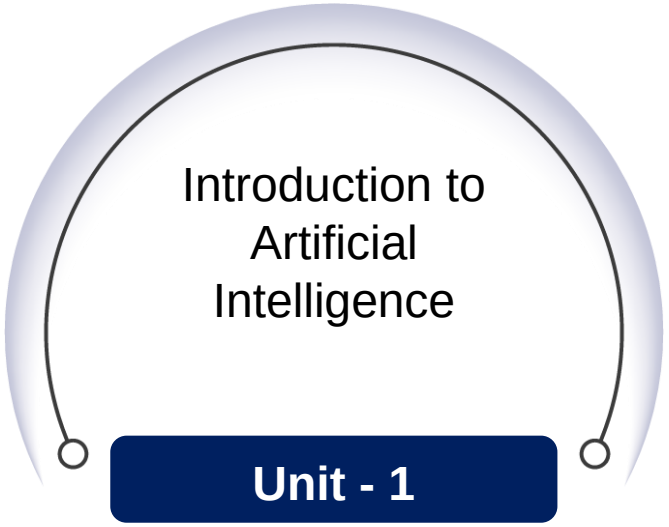
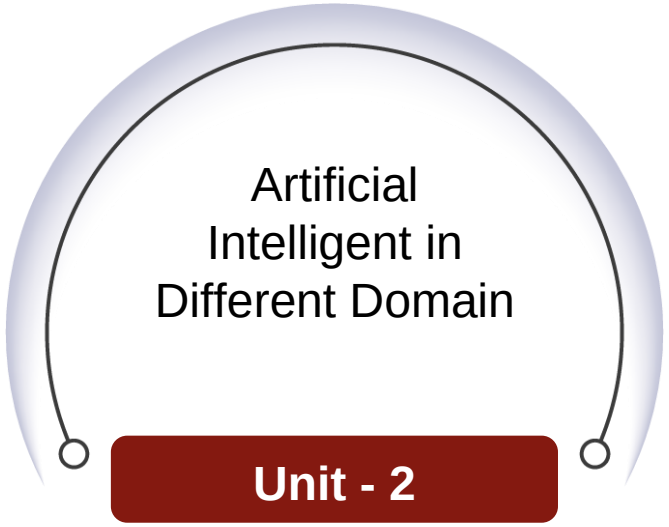
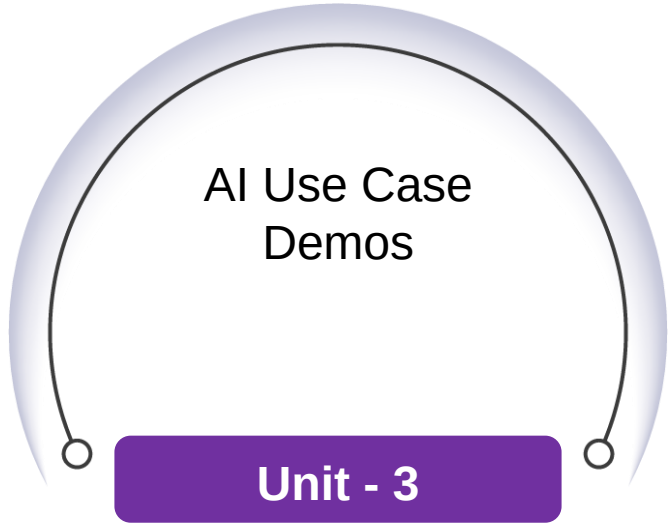
Module - 3

Foundation course

Units for Discussion







Unit - 3

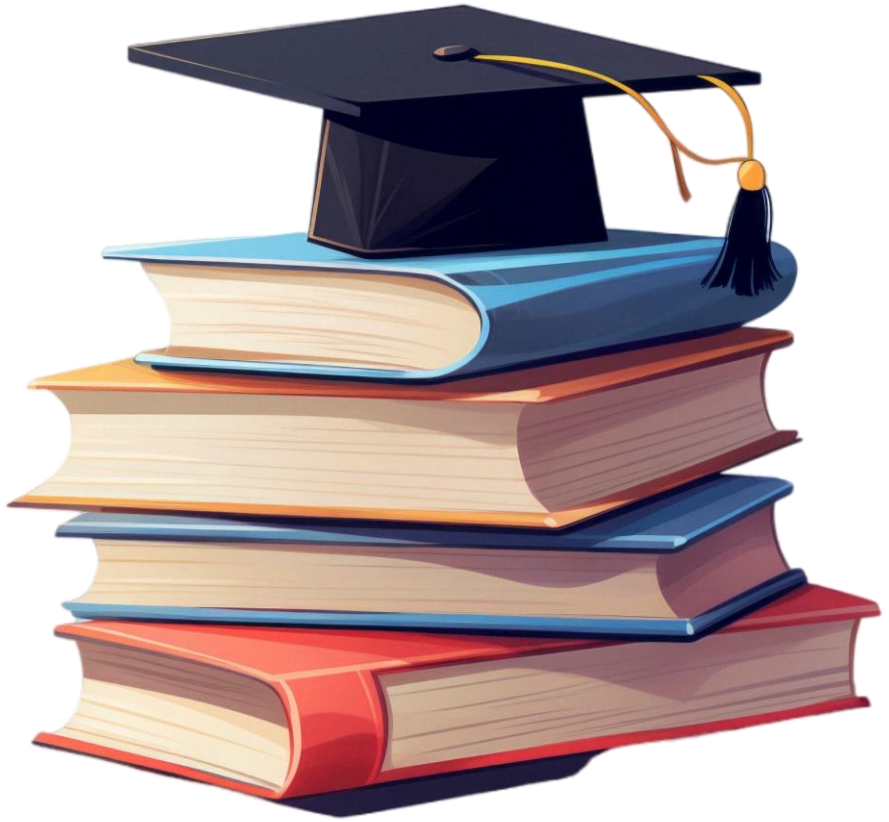
AI Use Case Demos

DISCLAIMER

The content is curated from online/offline resources and used for educational purpose only.

