

ML

# Weathermood: sentiment

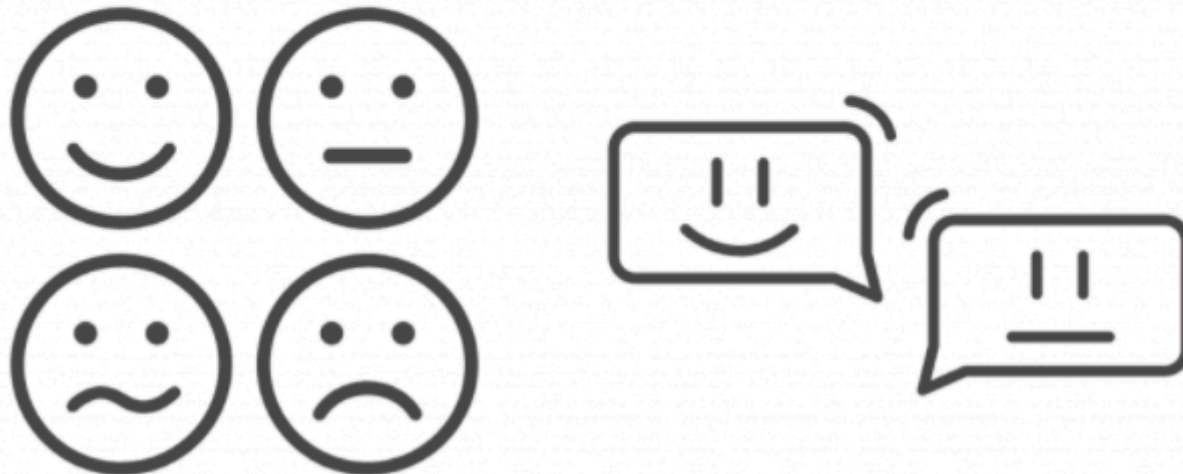
Software Studio

DataLab, CS, NTHU

