

How Is AI Trained?



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Source: Common Sense Media



Essential Question

How does data determine what artificial intelligence can do?



Learning Objectives

- ✓ Understand that data is a building block of artificial intelligence.
- ✓ Identify what AI can do based on the data it is trained on.



Vocabulary



data – any type of information that can be collected, categorized, and analyzed

input – the data an AI application uses to learn or to perform a task

output – the final result or creation of an AI system, based on what it was asked to do and using its existing inputs



How AI Learns...



Created with Bing Image Creator, powered by Dall-E. (Prompt: A cartoon illustration of the process that AI goes through to learn.)

This image was created with generative AI, and it's meant to show how AI learns.

What do you notice?
How does the picture show AI learning?

How AI Learns...



The robot in the middle represents artificial intelligence. It's surrounded by people who are talking to it and showing it books. These people are the human "trainers."

How AI Learns...

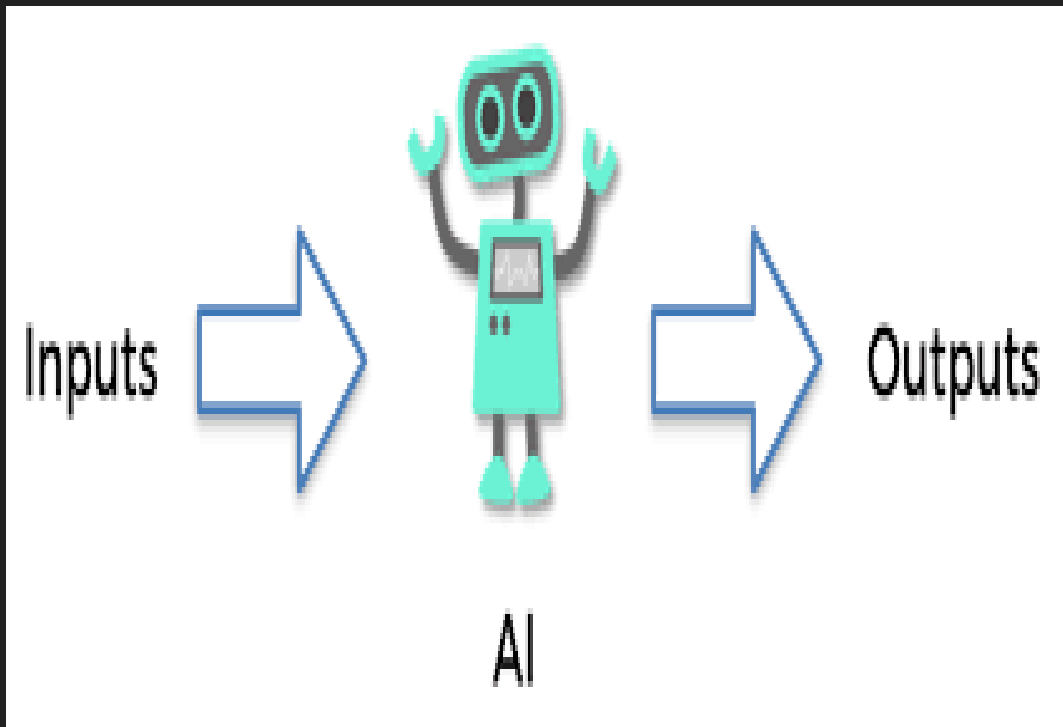


The "trainers" are sharing data with the AI to help it learn.

The **data** is represented by the books and the speech bubbles.

Created with Bing Image Creator, powered by Dall-E. (Prompt: A cartoon illustration of the process that AI goes through to learn.)