Learning Objectives

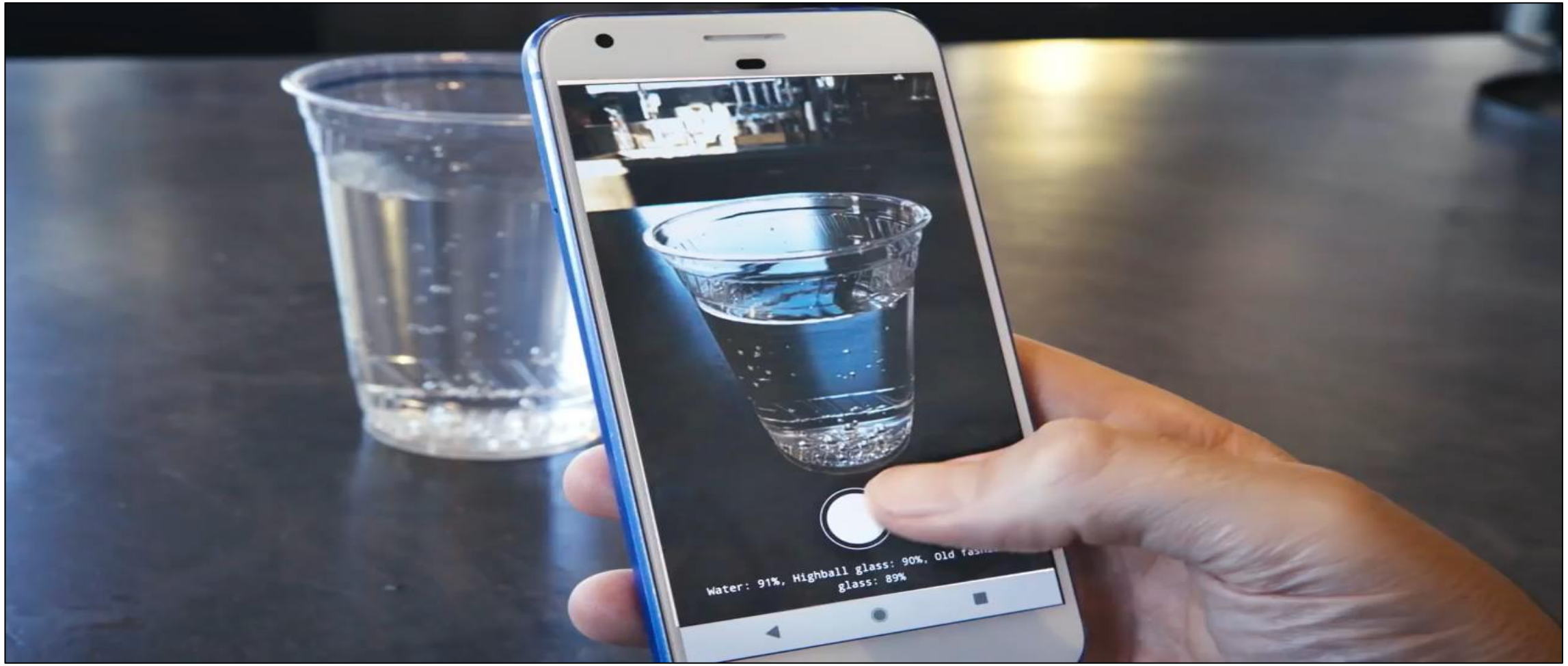
- Exploring Teachable Machine
- How to use it
- Works With
- Let’s train a model
- Train a model using Teachable Machine
- Tutorial
- Smart City Case Study
- What is Smart City
- Case Study
- Activity



Source :