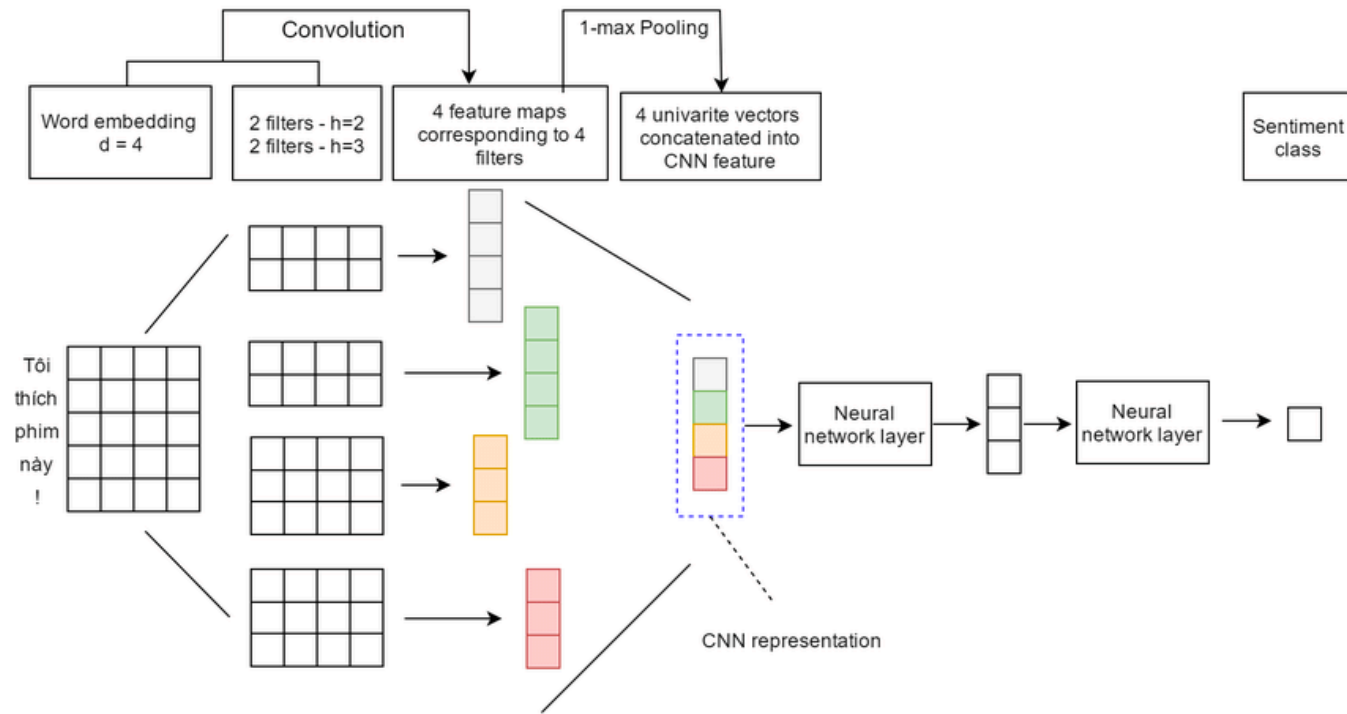
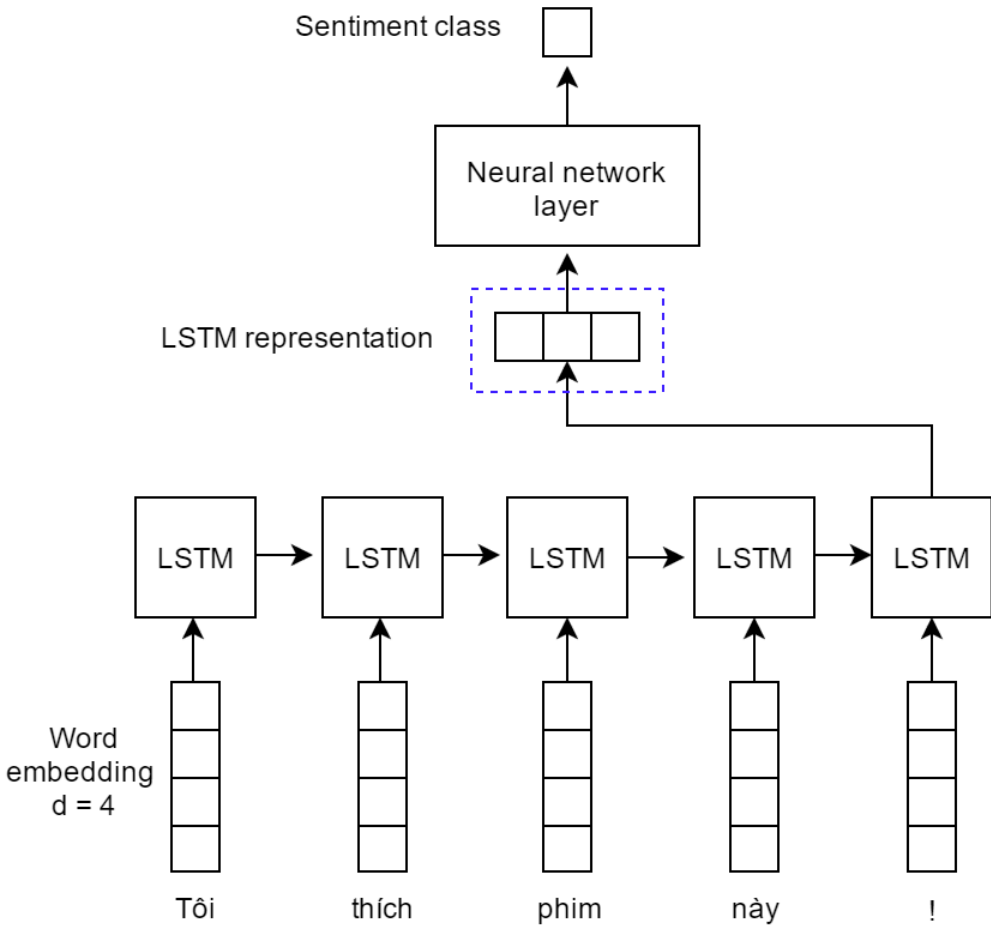
# Sentiment Analysis

