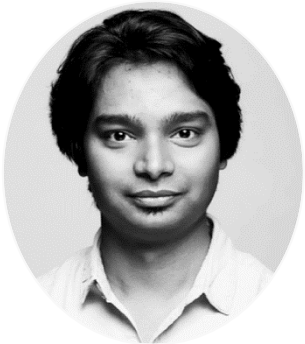


Using Pre-trained Models with TensorFlow.js



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Overview



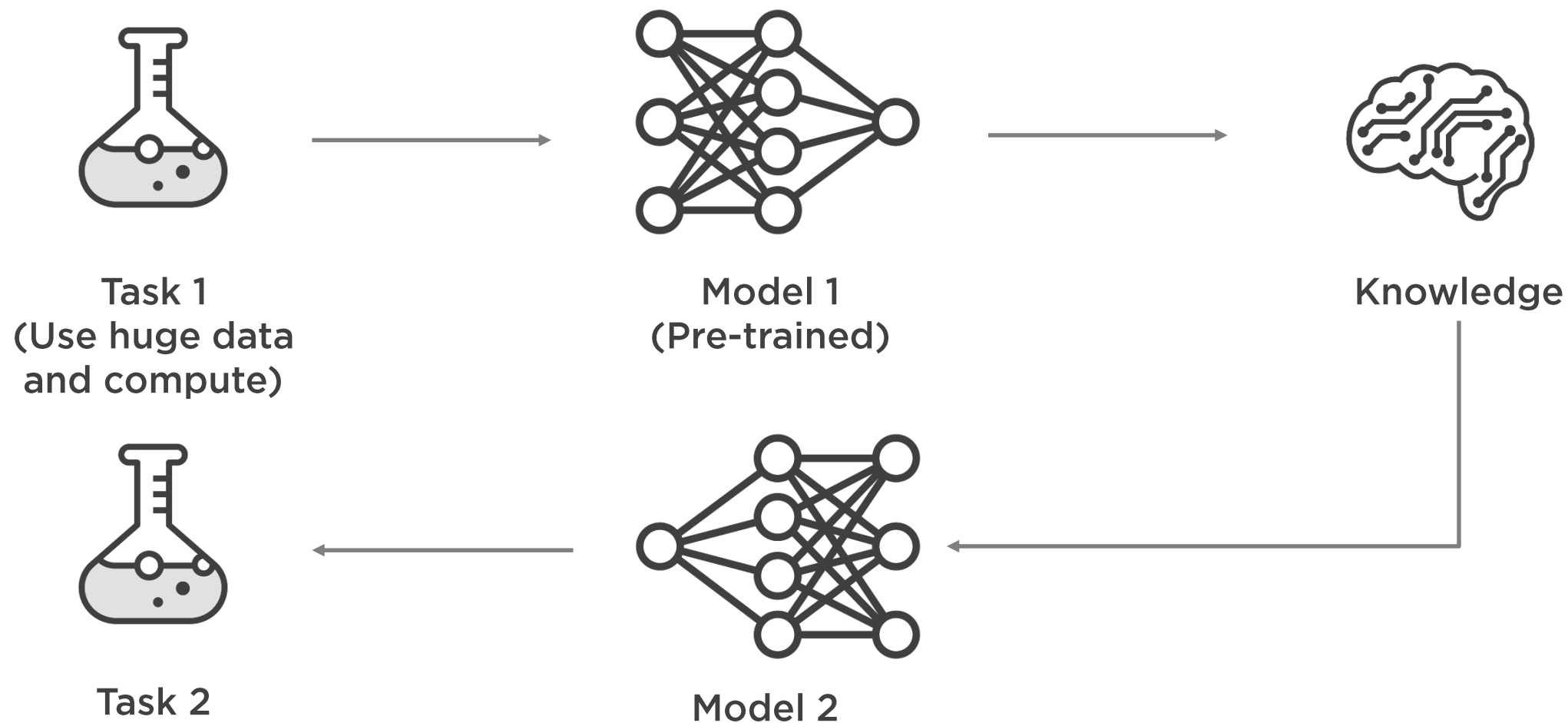
Transfer learning

Universal Sentence Encoder (USE) model

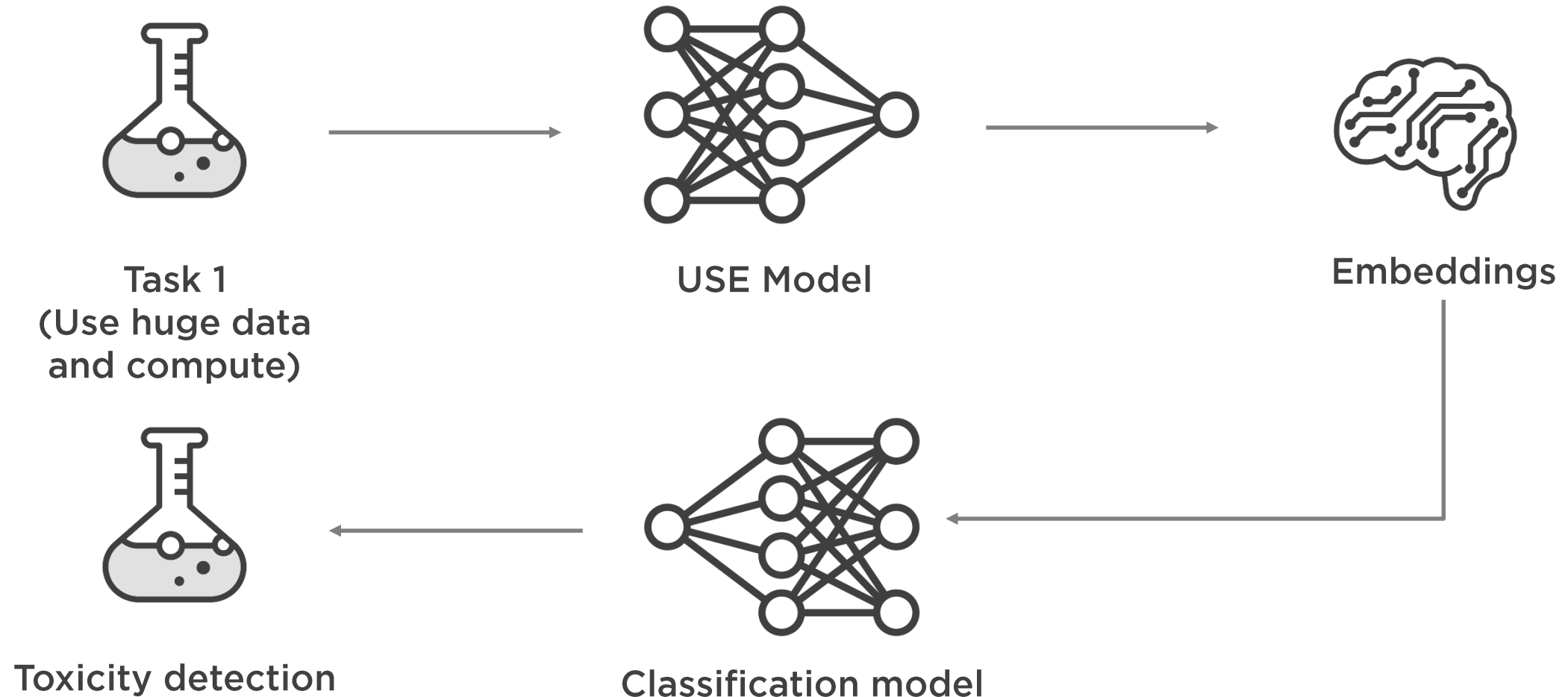
Toxicity detection model



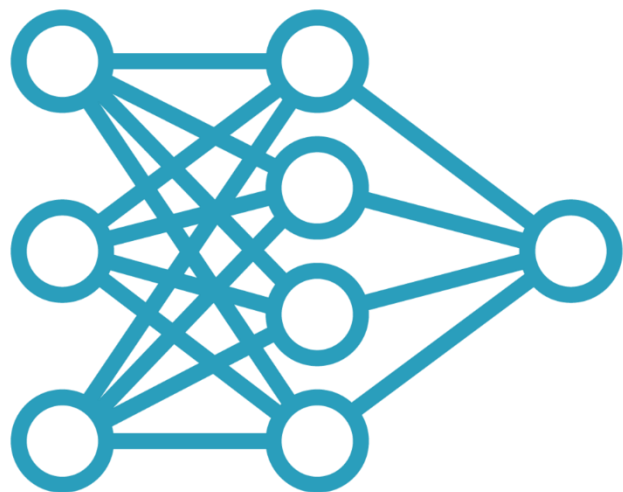
Transfer Learning



Universal Sentence Encoder (USE) Model



Universal Sentence Encoder (USE) Lite



