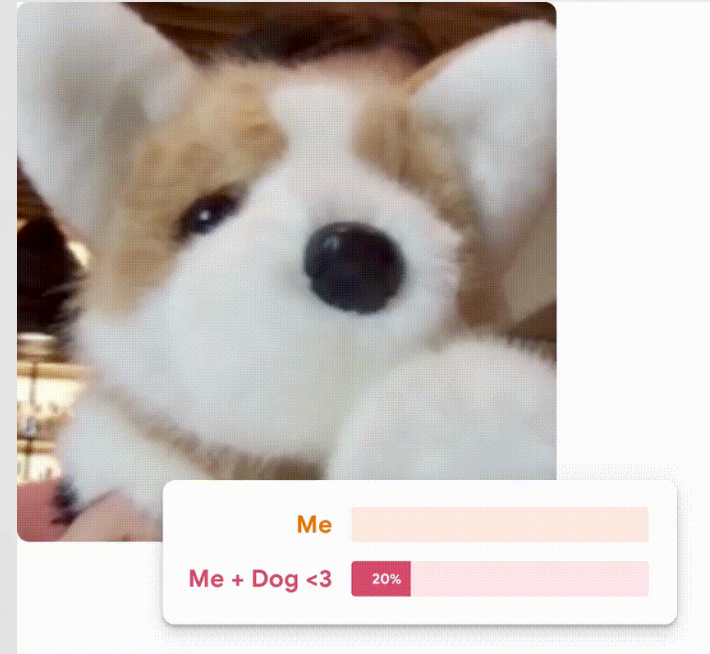# Teachable Machine

Teachable Machine

What is Teachable Machine?

- **https://teachablemachine.withgoogle.com**

  - 웹 기반 인공지능 툴(Web_Based AI Tool)

  - Image, Sound, Pose 데이터 활용

  - 빠르고 쉽게 머신러닝 모델 생성 가능

  - 복잡한 데이터 전처리나 코딩 과정없이 모델링

  - 생성된 모델 Preview 및 저장하여 Application으로 구성 가능

  - TensorFlow.js, h5, Android, Coral : 모바일 웹 서비스 적용

Teachable Machine
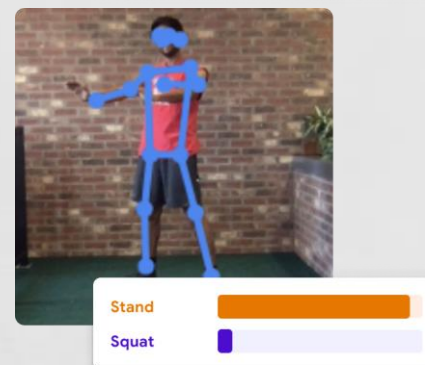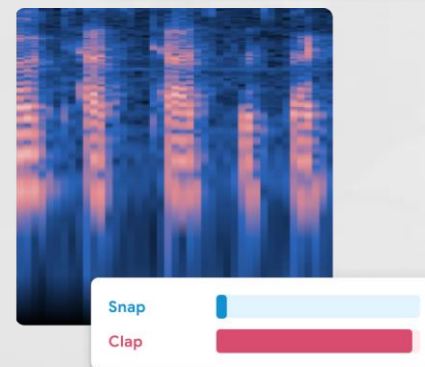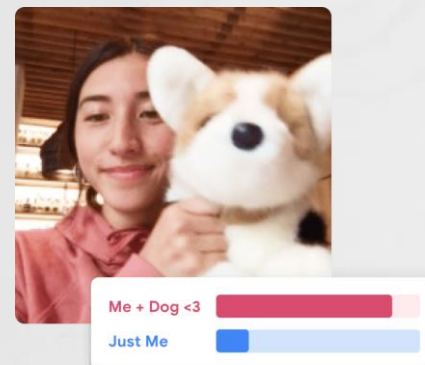
How do I use it?