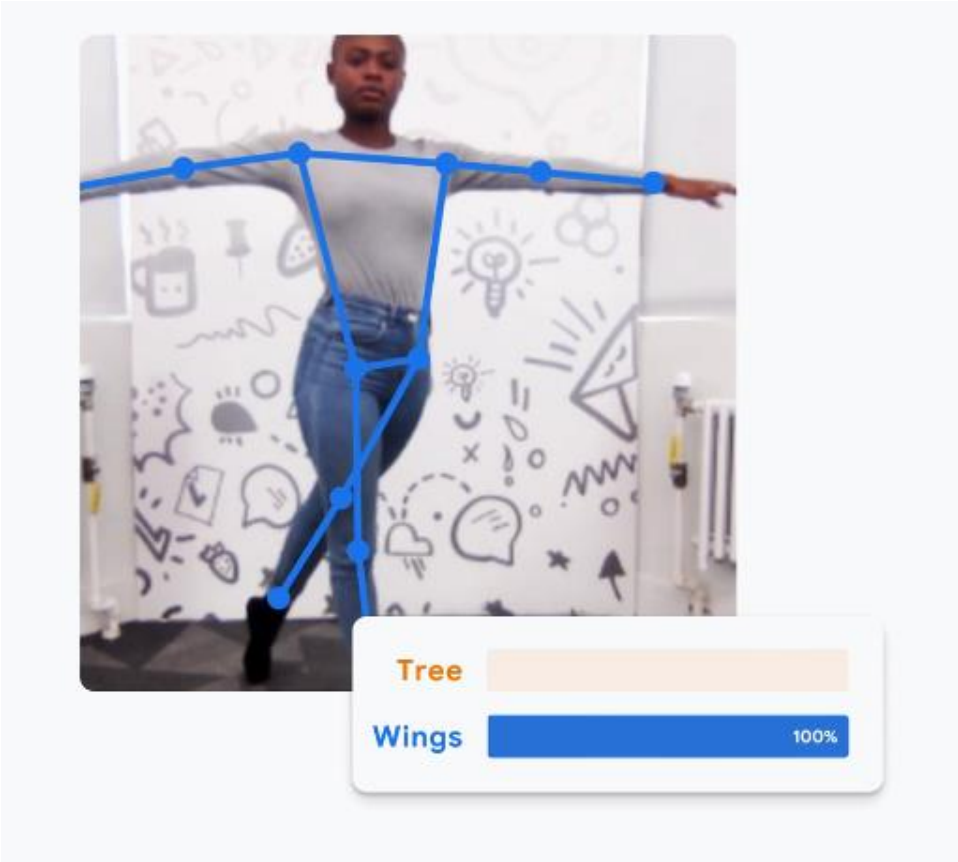
www.freepik.com/

Teachable Machine 2.0_ Making AI easier for Everyone



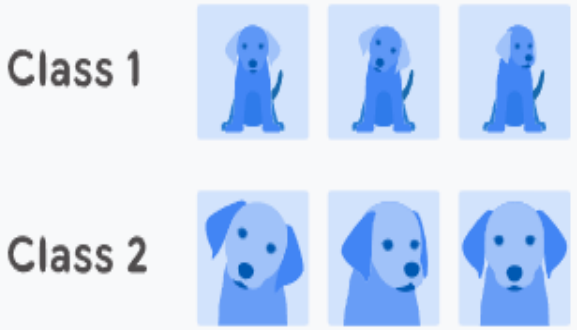
What is Teachable Machine

- Teachable Machine is a web-based tool that makes creating machine learning models fast, easy, and accessible to everyone.



Source: https://teachablemachine.withgoogle.com/

How to Use it



1 Gather

Gather and group your examples into classes, or categories, that you want the computer to learn.

2 Train

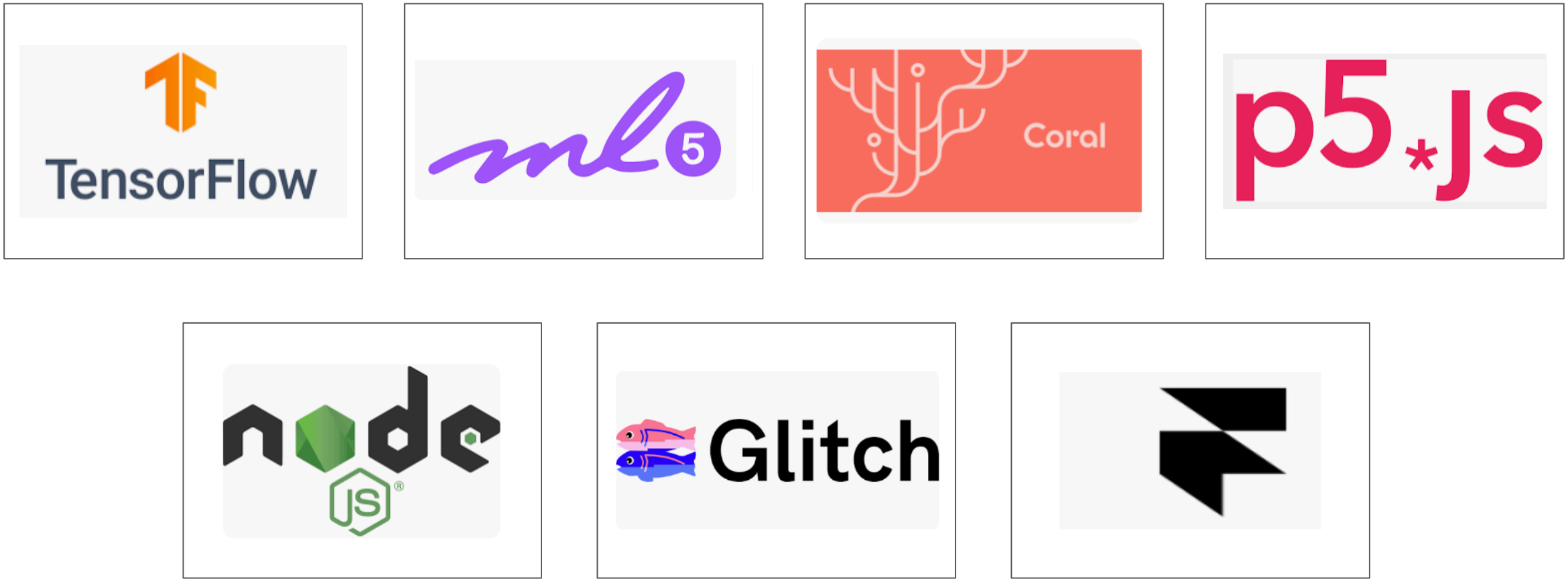
Train your model, then instantly test it out to see whether it can correctly classify new examples.

3 Export

Export your model for your projects: sites, apps, and more. You can download your model or host it online.