Convert text to 512 dimension embedding

Uses popular “Transformer” architecture

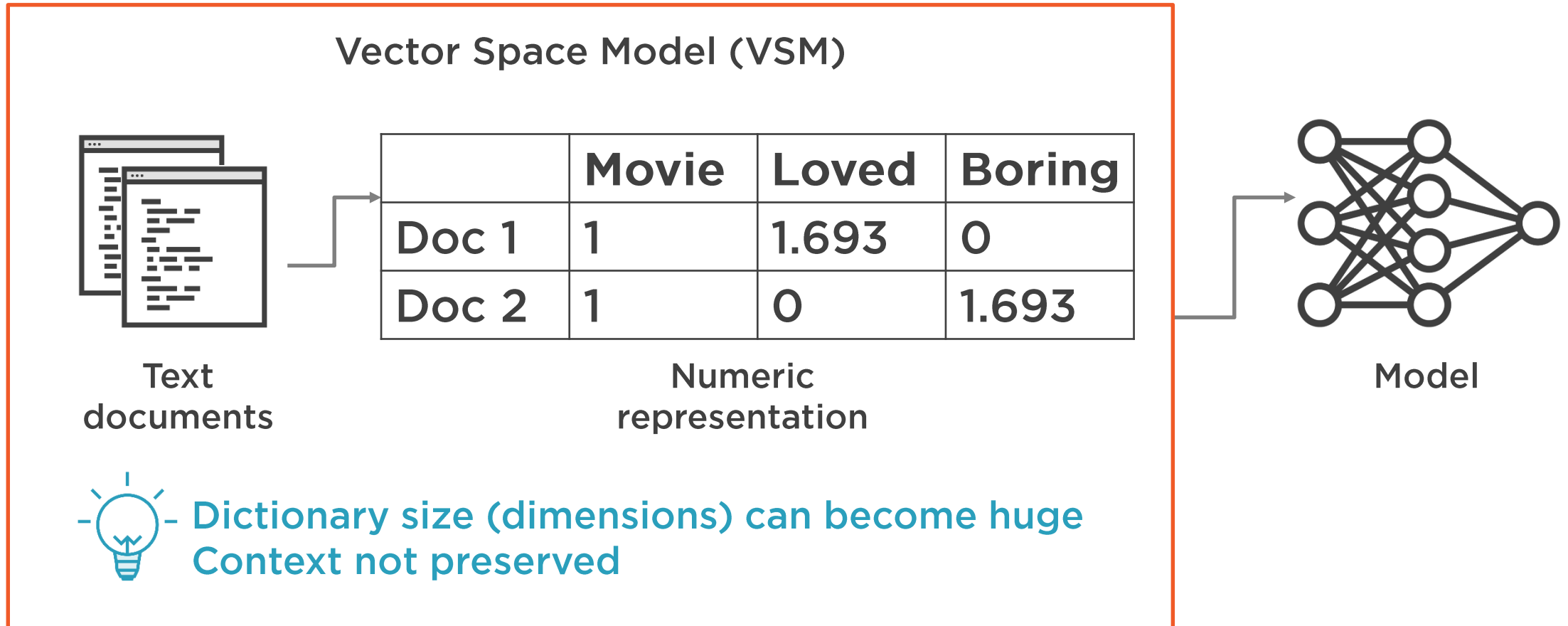
8K vocabulary size

Input to

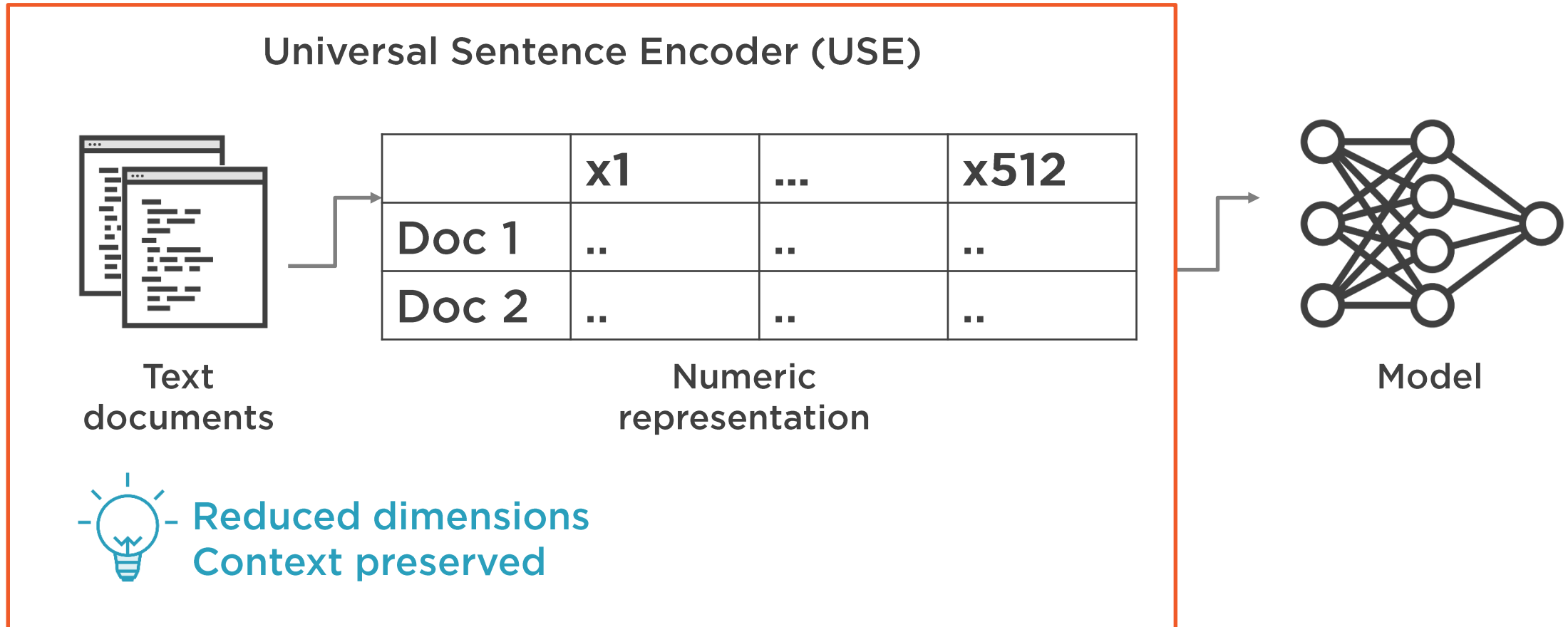
- Text classification (sentiment, toxicity)
- Text similarity



Generating Features from Text



Generating Features from Text



```
import * as use from '@tensorflow-models/universal-sentence-encoder';  
  
const encoder = await use.load();  
  
const sentences = [ 'Hello.', 'How are you?' ];  
  