- 자료수집(Gather) -> 모델훈련(Train) -> 모델활용(Export)의 3단계로 구성

- 자료수집(Gather)

  - 훈련을 위한 이미지, 소리, 포즈 데이터 수집

- 모델훈련(Train)

  - 수집된 자료로 머신러닝 모델 생성

- 모델활용(Export)

  - 생성된 모델 검토 및 활용
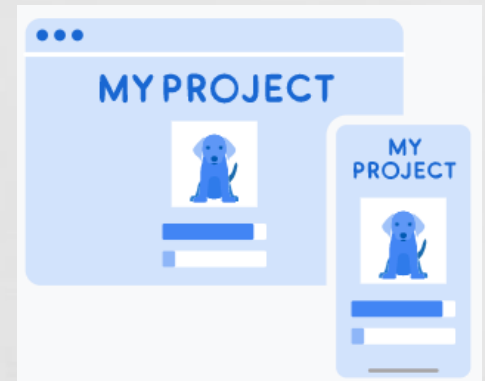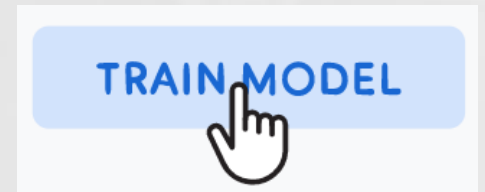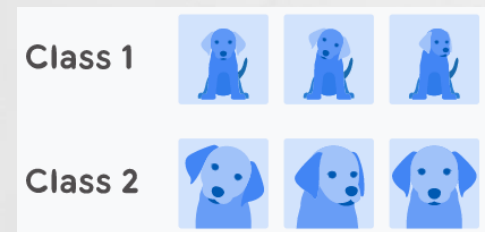
Teachable Machine

Type of Training

- **Binary Classification & Categorical Classification**

- **Image Classification**

  - 이미지 데이터 학습 후 분류

- **Sound Classification**

  - 오디오 데이터 학습 후 분류
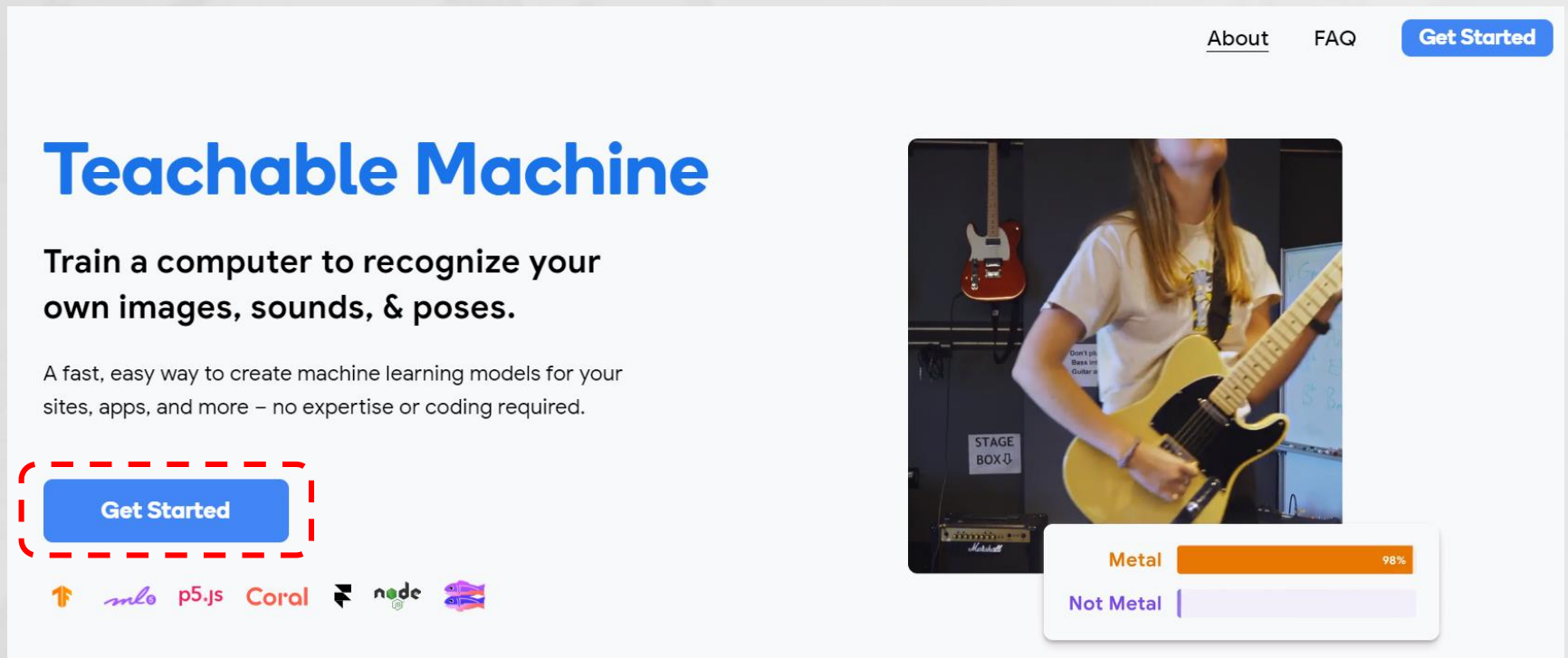
- **Pose Classification**

