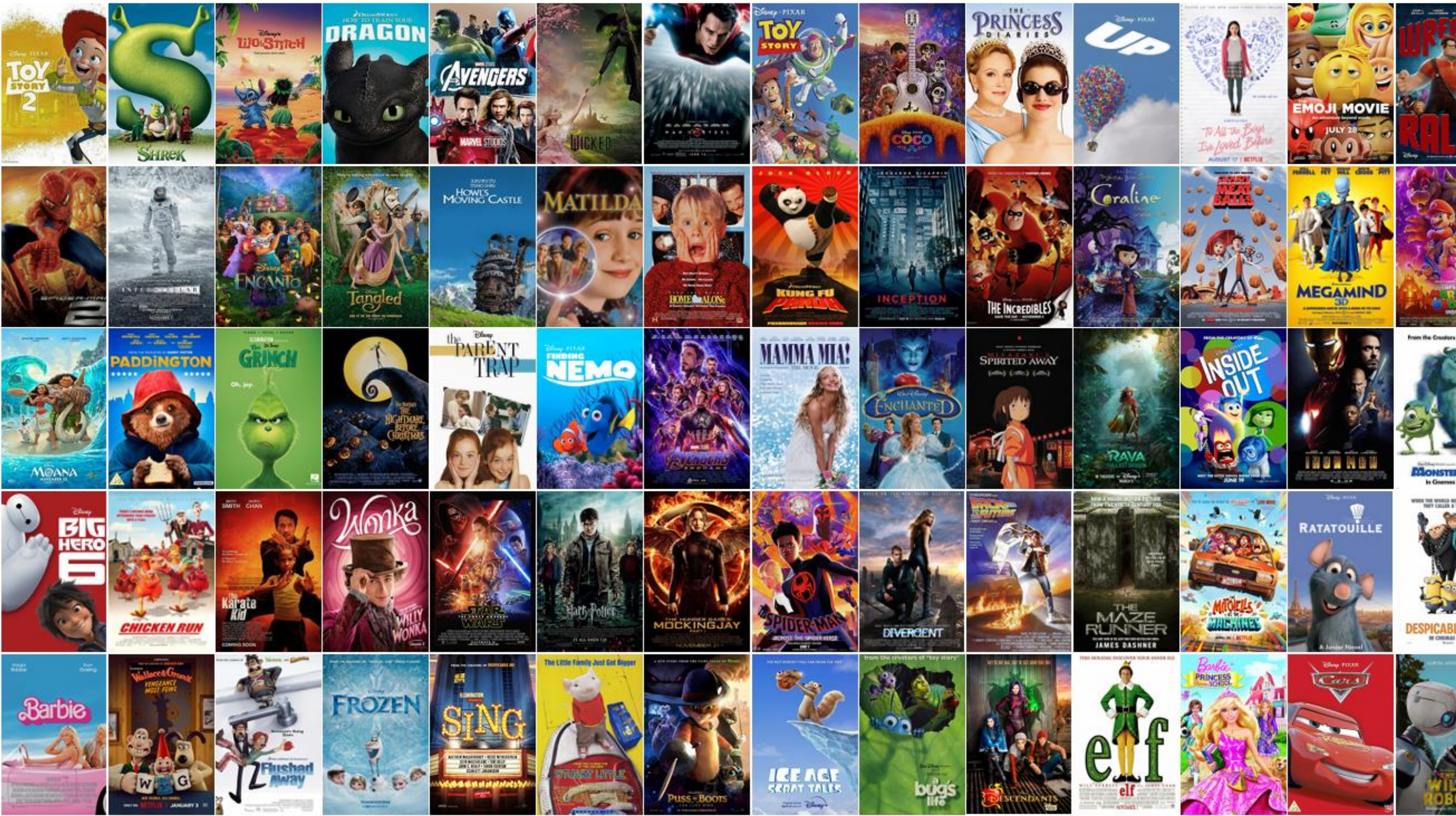
► Movie Night Activity

Struggling to think of movies you like?

The next slide will help. You can also follow this link:

IMDB Top 100 Kids Movies:
[Top 100 Movies for Kids](#)





► Creating the collaborative-filtering system

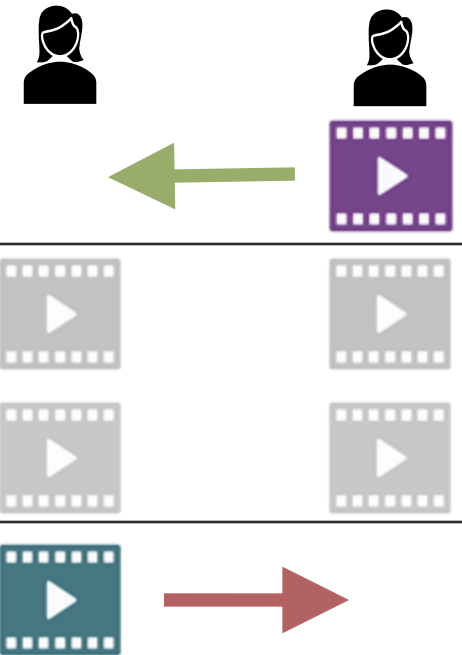
Step 1, Data collection:

Write down at least five (or up to ten) films you like. The more **data** you provide the better the system will work for you! Ignore the genre boxes for now, we will use them later.

Step 2, Finding patterns in the data: Walk around the room and compare your list with others. Can you find others who likes at least one of the same films as you? Is there anyone who likes more than one of the same movies? Get together in a group with these people.

Step 3, Using the data to make predictions: Any items on the lists of the others in your group that aren't on your list count as **recommended** films. **Write them down in the box at the bottom of the sheet.**

Collaborative Filtering



► Creating the collaborative-filtering system

Step 4, analysing the effectiveness of the model:

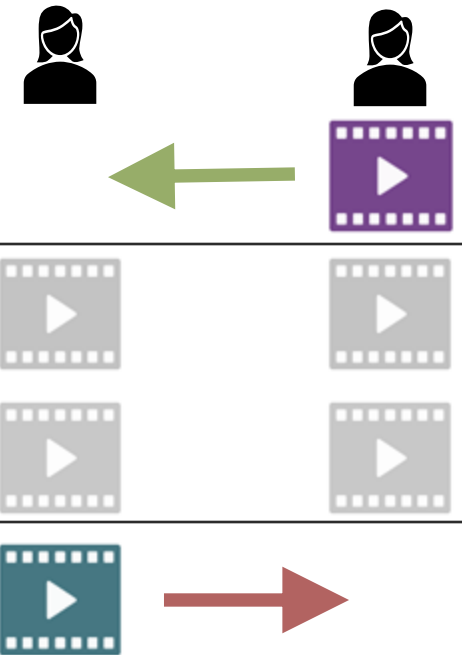
Our recommender system is supposed to show us films we might enjoy.
Let's see if it worked!