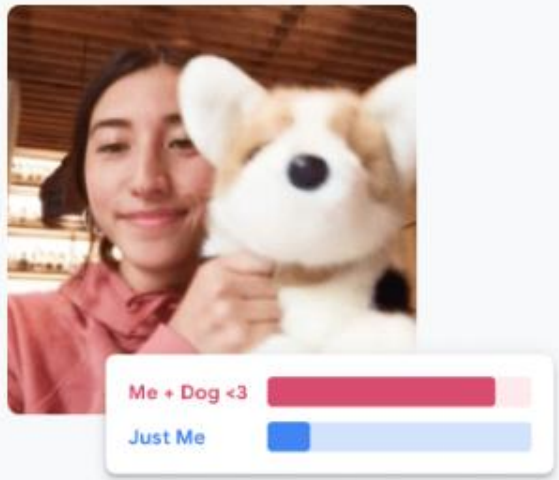
Source: https://teachablemachine.withgoogle.com/

Works With



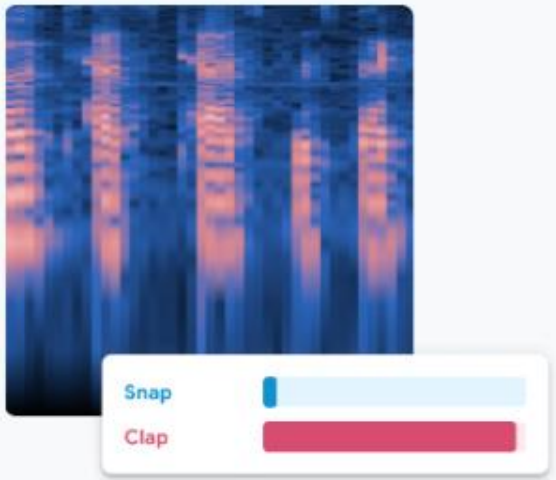
Source: https://teachablemachine.withgoogle.com/

What Can I use to Teach it



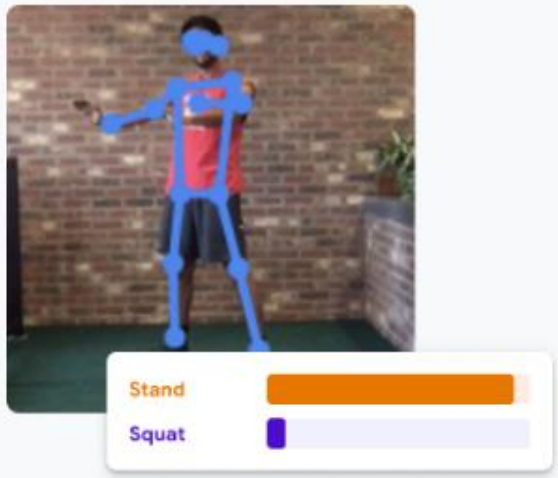
Images

Teach a model to classify images using files or your webcam.



Sounds

Teach a model to classify audio by recording short sound samples.



