Lab 15
Tensorflow.js

Software Studio

DataLab, CS, NTHU

2022 spring

Outline

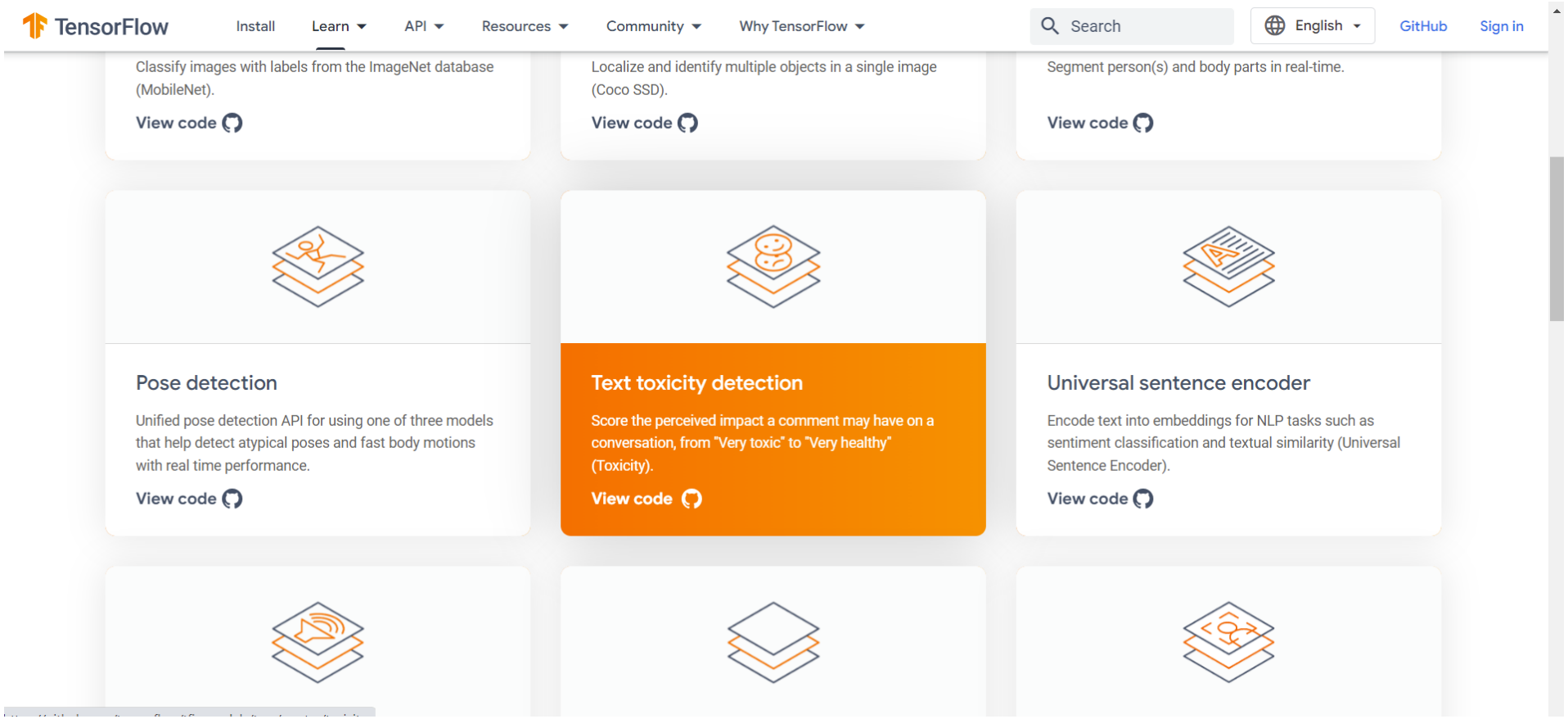
- Introduction
  - Pretrained Tensorflow.js models
- Train your own model using universal sentence encoder.

Tensorflow.js - Link

- Stand upon the shoulders of Google.
- Develop ML models in JavaScript, and use ML directly in the browser or in Node.js.