Of the films/shows that were recommended to you, have you already seen any of them? If so, did you like them? Highlight them in **green**. If there are any you've seen and did not like, highlight them in **red**. Any films you haven't seen, highlight in **blue**.

If you have mostly greens or blues, our collaborative-filtering recommender system has worked well for you!



Collaborative Filtering



► Creating the content-filtering system

Before we start, let's revisit what 'genre' means.

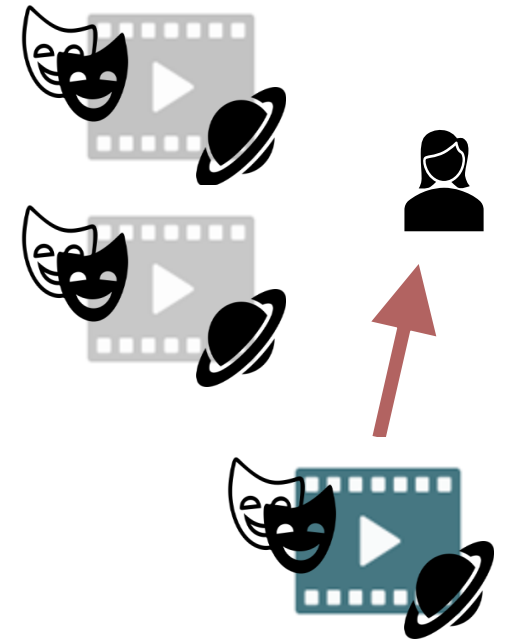
GENRE = the category or type of a film

★ **FILM GENRES** ★

Different kinds of stories for the big screen!



Content Filtering



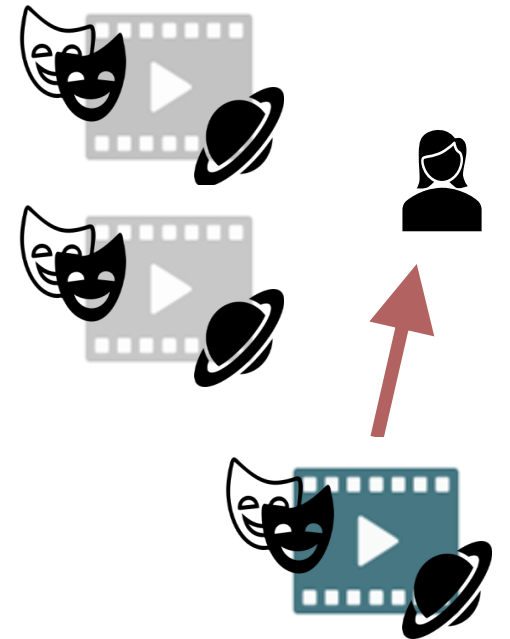
► Creating the content-filtering system

Step 1, Data collection: You will use your same list of five-ten films from before.

Step 2, Data labelling: What genre is each film? (Some films might be more than one, tick all that apply).

Step 3, Finding patterns in the data: In the bottom row, calculate the totals for each genre. **Circle your top three genres.**

Content Filtering



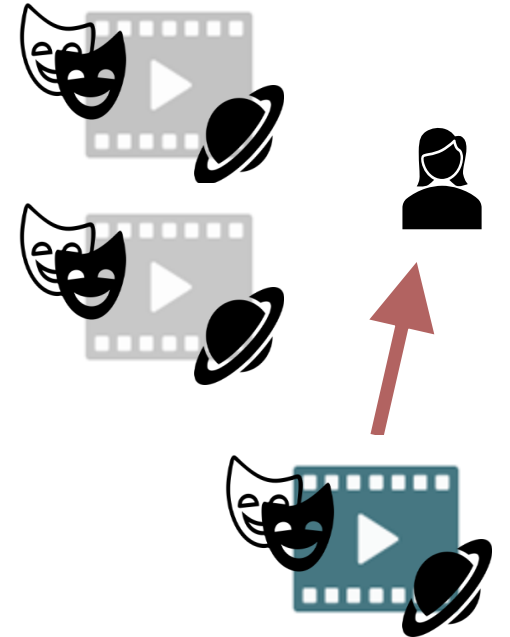
► Creating the content-filtering system

Step 4, Using the **data to make predictions:** Now walk around the room and compare your list with others. Can you find an item on anyone's list that **fits one of your top three genres**, that isn't already on your list?

This counts as a **recommended item**. **Write it down.**

For example, if your top three genres are comedy, romance, and fantasy, then if you find a film on someone's list that is comedy, you can add it as a recommendation.

Content Filtering



► Creating the content-filtering system

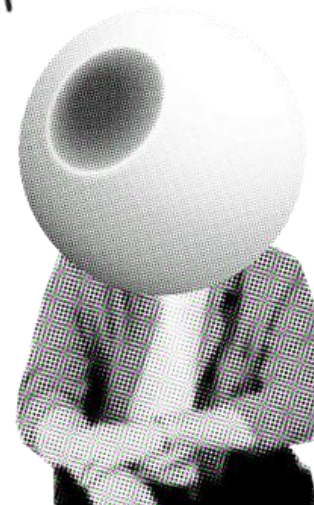
Step 5, analysing the effectiveness of the model:

Our recommender system is supposed to show us films we might enjoy. Let's see if it worked!

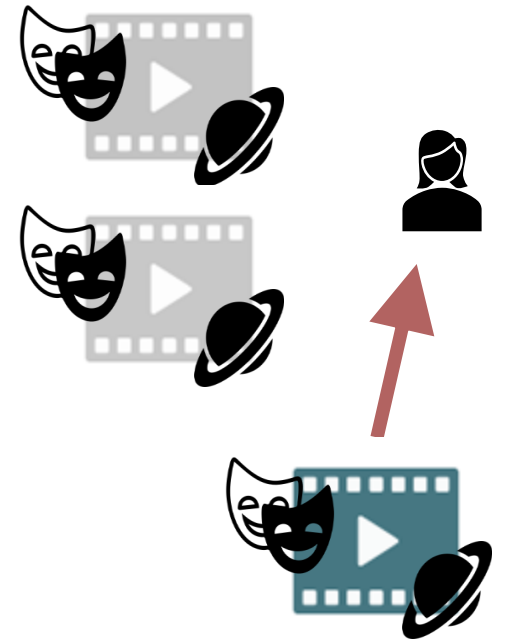
Of the films/shows that were recommended to you, have you already seen any of them? If so, did you like them? Highlight them in **green**. If there are any you've seen and did not like, highlight them in **red**. Any films you haven't seen, highlight in **blue**.