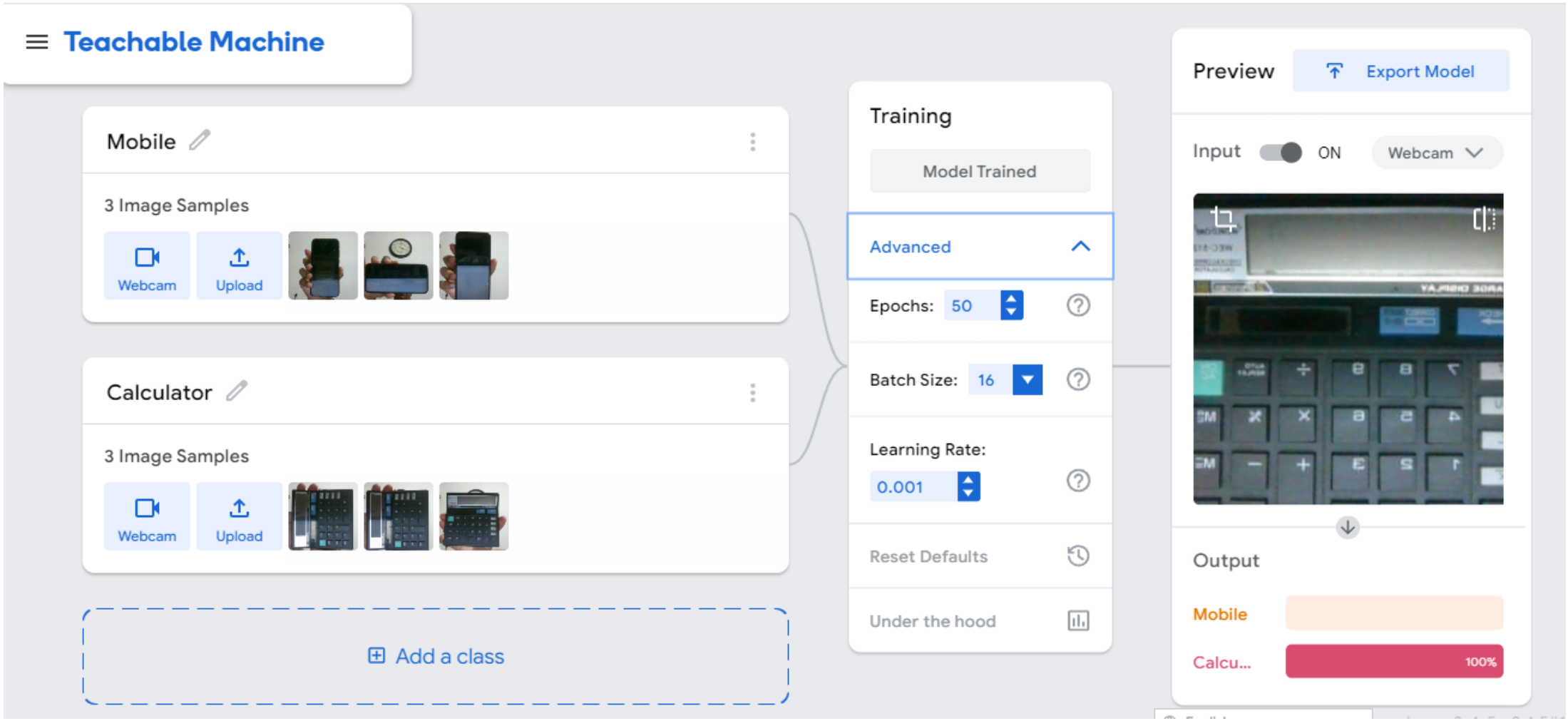
Poses

Teach a model to classify body positions using files or striking poses in your webcam.

Source: https://teachablemachine.withgoogle.com/

Activity 1 Train a Model Using Teachable Machine

Let's Train a Model



Teachable Machine

Mobile

3 Image Samples

Webcam | Upload

Calculator

3 Image Samples

Webcam | Upload

Add a class

Training

Train Model

Advanced

Epochs: 50

Batch Size: 16

Learning Rate: 0.001

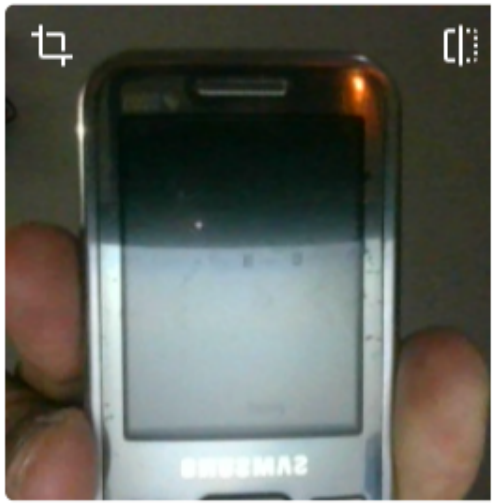
Reset Defaults

Under the hood

Preview

Export Model

Input ON Webcam



Output

Mobile 100%

Class

Teachable Machine

Mobile

3 Image Samples

Webcam | Upload

Calculator

3 Image Samples

Webcam | Upload

Add a class

Training

Model Trained

Advanced

Epochs: 48

Batch Size: 16

Learning Rate: 0.0007

Reset Defaults

Under the hood

Preview

Export Model

Input ON Webcam

Output

Mobile

Calcu... 100%

Tutorial on Teachable Machine

Tutorial 1

- In this tutorial, we are going to walk you through making a machine learning model to detect how ripe a banana is using images.
- You don’t have to use bananas for this
- You can use any fruit that changes color, or really, any three different objects — but we had bananas handy.

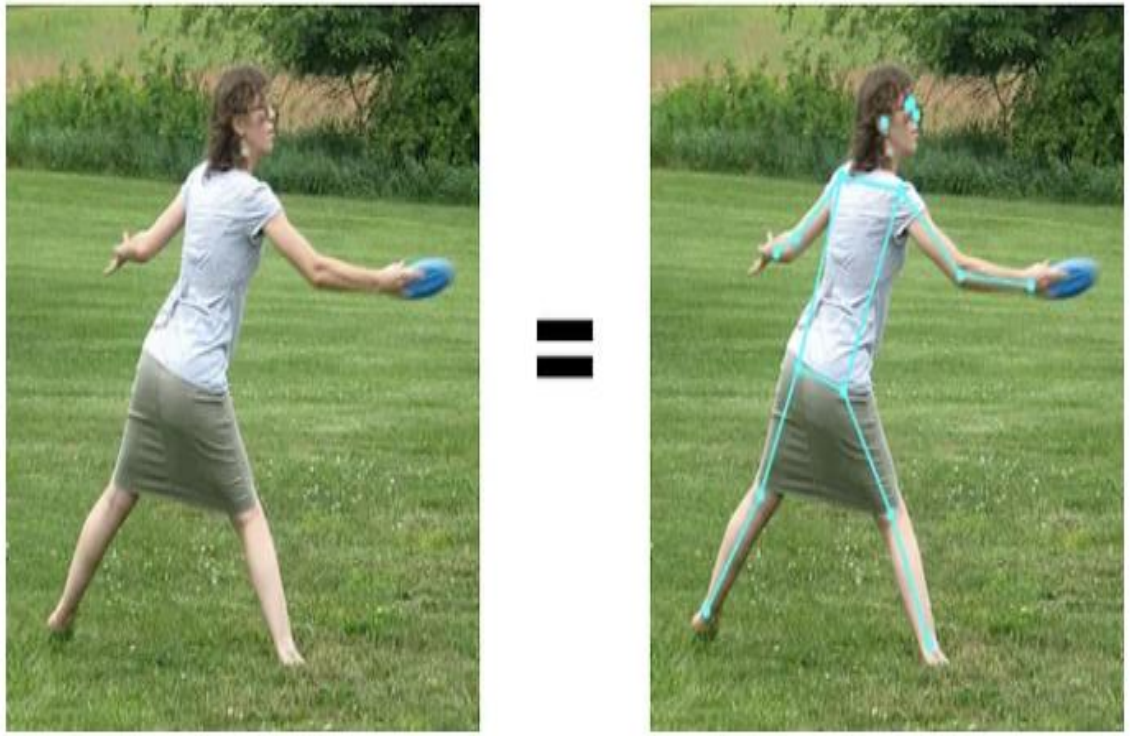
Bananameter

Source: https://teachablemachine.withgoogle.com/

Tutorial 2

- We are going to walk you through making a machine learning model to detect which way my head is tilted using pose detection.