Tensorflow.js - Link

- Pretrained Tensorflow.js models.



Tensorflow.js – Text Toxicity Detection

- Input: Sentence
- Output: Whether the input sentence contains toxic content

text	identity attack	insult	obscene	severe toxicity	sexual explicit	threat	toxicity
We're dudes on computers, moron. You are quite astonishingly stupid.	false	true	false	false	false	false	true
Please stop. If you continue to vandalize Wikipedia, as you did to Kmart, you will be blocked from editing.	false	false	false	false	false	false	false
I respect your point of view, and when this discussion originated on 8th April I would have tended to agree with you.	false	false	false	false	false	false	false

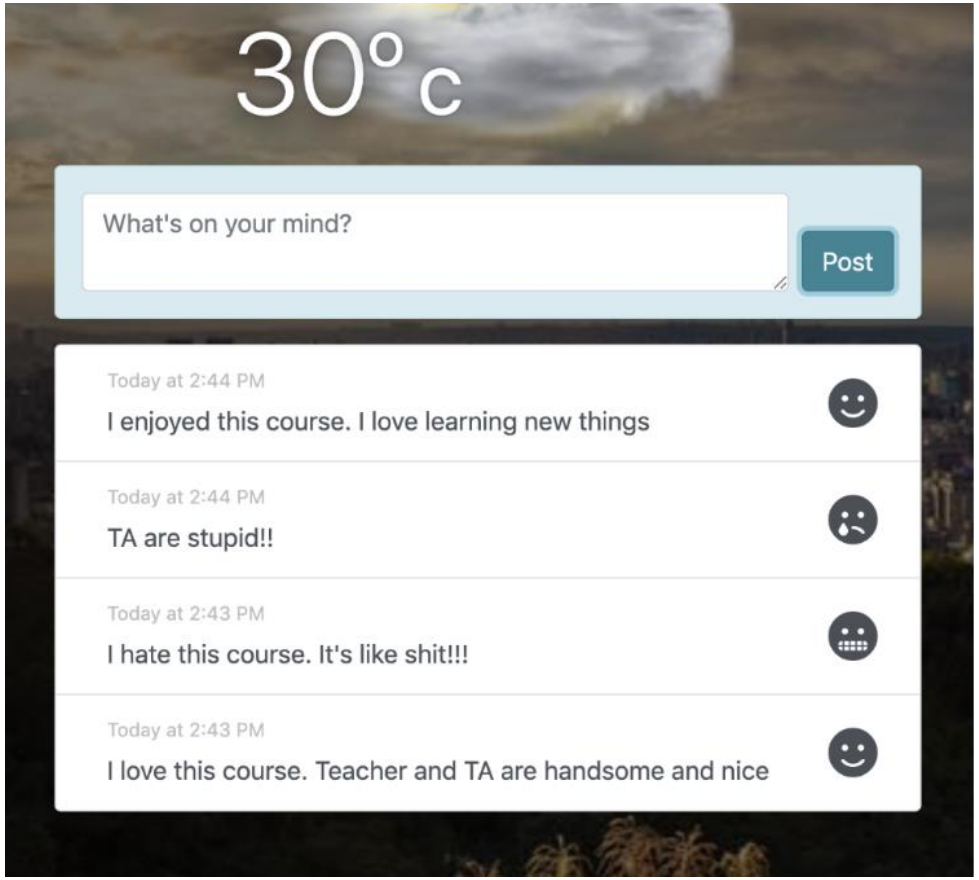
Tensorflow.js – Text Toxicity Detection

- What can we do after getting the output?

Sentence	Identity attack	insult	obscene	Severe toxicity	sexual explicit	Threat	toxicity	Emoji
Teacher and Ta are handsome and nice. I love you!!	False	False	False	False	False	False	False	 Happy
Ta is stupid. He can not do anything. Ta is Idiot	**True**	**True**	False	**True**	False	**True**	**True**	 Sad
I never fucking having a course like this. FUCKING ASSHOLES! PISSING ME OFF	False	False	**True**	False	**True**	False	False	 Fear

Tensorflow.js – Text Toxicity Detection

- What can we do after getting the output?