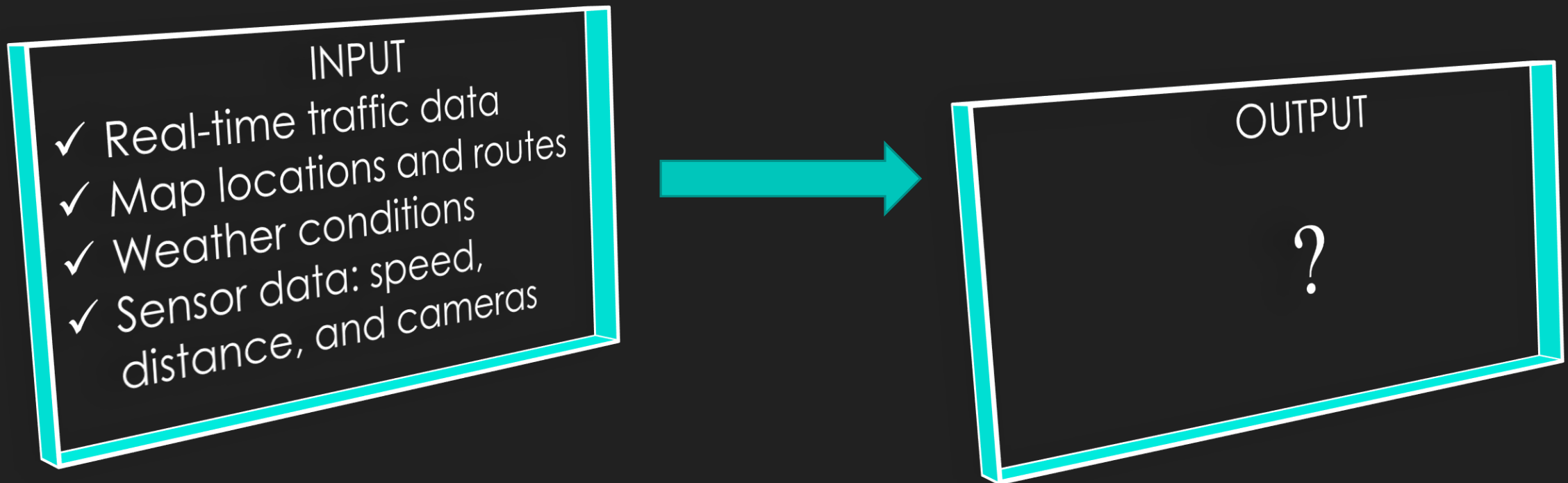
Inputs and Outputs



We can use the data the AI is trained on, also known as the **inputs (the data an AI application uses to learn or to perform a task)**, to infer or make an educated guess about the types of things the AI might be able to do, which are the **outputs (the final result or creation of an AI system, based on what it was asked to do and using its existing inputs)**.

Real Life Examples

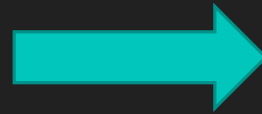
What kind of AI app could you build with the following data inputs? Pair-share to make an educated guess.



Self-Driving Cars

OUTPUT

- ✓ Self-driving cars use sensors like cameras and radar to know where on the road they should be.
- ✓ They also use map and road data to know where they need to go and to follow the rules of the road.



Real Life Examples

What kind of AI app could you build with the following data inputs? Pair-share to make an educated guess.

INPUT

- ✓ Song data: audio files, genre, artist, tempo
- ✓ User data: songs you have listened to, liked, skipped, and shared



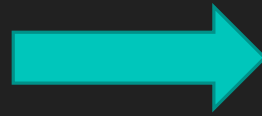
OUTPUT

?

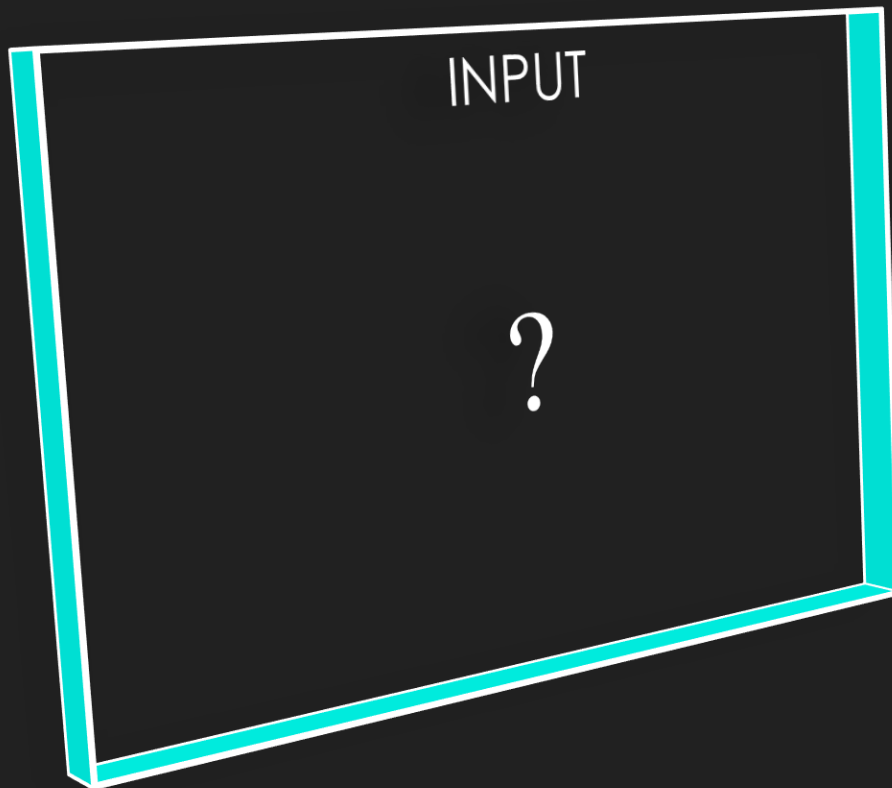
A Personal DJ!