- From a picture of a person, we can estimate their pose- where their arms, legs, head, and joints are.

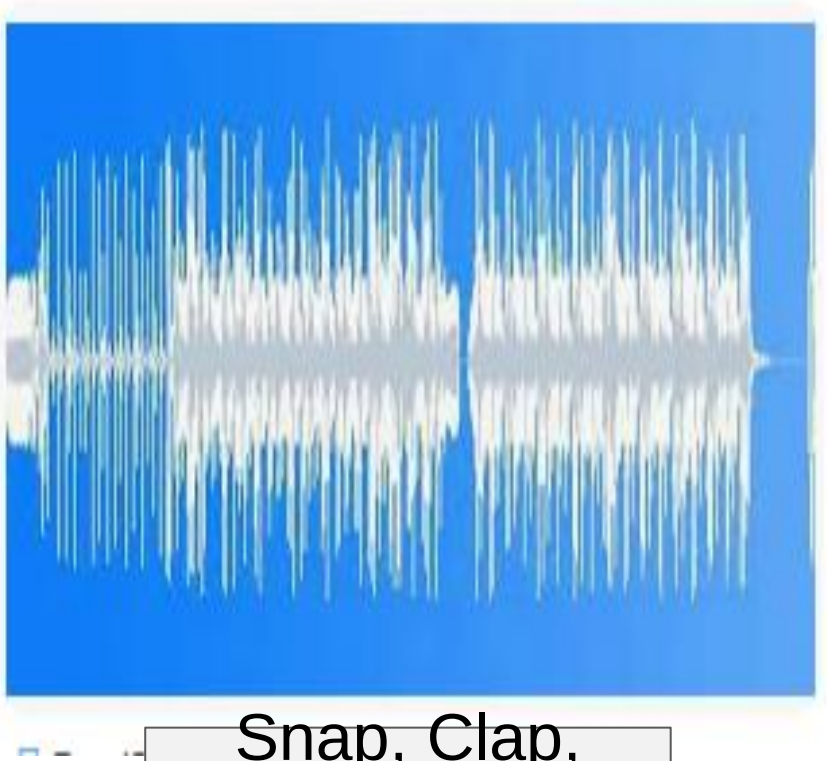


Head Tilt

Source: https://teachablemachine.withgoogle.com/

Tutorial 3

- We are going to walk you through making a machine learning model to detect snaps, claps, and whistles using audio clips.