Tensorflow.js – Text Toxicity Detection

- Try to use the @tensorflow-models/toxicity in your graphql server.
- Install package:

```
$ yarn add @tensorflow/tfjs @tensorflow-models/toxicity
```

Tensorflow.js – Text Toxicity Detection

- Usage:

```
import '@tensorflow/tfjs'
import * as toxicity from '@tensorflow-models/toxicity'

const threshold = 0.9;
```

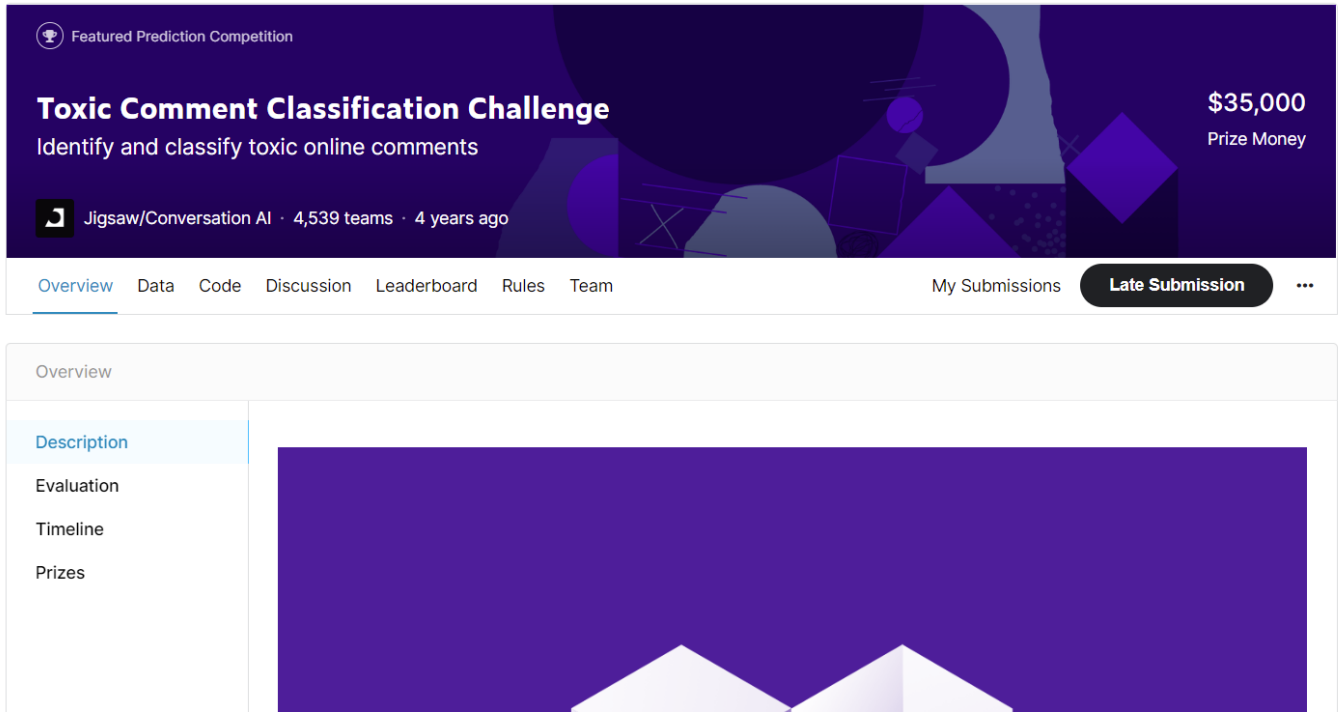
```
  async getPredition ({ sentence }) {
    const sentences = [sentence];
    const model = await toxicity.load(threshold)
    const response = await model.classify(sentences).then(predictions => {
        console.log(predictions);
        return predictions
    })
    return response
  }
```

Train your own model

- Kaggle is an online community platform for data scientists and machine learning enthusiasts.