If you have mostly greens or blues, our content filtering recommender system has worked well for you!

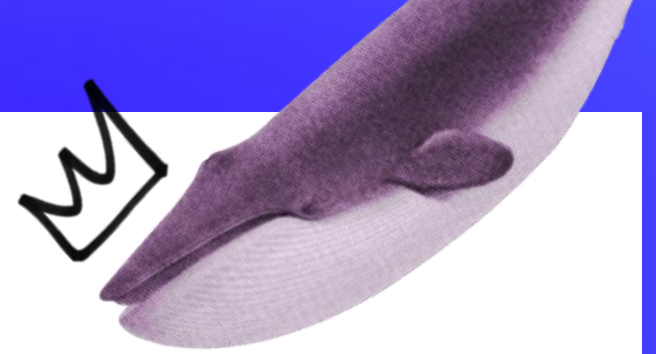
What do you think?



Content Filtering



► Plenary: discussion



Which system seemed to work better, the content filtering or the collaborative filtering system?

Are there scenarios where one model might work better than another, e.g. when you first open a new video streaming account?

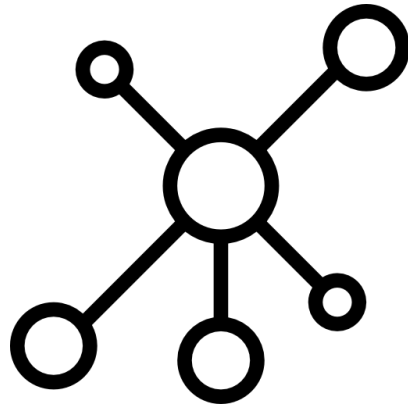
Which system do you think needs more **data** to work?

Would you get even better predictions if you combined the two approaches?

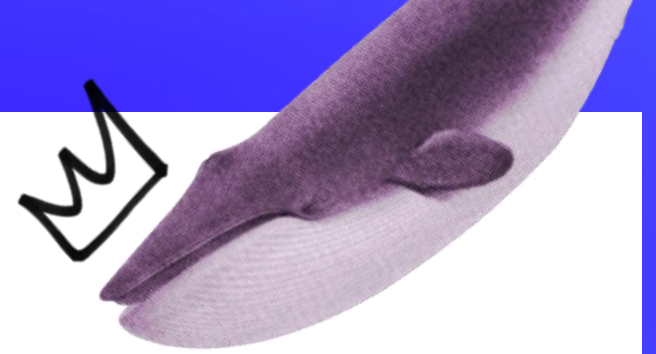


► Extension Activity

Try out the movie recommenders at <https://www.gnovies.com/> and <https://www.movie-map.com>.

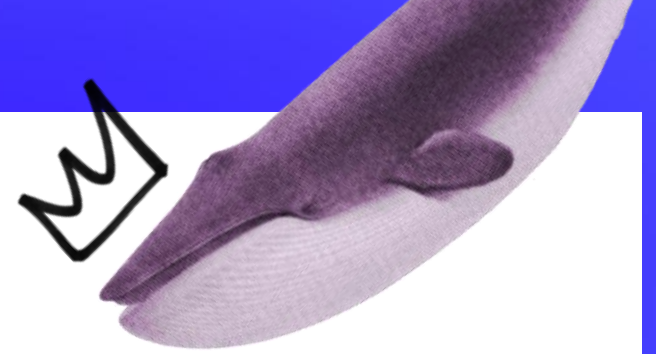


- Do these use content filtering or collaborative filtering?
- Did you get any of the same **recommendations** from the Movie Night activity?
- What are some possible reasons why or why not?



► Extension Activity

Create a custom thumbnail image or movie poster for a film that was recommended by you to a classmate, that would convince them to watch it, based on the other films they like.



Lesson 3: understanding bias

Learning objective:

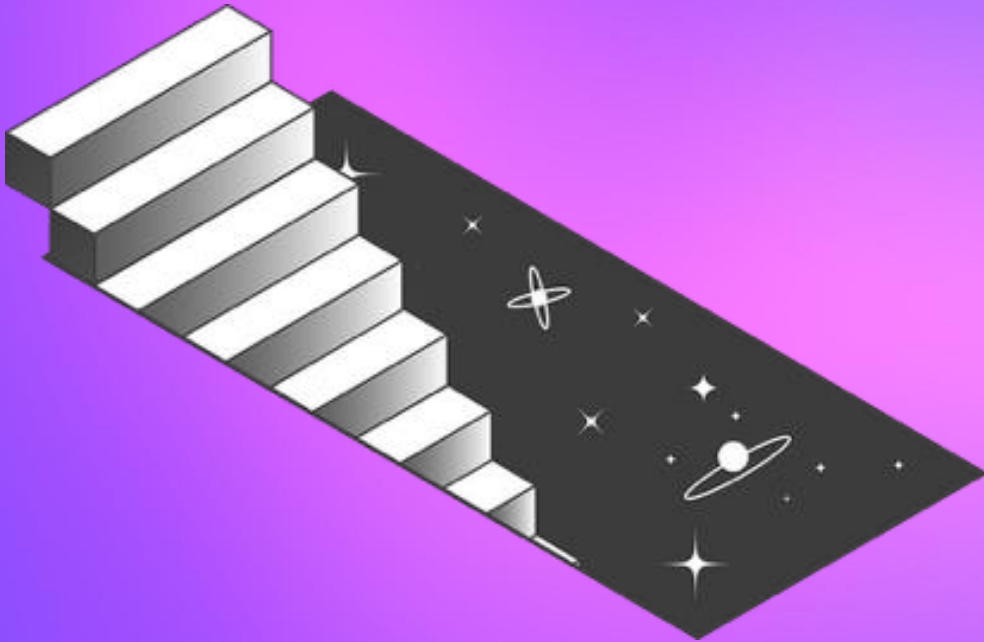
Understand what **bias** means and how it **influences** us

Success criteria:

Define the terms **assumption**, **bias** and **discrimination**

Identify the impacts of **bias**

Discuss how **bias** and **discrimination** can be challenged



Teacher Information Slide



The following lesson will explore the concepts of bias and discrimination through the context of racism, using resources from antiracisted.scot

In preparation for the lesson, you may wish to access some of the following resources created for educators, about challenging bias in primary schools.