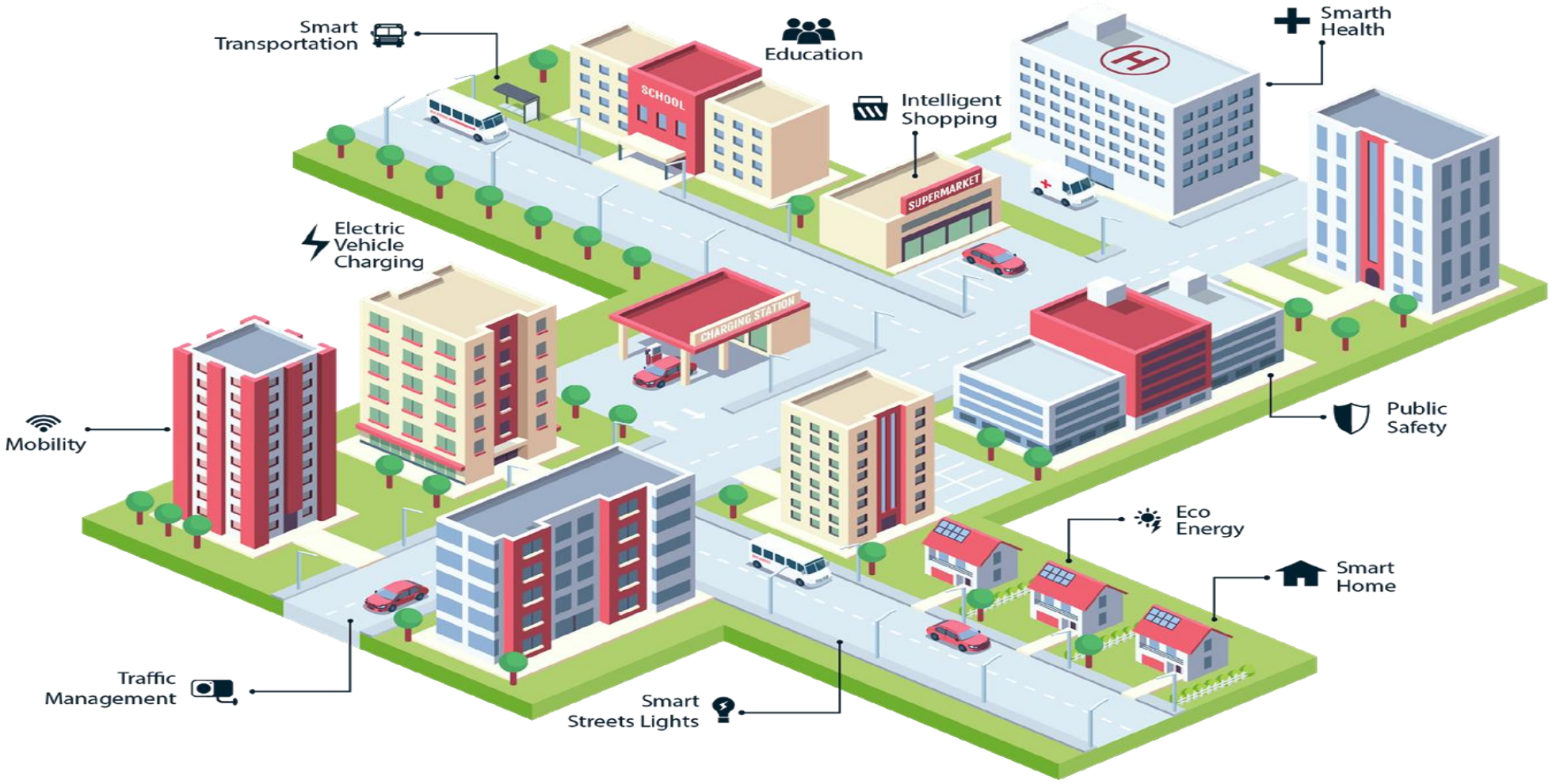


Source: https://teachablemachine.withgoogle.com/

Case Study on Smart City

Smart City Case Study

What is Smart City



Case Study

- Artificial Intelligence is making cities smarter - safer, healthier, more efficient, more accessible, and more livable.
- Let us take up a case study about Artificial Intelligence and Smart City where you will read about:
- What is a Smart City?
- Using AI to learn how to improve and optimize infrastructure of a city
- Using AI to improve public safety in a city

What do you think a future smart city would be like?

Activity

- Now imagine you are the head of your city’s planning committee!
- Try to list down applications and solutions that we can create in a smart city using AI!
- Share your ideas with the whole group.

Summary

- We have completed this section and now we have understood about:
- Exploring Teachable Machine: Teachable Machine is a web-based tool that allows users to train machine learning models without the need for extensive coding knowledge
- How to Use It & its case study
- Train a Model Using Teachable Machine: We learned a step-by-step guide on how to effectively train your machine learning model using Teachable Machine. It covers everything from data input to model evaluation.
- What is smart city & application of AI in smart city.

Source :

www.freepik.com/

References

- https://teachablemachine.withgoogle.com/
- https://medium.com/@warronbebster/teachable-machine-tutorial-bananameter-4bfffa765866
- https://medium.com/@warronbebster/teachable-machine-tutorial-snap-clap-whistle-4212fd7f3555
- https://medium.com/@warronbebster/teachable-machine-tutorial-head-tilt-f4f6116f491


Q&A
Let's Start

Quiz

1. What is Teachable Machine?

a) Machine learning library
b) Web-based tool for training machine learning models
c) A programming language
d) A hardware device for AI experiments

Answer: d) All of the above

Quiz

2. Which type of data can be used in Teachable Machine?

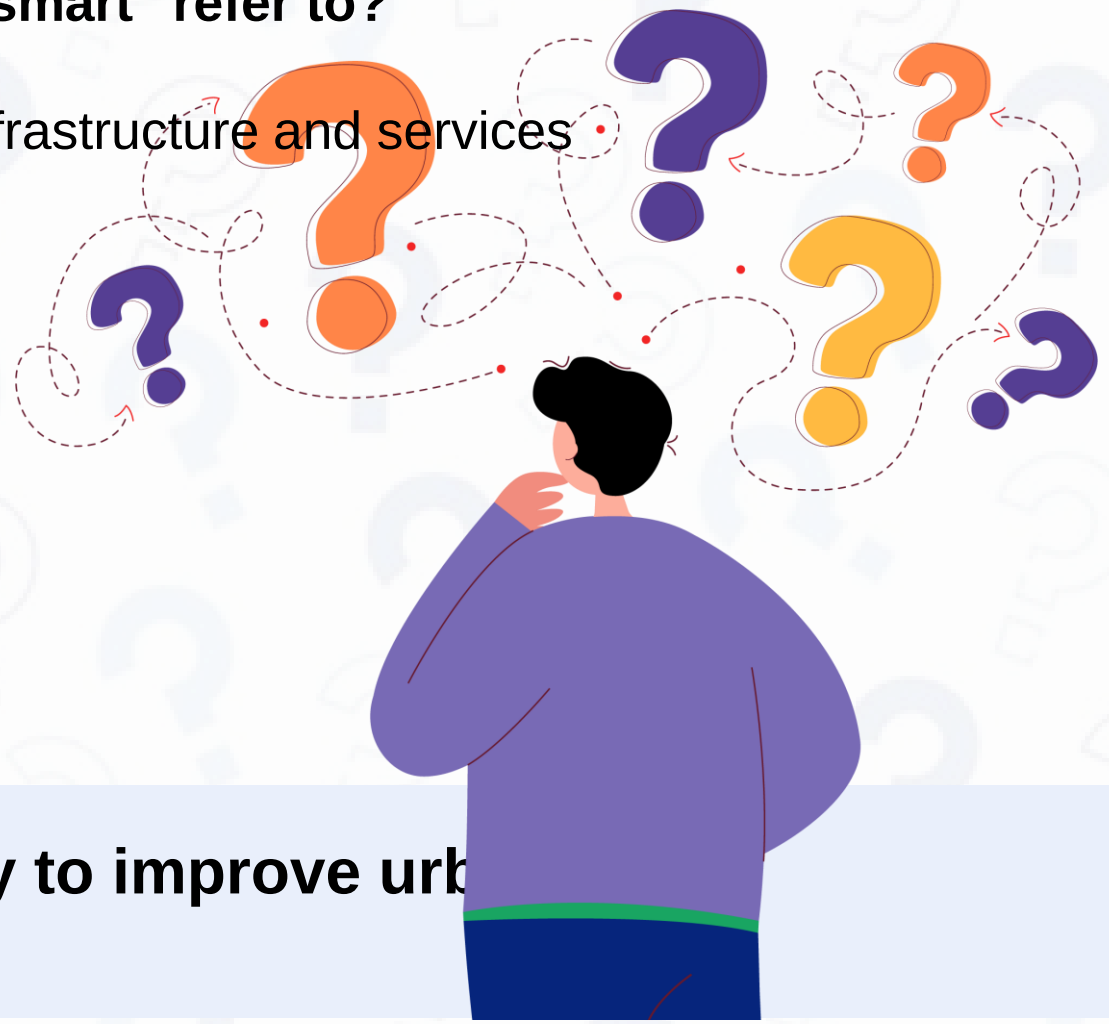
a) Text data
b) Image data
c) Audio data
d) All of the above