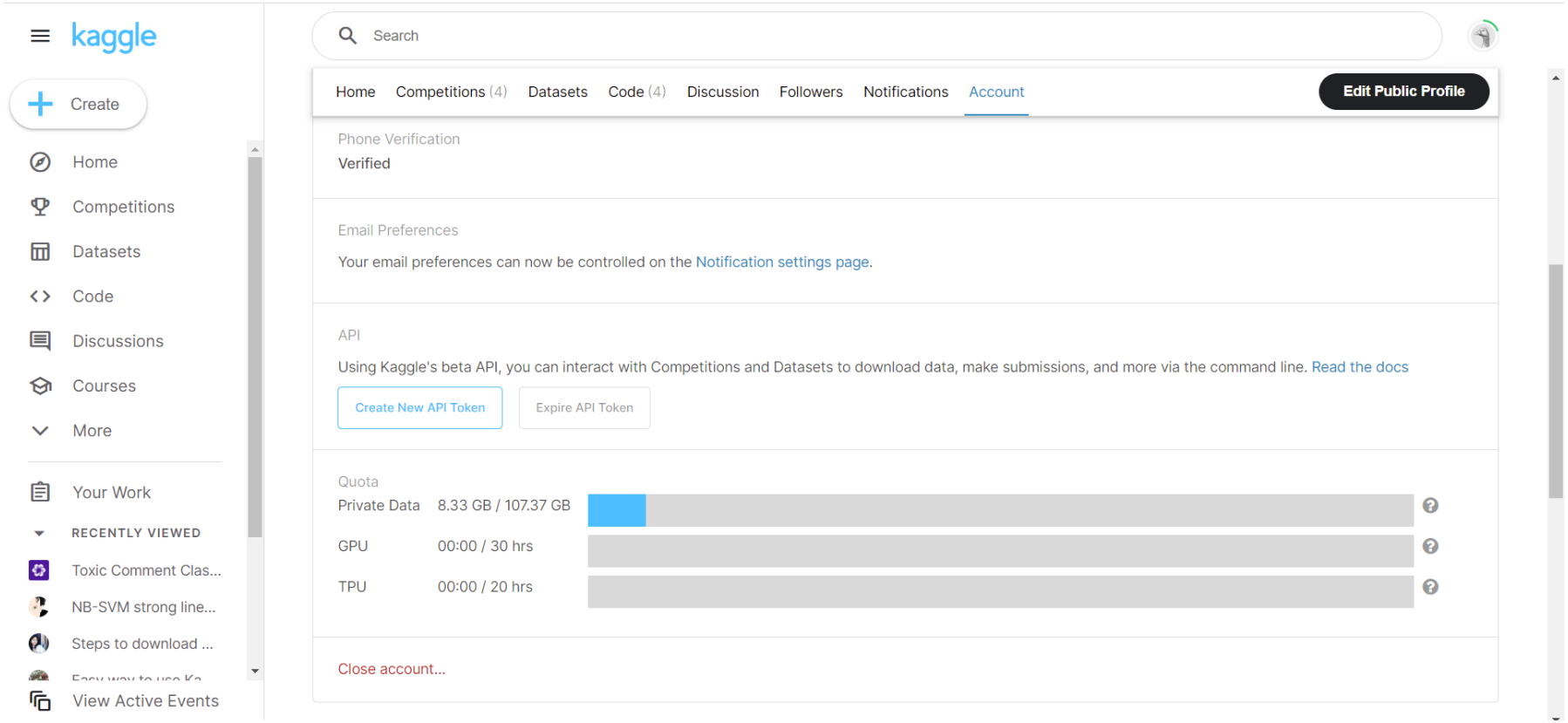
Train your own model

- We will use the below dataset. Please participate in the competition.



Train your own model

- Create a Kaggle account and create new API token.



Train your own model

- Start to train code on Google Colab.