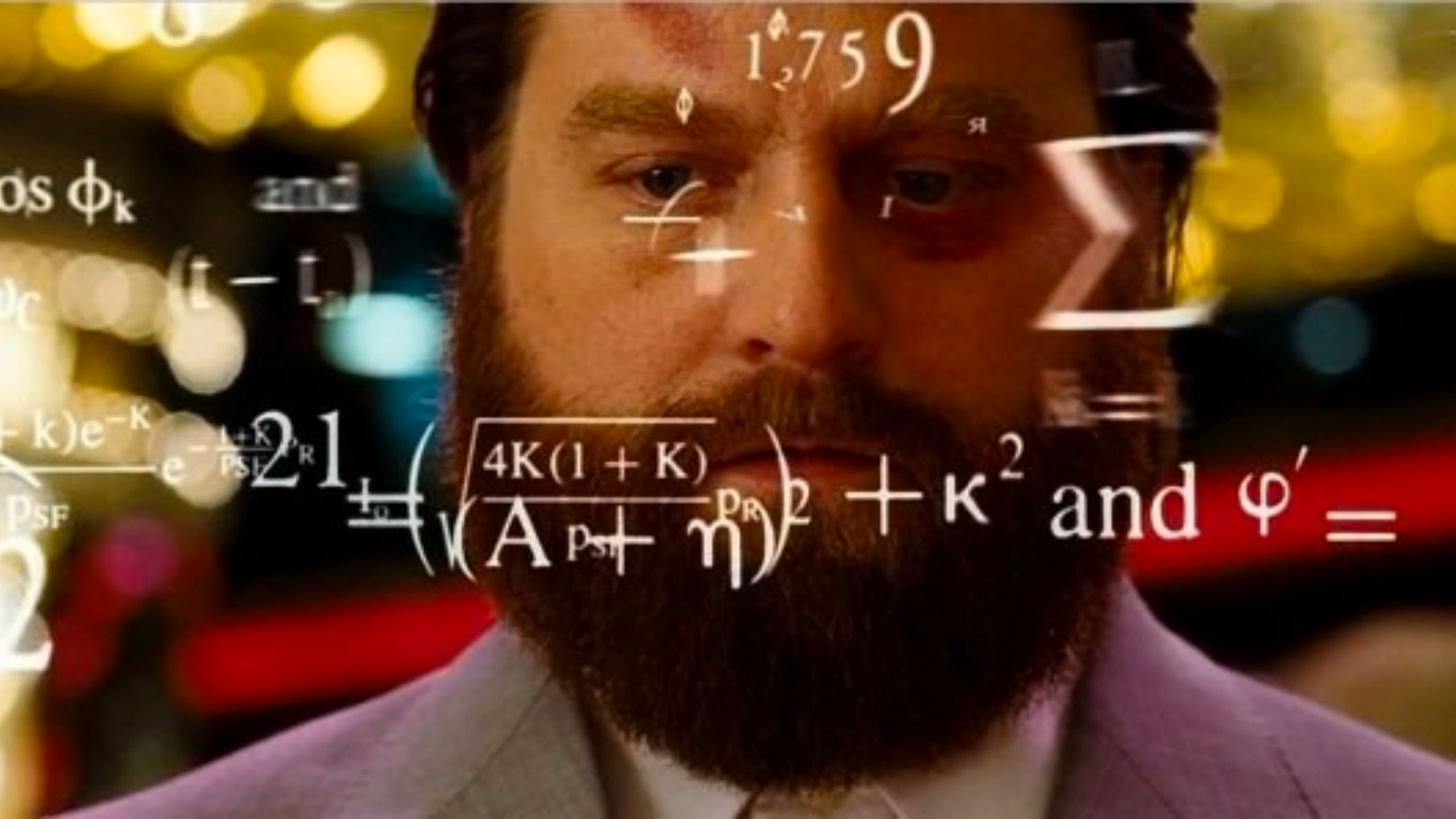
- Natural Language Processing(NLP)
- Input: a piece of text or a sentence
- Output: the score for the opinions and sentiments contained within

Sentiment Analysis



# Sentiment Analysis





os  $\phi_k$

and

$(t - t_0)$

$$\frac{(k)e^{-k}}{PSF} e^{-\frac{1+K}{PSF} p_R} 21 \pm \left( \sqrt{\frac{4K(1+K)}{(A_{PSF} + \eta)^2}} + \kappa^2 \right) \text{ and } \varphi' =$$

# Stand upon the shoulders of Google

- [TensorFlow.js](#)
  - Develop ML models in JavaScript, and use ML directly in the browser or in Node.js.