  - 자세 데이터 학습 후 분류

Image Classification

Teachable Machine

Image Classification 1/15

- https://teachablemachine.withgoogle.com

  - **Get Started**

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Image Classification

- ⊙ **New Project**

  - • **Image Project**
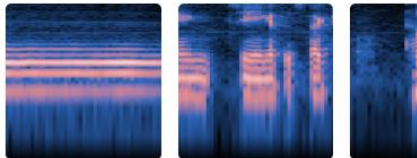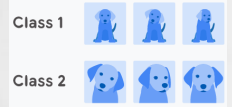
Teachable Machine

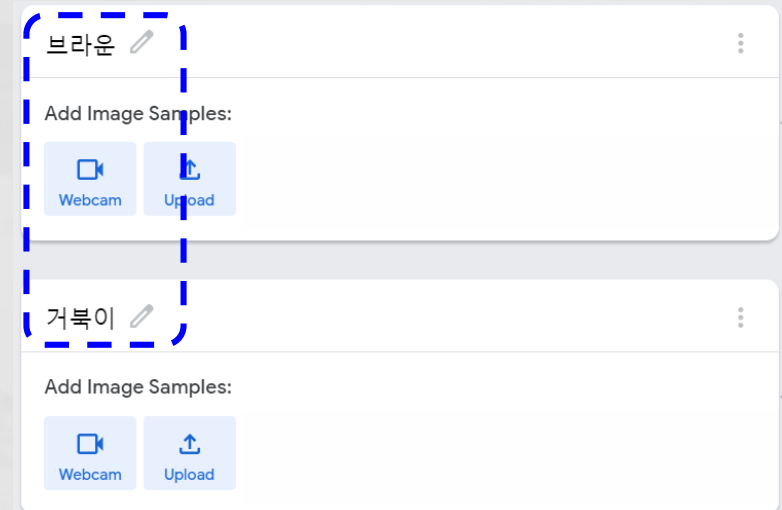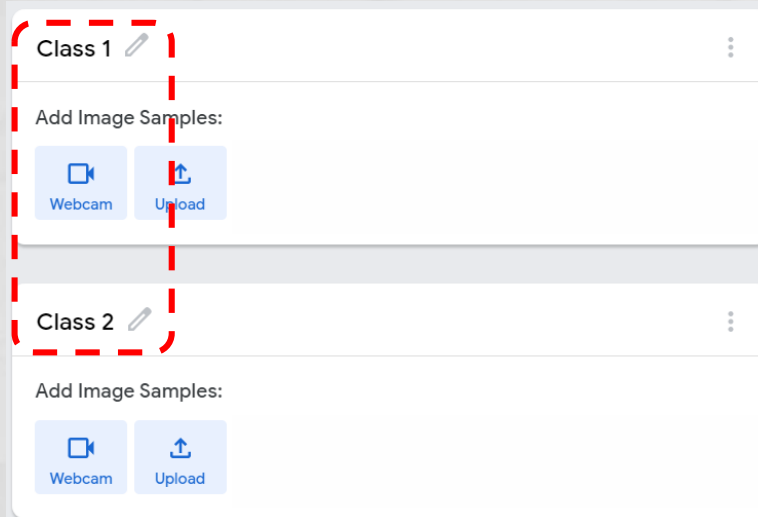## Image Classification 3/15