[Professional learning: Challenging Bias — antiracisted.scot](https://antiracisted.scot)

The website also provides a range of resources to support educators in Scotland to build an anti-racist curriculum which responds positively to the diverse needs of individual learning where all cultures, religions, identities and languages are recognised and valued.

Remember: Key vocabulary

Artificial Intelligence

Technology that allows computers to learn, think and make decisions like humans.

Content filtering system

suggests things similar to things you have liked in the past

Algorithm

A set of step-by-step instructions a computer follows to solve a problem or make a decision.

Influence

The power to have an effect on people or things

Recommendation

A suggestion about what you might like or enjoy, based on data collected about your preferences.

Data

Information (usually facts or numbers) collected and used to make decisions.

Collaborative filtering system

identifies people who like some of the same things as you, and makes suggestions to you based on other things they like

Introduction: writing task

What does 'bias' mean?

Write down what you think the word 'bias' means. It's ok if you don't know! We will revisit this further on in the lesson to see if your understanding has changed.



What is **bias**?

Bias is a feeling or judgement you make about someone.

Bias is often based on **assumptions** we make about people. **Assumptions** are ideas or thoughts we have that aren't based on facts.

For example: there are no boys on a school's eco committee. The teacher in charge **assumes that this is because boys aren't interested in helping the environment.**

Discussion: how might this **assumption** lead to the teacher being biased against boys?

Bias and discrimination

If **bias** isn't challenged it can **influence** the way that people are treated. When this happens, it's called **discrimination**.

For example: there are no boys on a school's eco committee. The teacher in charge **assumes that this is because boys aren't interested in helping the environment. As a result of her **bias**, she **discriminates** against boys and only offers girls the chance to join the committee.**

We are going to use a thinking routine called 'give one, get one' to help us answer the following questions:

1. Is the teacher's assumption correct? Why/why not?
2. How do you think the boys feel?
3. What would you do or say to challenge the teacher's bias in this situation?

'Give one, get one' thinking routine

A thinking routine is a structured way of thinking about a problem or answering a question that makes our thinking visible to ourselves and others.

The 'give one, get one' thinking routine is a way of sharing and generating ideas.

You need to record your own idea in the 'my idea' column, then record someone else's idea in the other column. If you can't think of anything to write in the 'my idea' column you can collect other people's ideas first to help you!

'Give one, get one' thinking routine

Is the teacher's assumption correct? Why/why not?	My idea	_____ 's idea
How do you think the boys feel?	My idea	_____ 's idea
What would you do or say to challenge the teacher's bias in this situation?	My idea	_____ 's idea

Types of bias

Some of the things that people can be biased about are:

- Where someone is from
- Their skin colour
- Their accent or what language they speak
- Their religion
- Their gender
- Who they choose to love or marry
- A person's abilities or disabilities

Discussion: have you ever experienced bias because of anything listed above? Is there anything missing from the list?

Racial bias



Racial bias is when people are treated differently because of their skin colour or where they are from in the world.

It can lead to people being discriminated against in all sorts of very harmful ways.

This short video from antiracist.scot explains more about racial bias.

What is **bias**? Plenary

Let's revisit the definitions of **bias** we wrote at the start of the lesson. Has your understanding of bias changed? Do you need to edit your definition? Can you add some of the characteristics that people might be biased against?



Bias is a feeling or judgement that can influence how we treat someone. People can be **biased** against someone else because of things like their age, gender, race, abilities or religion.

Lesson 4: Survival of the best fit

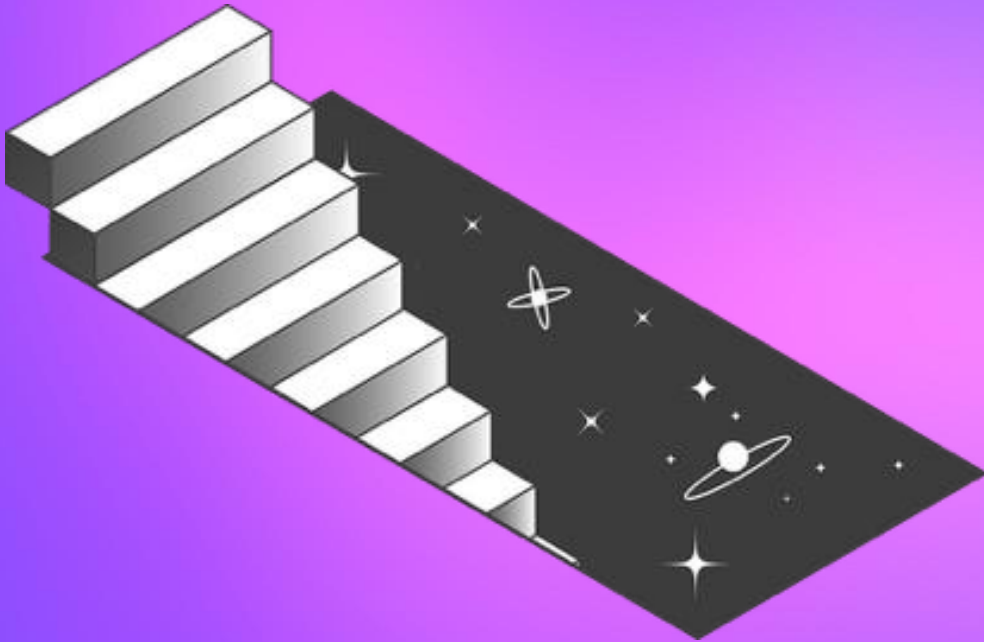
Learning Objective:

Understand how **AI algorithms** are used to make decisions

Success criteria:

Identify the positives and negatives of using AI to automate systems

Explain how human thinking can impact the way **AI algorithms** work



Remember: Key vocabulary

Artificial Intelligence

Technology that allows computers to learn, think and make decisions like humans.

Recommendation

A suggestion about what you might like or enjoy, based on data collected about your preferences.

Influence

The power to have an effect on people or things

Bias

when our life experiences or circumstances lead us to believe that a particular thing, person (or group of people), or idea is the best. We might make unfair choices because of bias.