# TensorFlow.js

# TensorFlow.js



## Image classification

Classify images with labels from the ImageNet database (MobileNet).

[View code](#)



## Object detection

Localize and identify multiple objects in a single image (Coco SSD).

[View code](#)



## Body segmentation

Segment person(s) and body parts in real-time (BodyPix).

[View code](#)



## Pose estimation

Estimate human poses in real-time (PoseNet).

[View code](#)



## Text toxicity detection

Score the perceived impact a comment may have on a conversation, from "Very toxic" to "Very healthy" (Toxicity).

[View code](#)



## Sentence encoding

Encode text into embeddings for NLP tasks such as sentiment classification and textual similarity (Universal Sentence Encoder).

[View code](#)

# Text Toxicity Detection

[\[source\]](#)

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

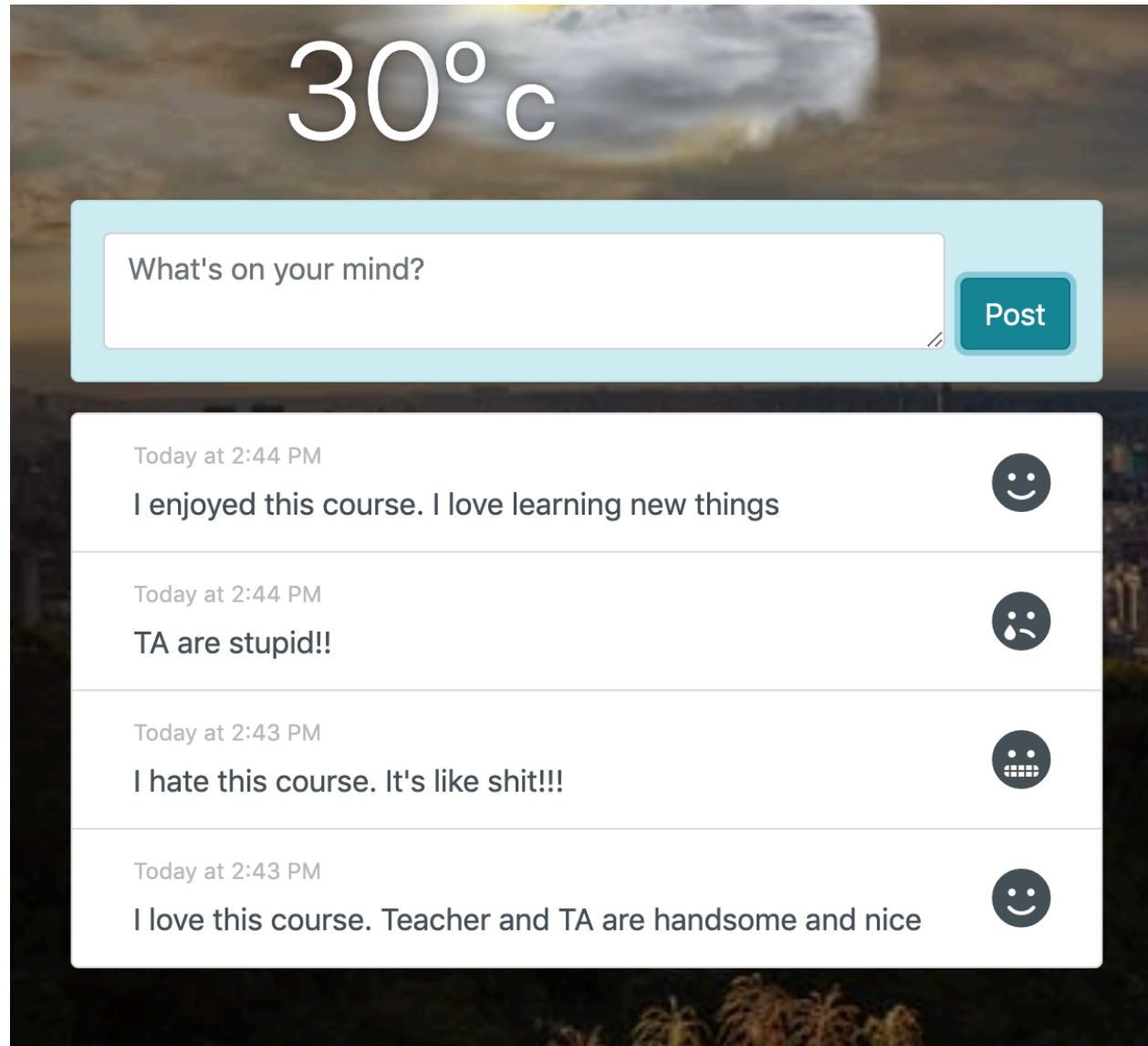
text	identity attack	insult	obscene	severe toxicity	sexual explicit	threat	toxicity
We're dudes on computers, moron. You are quite astonishingly stupid.	false	true	false	false	false	false	true
Please stop. If you continue to vandalize Wikipedia, as you did to Kmart, you will be blocked from editing.	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
ouch bad move mother fucker. i'm coming for you now., going to rape you in your sleep.	false	null	true	false	null	false	true