OUTPUT

- ✓ Music apps use song data to group together similar songs and artists. They do this to create curated playlists.
- ✓ These apps also use information about your preferences to recommend songs and artists you might like.



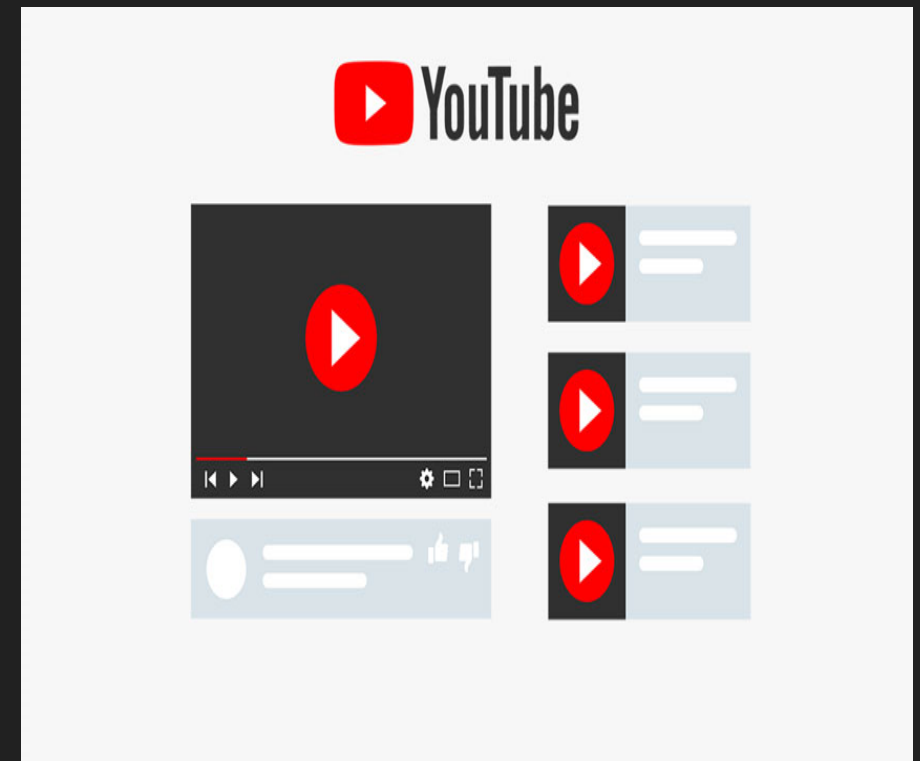
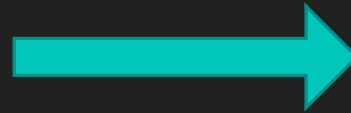
Pair-share to go through this scenario. This time, you are given the output and need to think about the necessary inputs.