○ 자료수집(Gather) - Class 이름 설정

- Class1 -> 브라운

- Class2 -> 거북이

Class 1 ✏	⋮
Add Image Samples:	
📹 Webcam ⬆ Upload	

Class 2 ✏	⋮
Add Image Samples:	
📹 Webcam ⬆ Upload	

브라운 ✏	⋮
Add Image Samples:	
📹 Webcam ⬆ Upload	

거북이 ✏	⋮
Add Image Samples:	
📹 Webcam ⬆ Upload	
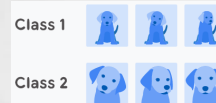
Teachable Machine

Image Classification 4/15

○ 자료수집(Gather) - 브라운 이미지 웹캠으로 수집

- **Webcam 선택**
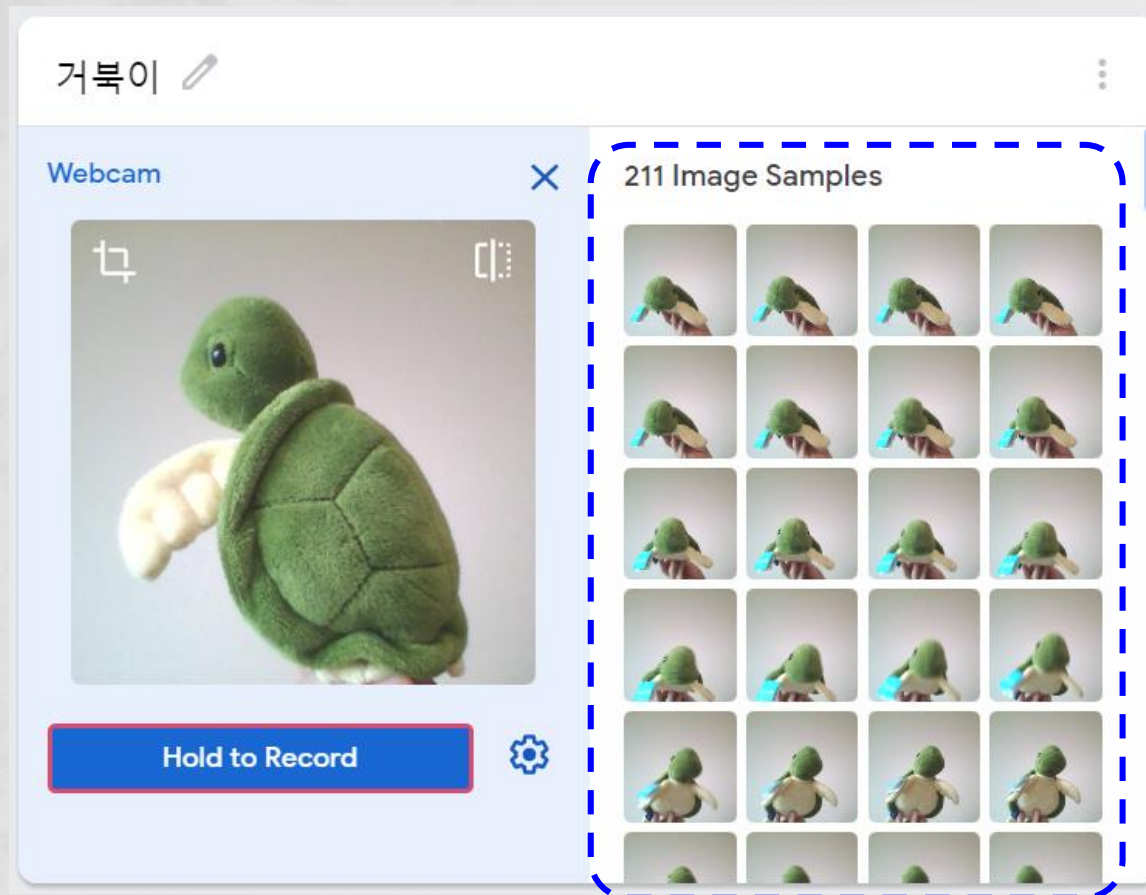
- **Image Samples 수집**

- **200개 이상 Image Sample 수집**
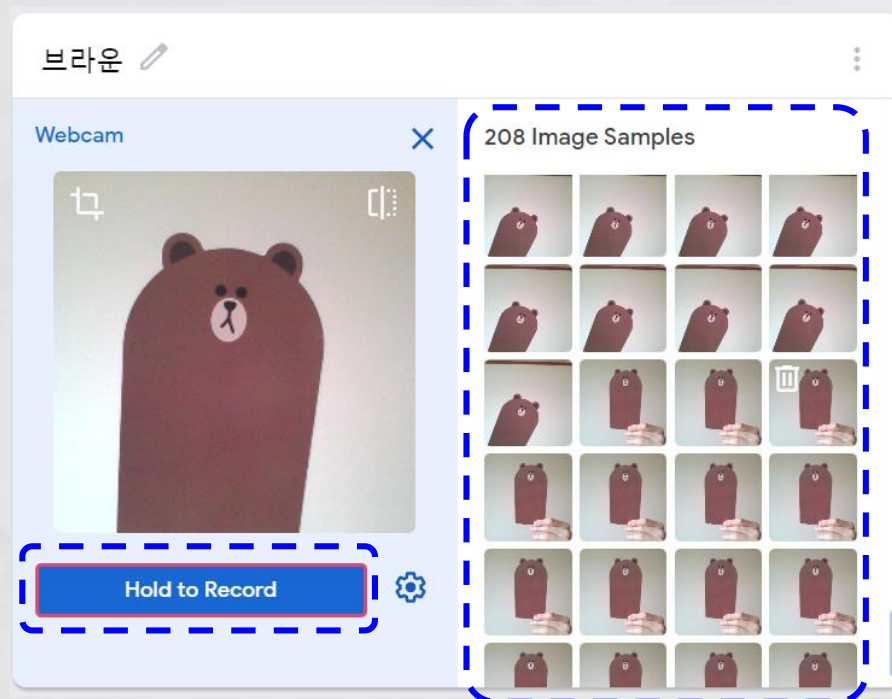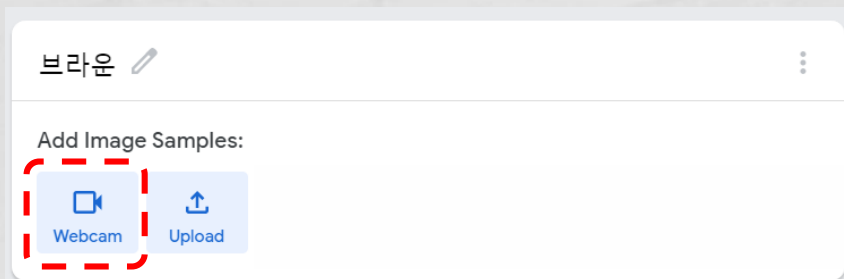
Teachable Machine
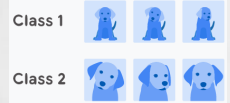
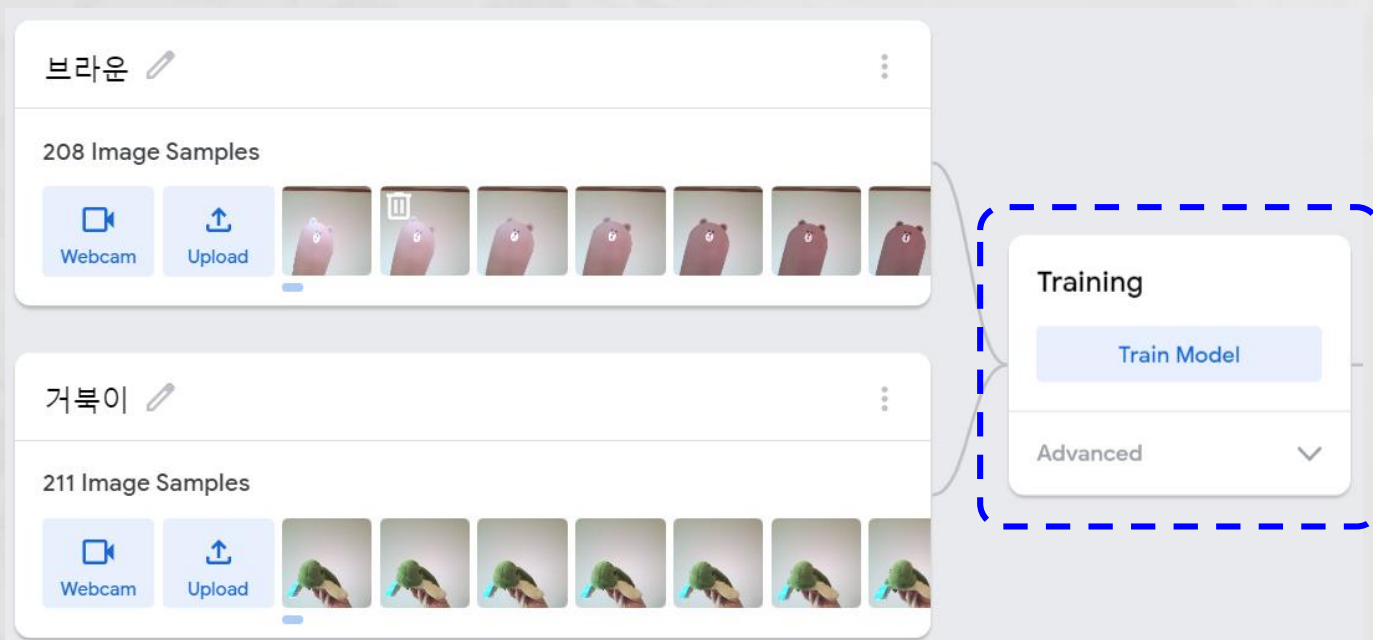## Image Classification 5/15