Answer: d) All of the above

Quiz

3. In the context of smart cities, what does the term "smart" refer to?

a) The use of advanced technology to improve urban infrastructure and services
b) The presence of intelligent robots in the city
c) The availability of high-speed internet
d) The number of skyscrapers in the city



Answer: a) The use of advanced technology to improve urb infrastructure and services

Quiz

4. What is a common goal of smart city initiatives?

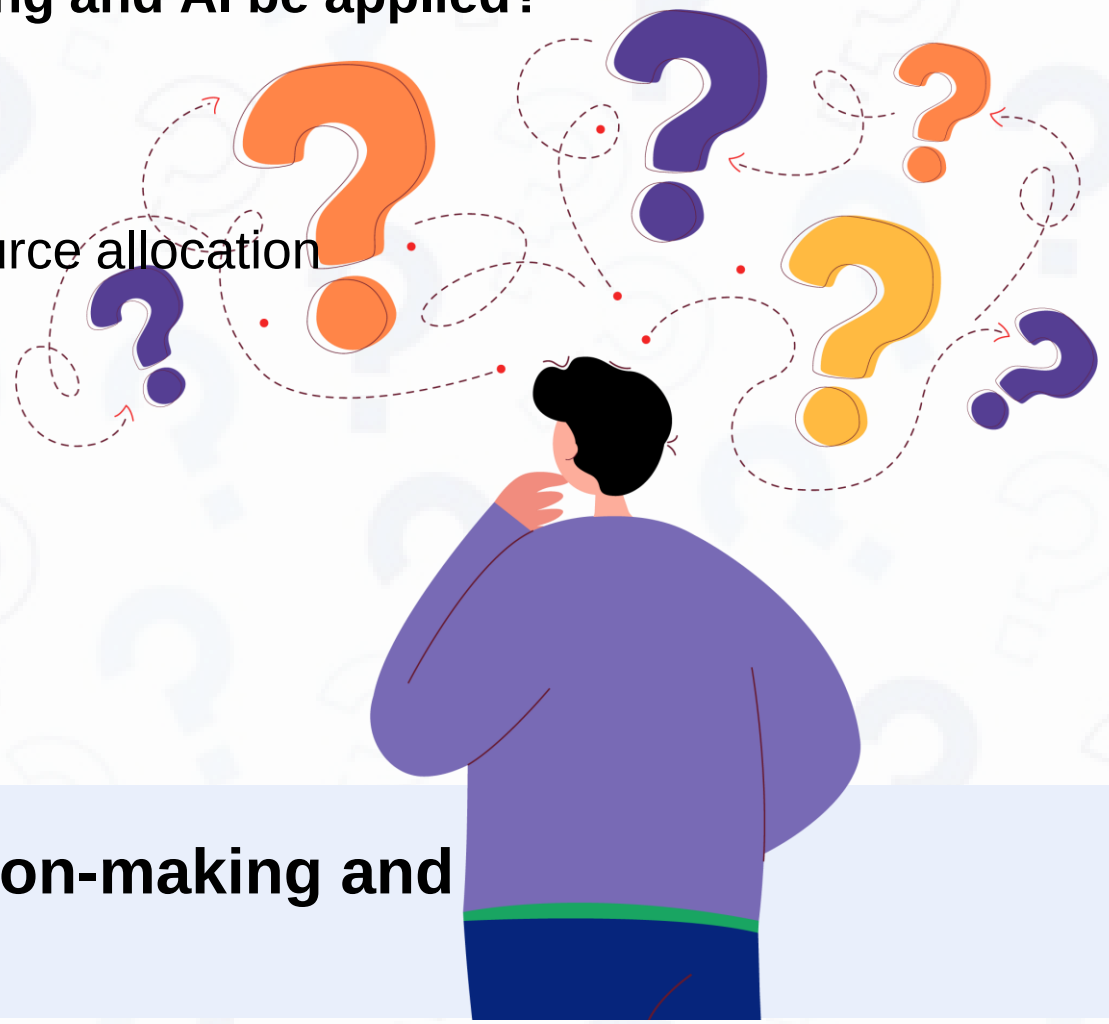
a) Reducing the use of technology in urban areas
b) Increasing pollution and traffic congestion
c) Enhancing the quality of life for citizens
d) Encouraging rural migration

Answer: c) Enhancing the quality of life for citizens

Quiz

5. In a smart city case study, how can machine learning and AI be applied?

a) To create more traffic congestion
b) To reduce energy efficiency
c) To analyze data for better decision-making and resource allocation
d) To increase waste production



Answer: c) To analyze data for better decision-making and resource allocation

Thank You