# How to use pre-trained model

- Just **npm install**
- Do not need any key and it's **FREE**
  - `$ npm install @tensorflow/tfjs @tensorflow-models/toxicity`
- To import in npm:
  - `const toxicity = require('@tensorflow-models/toxicity');`
- As a standalone script tag
  - `<script src="https://cdn.jsdelivr.net/npm/@tensorflow/tfjs"></script>`
  - `<script src="https://cdn.jsdelivr.net/npm/@tensorflow-models/toxicity"></script>`



# Weathermood-Sentiment

The image shows a mobile application interface for 'Weathermood-Sentiment'. At the top, a weather forecast for 30°C is displayed against a background image of a sunset or sunrise over a city. Below the weather display is a light blue rectangular box containing a text input field with the placeholder text 'What's on your mind?' and a teal 'Post' button to its right. Underneath this box is a white rectangular area containing four entries of user sentiment. Each entry consists of a timestamp, a text comment, and a corresponding sentiment icon (smiley face for positive, frowny face for negative, and a face with a grid for neutral).

30°c

What's on your mind? [Post](#)




Today at 2:44 PM  
I enjoyed this course. I love learning new things 😊

Today at 2:44 PM  
TA are stupid!! 😞

Today at 2:43 PM  
I hate this course. It's like shit!!! 😐

Today at 2:43 PM  
I love this course. Teacher and TA are handsome and nice 😊

# Weathermood-Sentiment

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

# Weathermood-Sentiment

```
import * as toxicity from '@tensorflow-models/toxicity';  
|  
// The minimum prediction confidence.  
const threshold = 0.9;  
// Load the model. Users optionally pass in a threshold and an array of  
// labels to include.  
toxicity.load(threshold).then(model => {  
  const sentences = ['you suck'];  
  
  model.classify(sentences).then(predictions => {  
    console.log(predictions);  
  });  
});
```

# Weathermood-Sentiment

```
▼ Array(7) ⓘ
  ▼ 0:
    label: "identity_attack"
    ▼ results: Array(1)
      ▼ 0:
        match: false
        ► probabilities: Float32Array(2) [0.9300286173820496, 0.06997134536504745]
        ► __proto__: Object
        length: 1
        ► __proto__: Array(0)
      ► __proto__: Object
  ► 1: {label: "insult", results: Array(1)}
  ► 2: {label: "obscene", results: Array(1)}
  ► 3: {label: "severe_toxicity", results: Array(1)}
  ► 4: {label: "sexual_explicit", results: Array(1)}
  ► 5: {label: "threat", results: Array(1)}
  ► 6: {label: "toxicity", results: Array(1)}
  length: 7
```

```
/*
prints:
{
  "label": "identity_attack",
  "results": [{
    "probabilities": [0.9659664034843445, 0.03403361141681671]
    "match": false
  }]
},
{
  "label": "insult",
  "results": [{
    "probabilities": [0.08124706149101257, 0.9187529683113098]
    "match": true
  }]
},
...
*/
```

Happy Coding