o **자료수집(Gather) - 거북이 이미지 웹캠으로 수집**

Teachable Machine

Image Classification 6/15

○ **모델훈련(Train)**
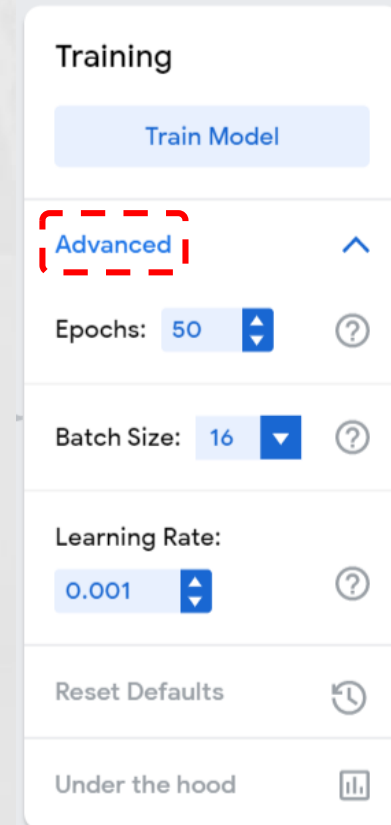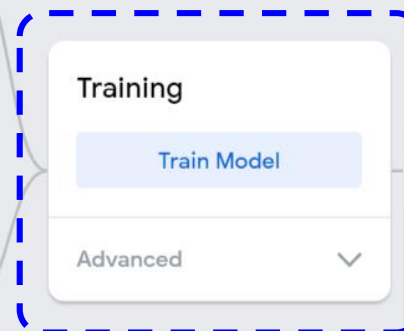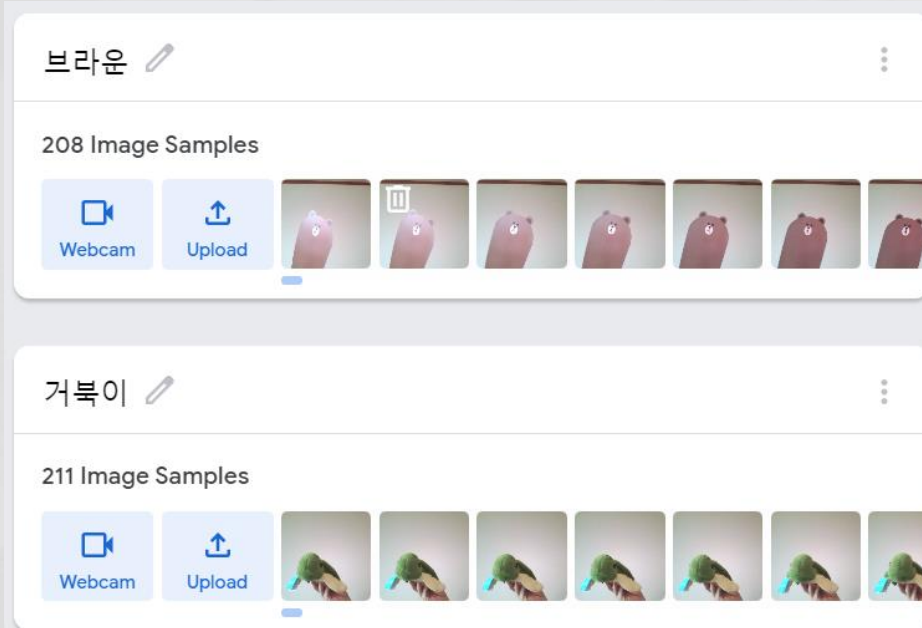
- **Training -> Train Model 선택**