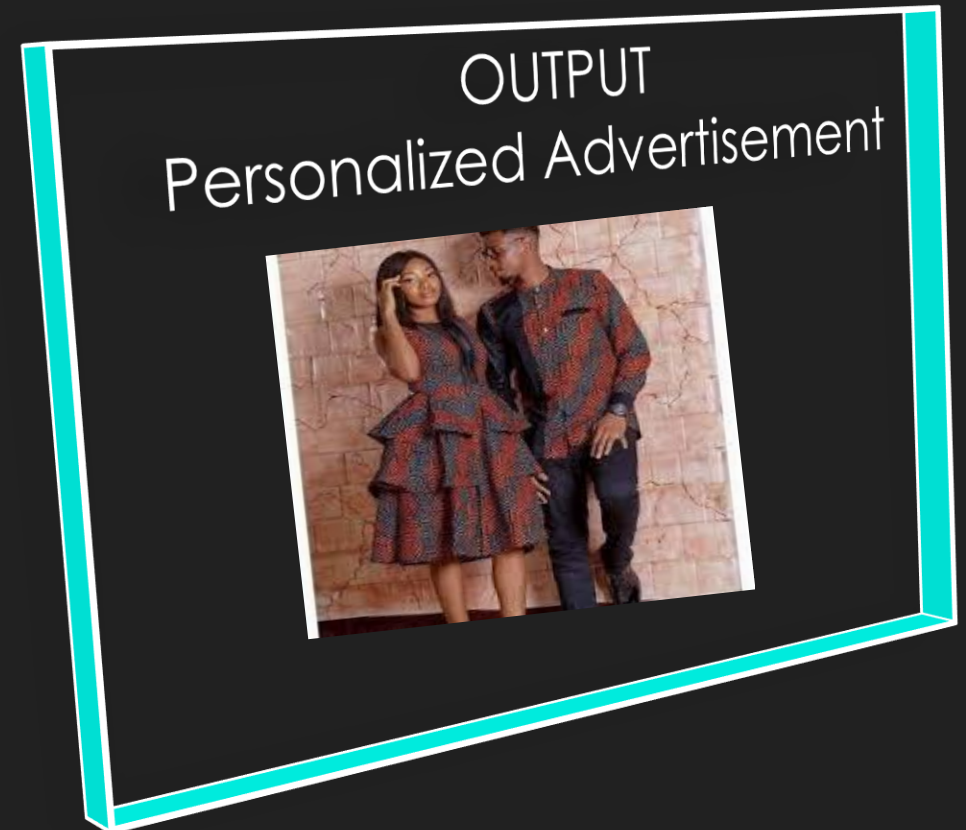
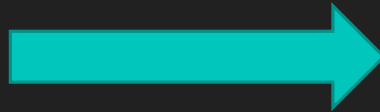
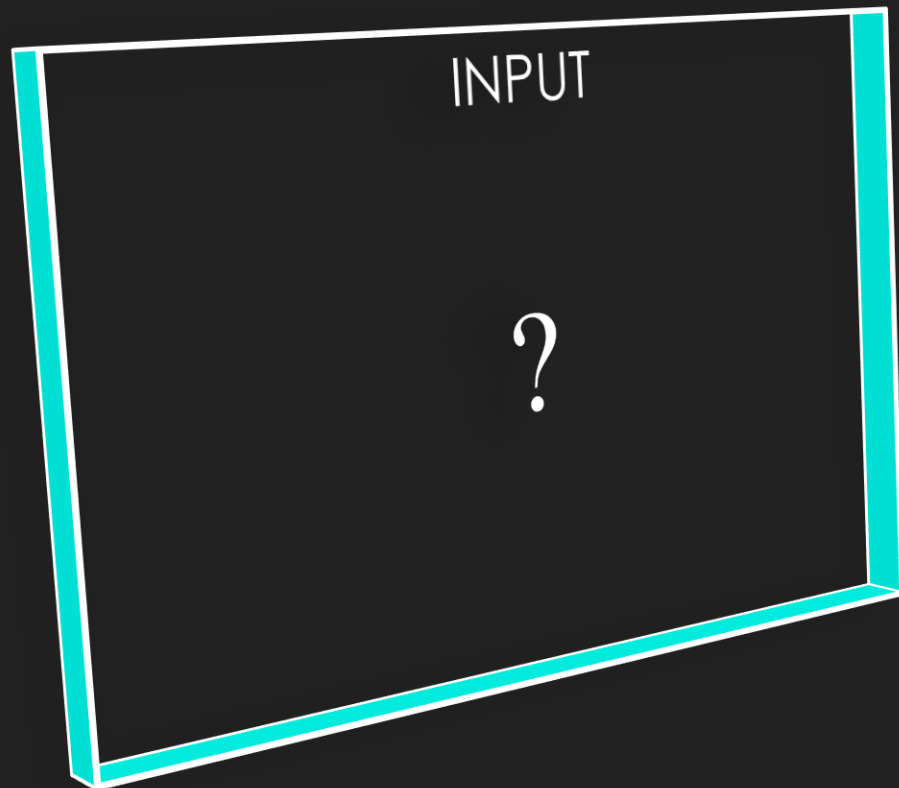
What were your inputs for creating a YouTube Video Recommendation? Here are some ideas you might have come up with.



- INPUT
- ✓ Your YouTube video viewing history
 - ✓ Videos you've rated or liked
 - ✓ Topics you prefer
 - ✓ Videos currently trending on YouTube



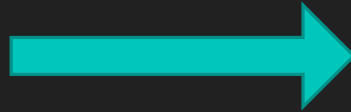
Lets do one more! Pair-share to go through this scenario. This time, you are given the output and need to think about the necessary inputs.



What were your inputs for creating a Personal Advertisement ? Here are some ideas you might have come up with.

INPUT

- ✓ Search history
- ✓ Social media activity
- ✓ Online purchases
- ✓ Video watch history



Informed Users of AI

As these last two examples show, what we do online and the data we share is also a part of the inputs, or data, that AI might use. Thinking critically about the data behind an AI can help us be more **informed users** and understand what the AI's limitations might be.