Data

Information (usually facts or numbers) collected and used to make decisions.

Filtering systems

Filtering systems use your data and the data of other people to make recommendations to get you to watch, buy or engage with things.

Algorithm

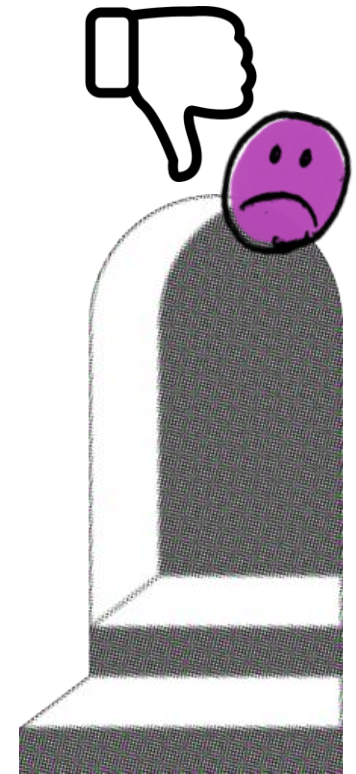
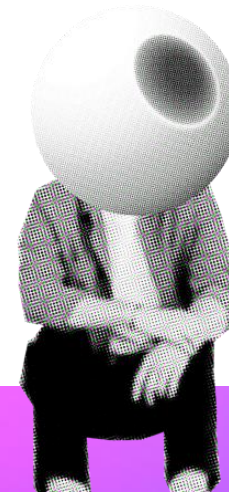
A set of step-by-step instructions a computer follows to solve a problem or make a decision.

► Using **AI algorithms** to make decisions

In the movie night activity, you used a recommender system to **recommend** films to each other.

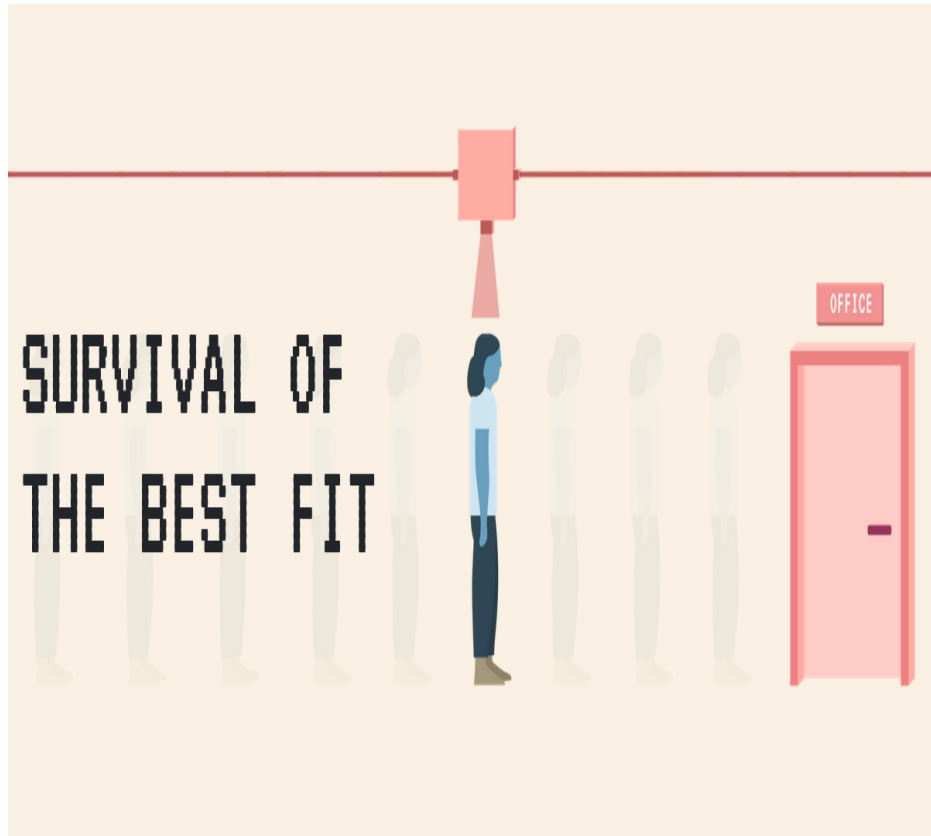
But what happens when we use an **AI algorithm** to **recommend**...

- Job candidates?
- Who gets a bank loan?
- Who police should stop and search?
- Exam grades?



Play the game!

survivalofthebestfit.com



In this game, we will be hiring applicants based on 4 criteria:

Skill = how good they are at the job we want them to do.

School prestige = how famous their school is (do you think famous schools are better than unknown ones?)

Work Experience = how many other jobs they have had like this one.

Ambition = how keen they are to get promotions and become the boss.

Which do you think is the most important criteria and why?

► Plenary: discussion

The **AI algorithm** ended up being **biased** towards orange people. How did this happen?

How can we prevent **AI algorithms** from becoming **biased**?

Should we use **AI algorithms** to automate systems like this?



► Teacher info slide

- This activity works best if learners are in pairs or small groups, but can also be delivered as a whole class lesson if necessary
- We recommend use of the calculator tool available at [Social Media Algorithm Simulator - TRAILS.scot](https://socialmediaalgorithm simulator - TRAILS.scot) to support 2nd level learners with this activity. Learners will need access to a device with internet access.
- Some learners may require additional support from an adult or a confident peer.
- For confident learners, the algorithm scores could be calculated mentally or with a traditional calculator.