- **Advanced -> 훈련 옵션 변경**

Teachable Machine

Image Classification 7/15

- **모델훈련(Train)**

    - **Training -> Train Model 선택**

    - **Advanced -> 훈련 옵션 변경**

Teachable Machine

Image Classification 8/15

○ 모델훈련(Train) - 결과 확인
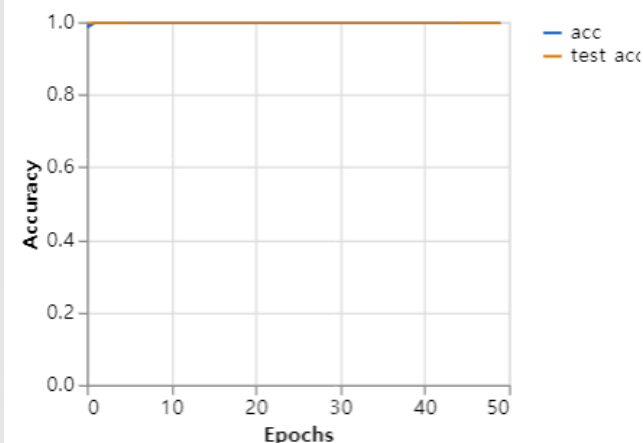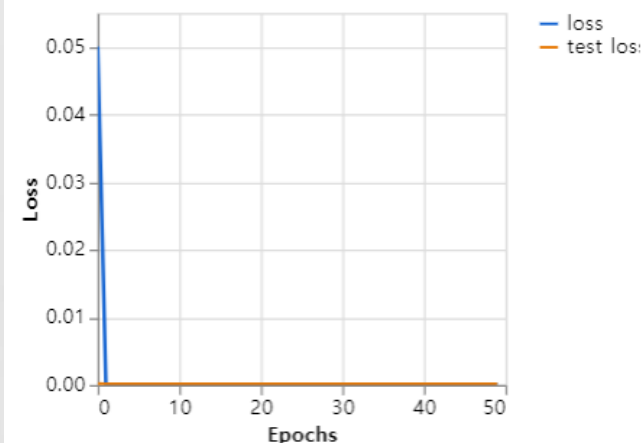
Teachable Machine