Lesson 5: how social media feeds work

Learning objective:

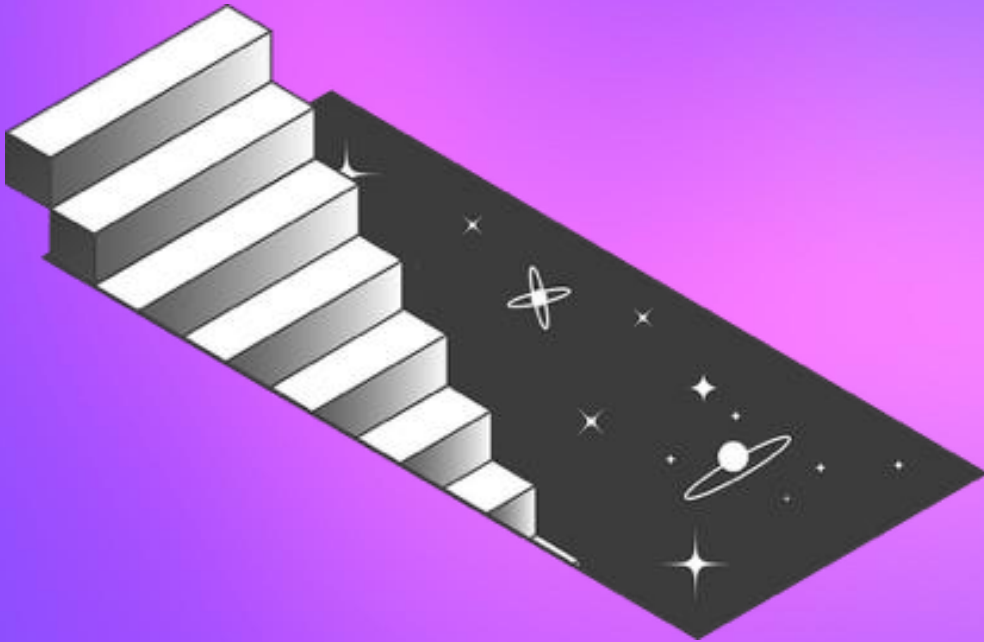
Understand how social media uses **data** to create a personalised feed

Success criteria:

Use **data** to **recommend** posts to users

Create a simple **algorithm**

Identify the positives and negatives of **recommender systems**



► Optimise your feed

In this activity, you will create a simple version of a social media feed algorithm.

Can you create the optimal* feed to keep your target users hooked?

**optimal means the best version of something*



► Optimise your feed

- **Step 1:** Get into groups. Each group will be given a user profile. Can you optimise* the social media feed of your user to keep them hooked and scrolling?
- **Step 2:** Looking at your user profile and all the posts, **recommend 5 posts you think each user will like**. Why did you choose these? Make a note of the 5 posts you picked, as you will be comparing them to the **algorithm's** selections later on.

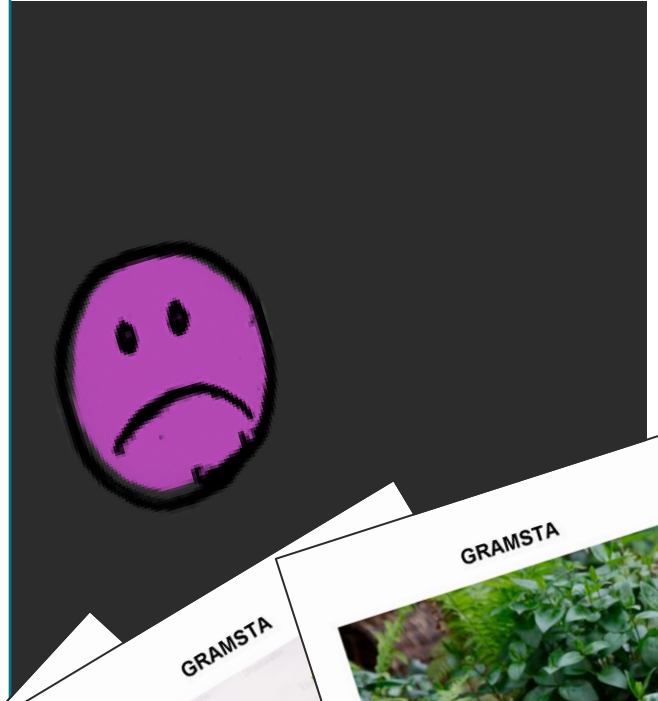
**optimise means to make something the best it can be*



► Optimise your feed

- **Step 3:** Now we're going to create an **algorithm** to optimise the user's social media feed. Using the **algorithm** worksheet, decide in your group on the weights to assign to each variable*.

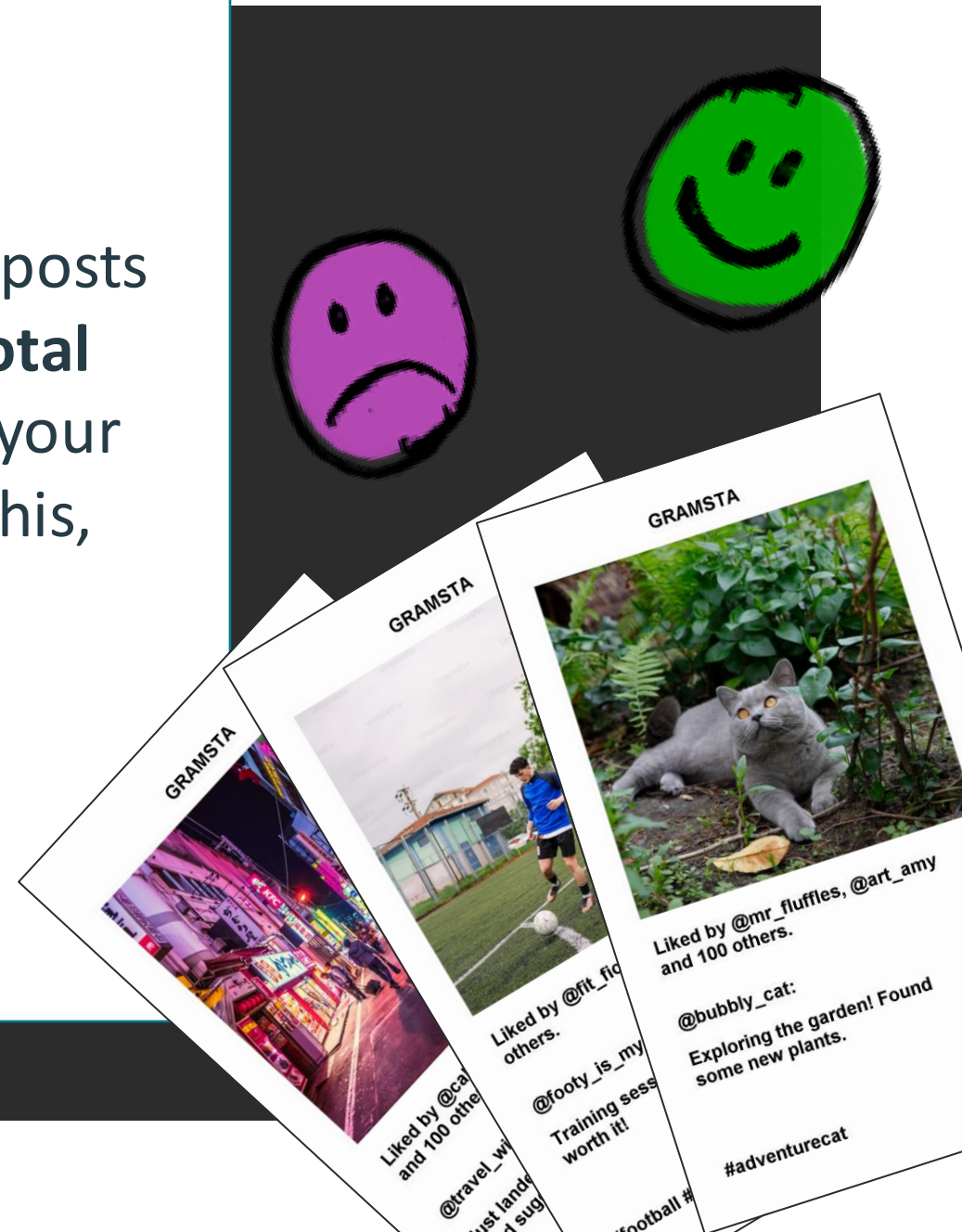
** A variable is a quantity that can be changed to affect the outcome of an equation or experiment.*