Image Classification 9/15

○ 모델훈련**(Train) -** 결과 확인

Teachable Machine

Image Classification

○ **모델활용(Export) - 스마트폰**

- **Export Model -> Tensorflow.js -> Upload my model**
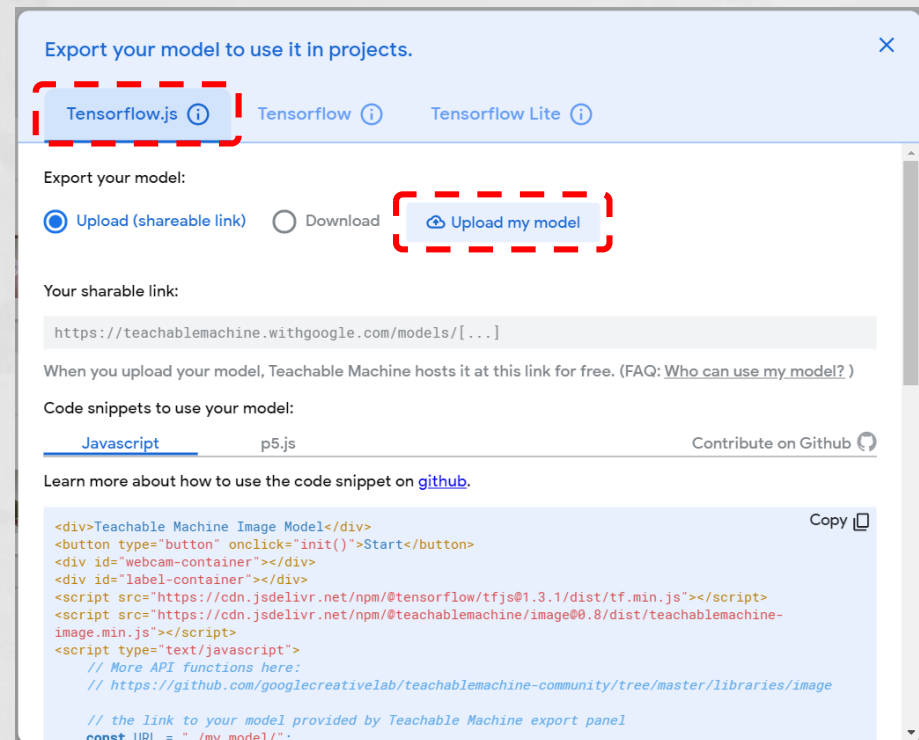
Teachable Machine
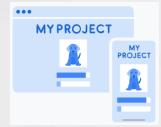
Image Classification 11/15

- 모델활용(Export) - 스마트폰

  - 스마트폰 브라우저 -> Your sharable link

Teachable Machine

Image Classification

○ 모델활용**(Export)** - 웹페이지

- Code snippets to use your model: -> Javascript -> Copy
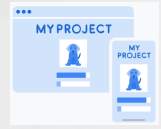
Teachable Machine

Image Classification 13/15

○ 모델활용**(Export) - 웹페이지**

  • 복사 된 **Javascript 코드 -> notepad -> 새문서에 붙여넣기**

Teachable Machine

Image Classification 14/15

- **모델활용(Export) - 웹페이지**

  - **HTML 해더 추가 -> index.txt 저장 -> index.html 확장자 변경**
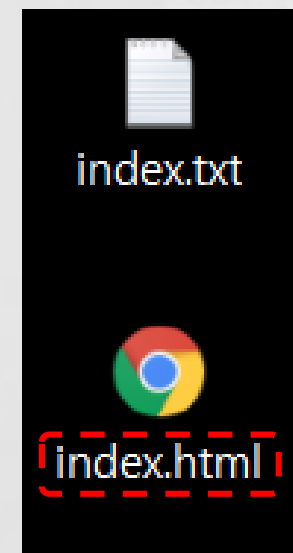
Teachable Machine

Image Classification 15/15

o 모델활용(Export) - 웹페이지

- **index.html 실행**

Teachable Machine

Sound & Pose Classification
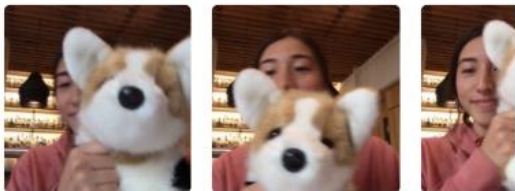
- Image Classification과 같은 방식으로 진행