► Optimise your feed

- **Step 4:** Next, go through the social media posts and use your **algorithm** to calculate the total number of points to assign each post for your user. You can use the calculator tool for this, which is available here:

[Social Media Algorithm Simulator - TRAILS.scot](https://trails.scot/social-media-algorithm-simulator)

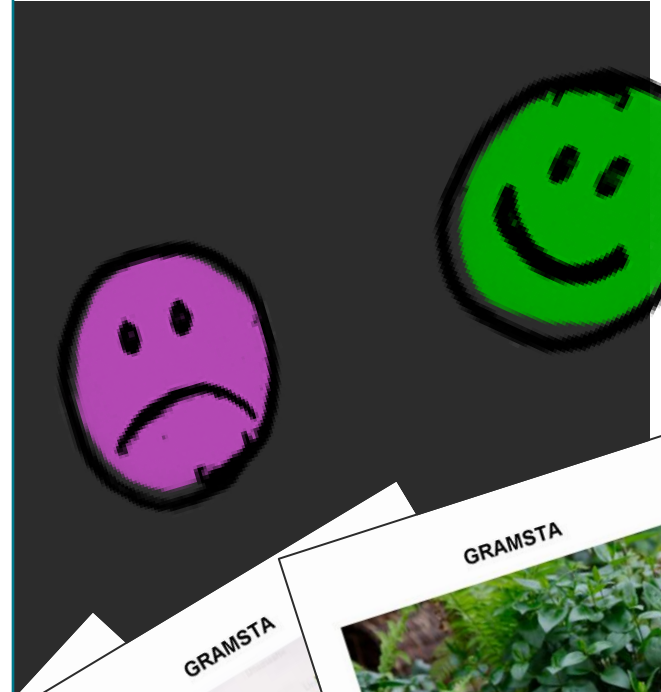


► Optimise your feed

- **Step 5: Identify the top 5 highest scoring posts for your user.** Discuss the following questions with your group:

Do the **algorithm's** recommendations match the choices you made at the start of the lesson? Why do you think this is?

Do you think the **algorithm's** recommendations are optimised for your user? If not, how could you change the algorithm to improve this?

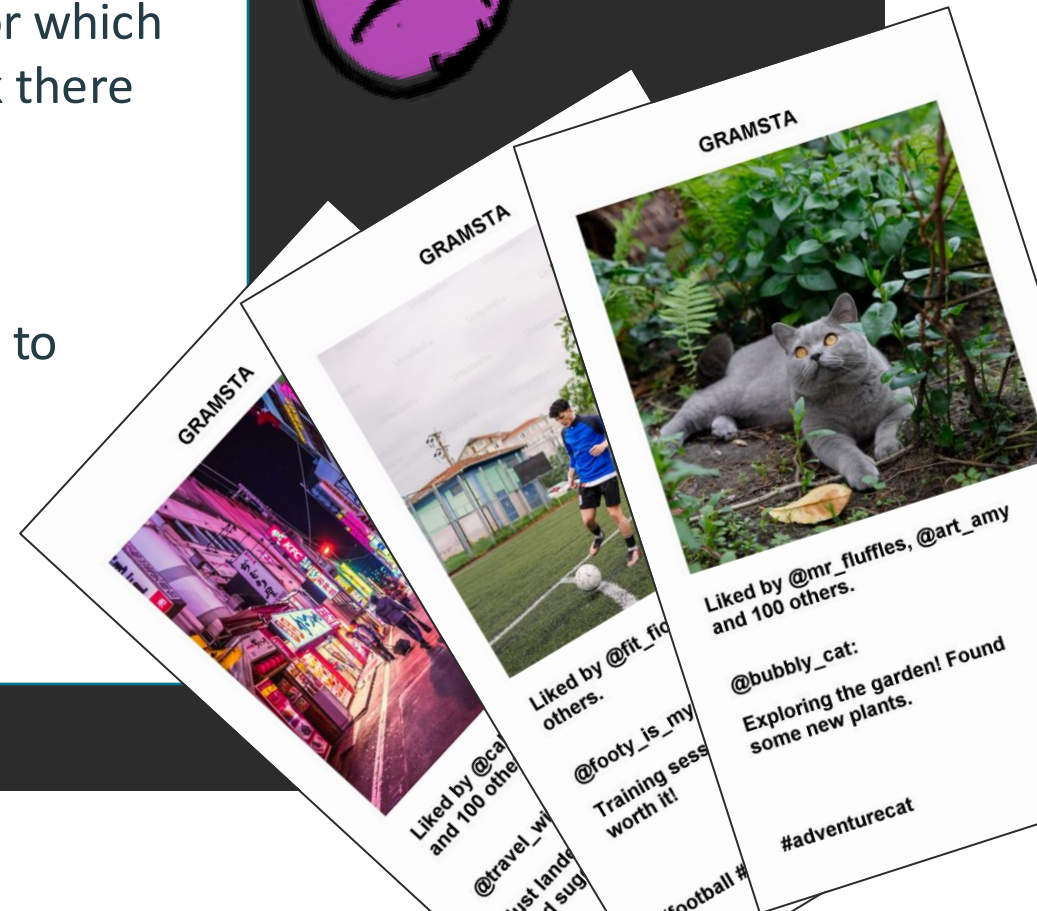
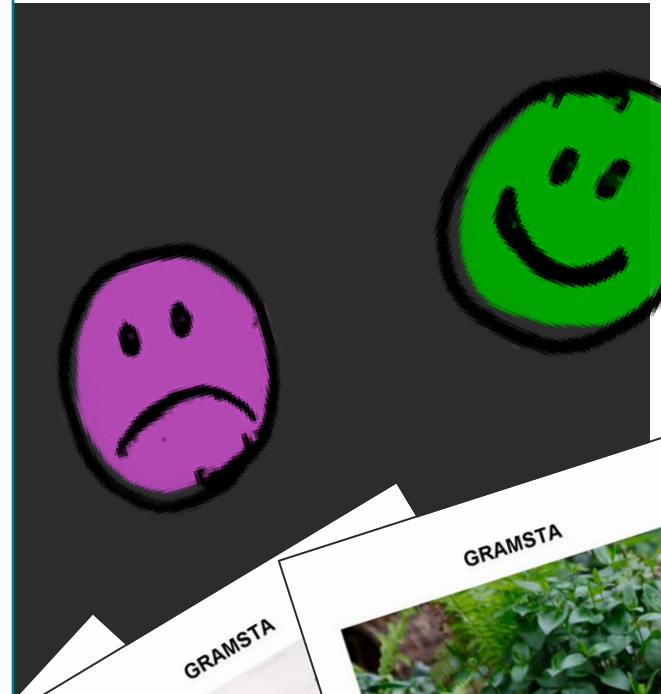


► Plenary questions/extension activities

Ask learners to swap users with a different group and apply their own algorithm to that user. Whose algorithm works best for that user? Why?

Ask learners to apply the same algorithm to 3 different users. For which user does it work best? Why do they think this is? Do they think there is one algorithm that would work well for all users?

Ask learners to create the worst possible algorithm in terms of optimisation for a single user. How did they decide what weight to assign to each variable?



Someone Social Media Simulator

This is an activity developed by educators in Finland and will require each learner to have a device connected to the internet.

There is a step-by-step user guide with suggested lesson progression and discussion prompts at [Someone - Social Media Machine \(External\) - TRAILS.scot](#)



Core Concepts

Introduce key social media mechanisms with a structured step-by-step interface for the classroom.

UNDER CONSTRUCTION

► Video



Watch this video (9 min)
from Common Sense
Media's AI Literacy
Collection, and answer the
questions on the next slide.

<https://www.youtube.com/watch?v=tPqI0n44zP8>

► Discussion

What do you think?

- Why do social media apps use recommendation algorithms?
 - How do **they** benefit from this?
 - How do **you** benefit from this?
- What are some of the pitfalls and dangers of these algorithms? Discuss:
 - **Echo chambers**
 - **Misinformation**
 - **Extreme content**
- How can you make social media algorithms "work" better for you?

► Discussion

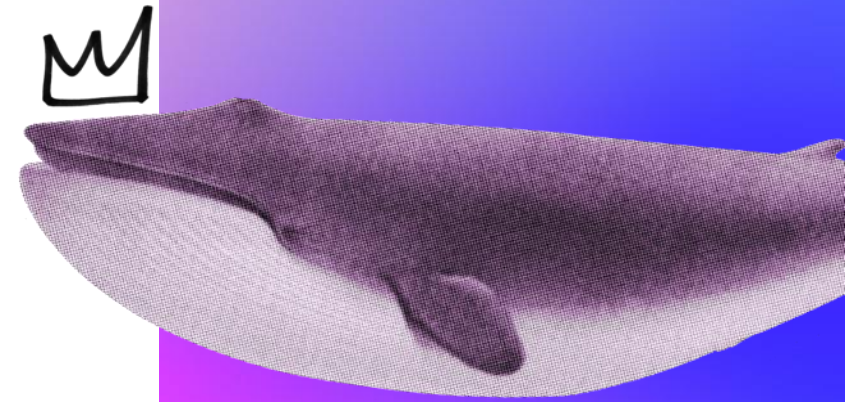


CLOSING REFLECTION

Recommendation systems are a type of AI that filters the content and media we consume. This gives them the power to shape our opinions, and even the people we connect with. That's why it's important to ***think critically*** about what you're seeing (and what you're not) when you go online.

What do you think?

More resources



Ethical issues of Social Media Recommender Systems:

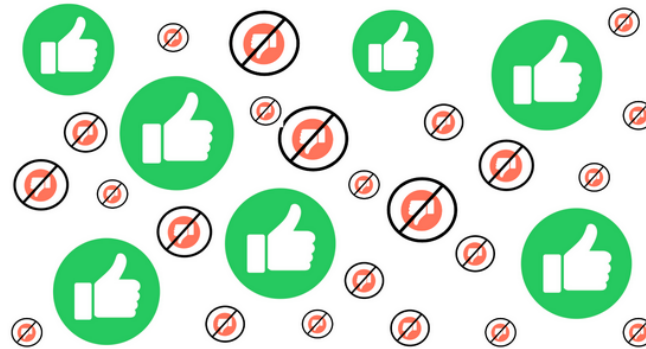
- Common Sense Media's lesson on AI Algorithms:
<https://www.commonsense.org/education/digital-citizenship/lesson/ai-algorithms-how-well-do-they-know-you> (20 min lesson)
- University of Bristol's "Thinking Science" resources for teachers on AI Recommender Systems (click on the "Information Technology and People" resource and go to page 12-13)
<https://www.bristol.ac.uk/philosophy/thinking-science/resources/>
- BBS Bitesize "How algorithms and filter bubbles decide what we see on social media": <https://www.bbc.co.uk/bitesize/articles/zd9tt39>
- TED Talk (17 min): Machine intelligence makes human morals more important
https://www.ted.com/talks/zeynep_tufekci_machine_intelligence_makes_human_morals_more_important

► Optional extra discussion prompt

8

→ *Oh whoa, oh whoa, oh whoa*

"Baby" by Justin Bieber has over **25 million likes** and **13 million dislikes** on YouTube. This makes it one of the most disliked YouTube videos of all time. But users can **no longer see its like-to-dislike ratio**. While YouTube's algorithm still uses dislikes to rank video suggestions, it **keeps them hidden** from viewers.



What are the **benefits** and **drawbacks** of **hiding dislikes** even though they **still influence suggestions**?



AI Snapshots

What do you think?