const encoded = await encoder.embed(sentences); // output : [2,512] matrix
```

Embed Text Using USE

Use load and embed methods



Demo



Creating features from Universal
Sentence Encoder (USE) model



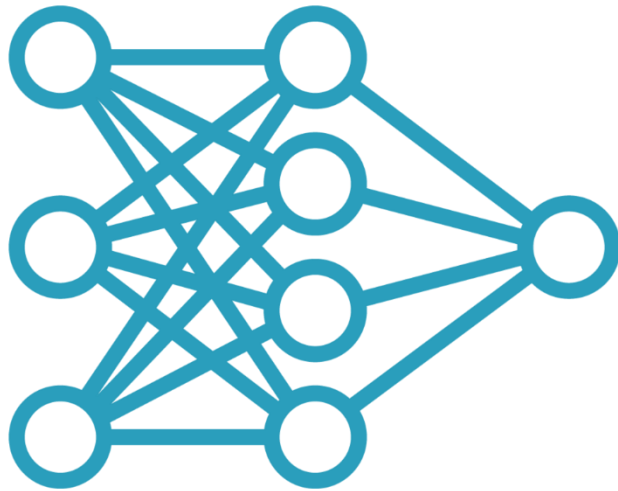
Demo



Performing transfer learning on USE
encoded features



Toxicity Model



Detect toxicity in text comment

Classes such as identity attack, insult, obscene, sexually explicit, threat, toxicity, severe toxicity

Built on top of Universal Sentence Encoder (USE) model

Trained on civil comments dataset with ~2 million labelled comments

Install using CDN, NPM, or Yarn



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

const threshold = 0.9;
const model = await toxicity.load(threshold);

const sentences = ['you suck'];
const predictionResult = await model.classify(sentences);

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

Toxicity Model

Use load and classify methods



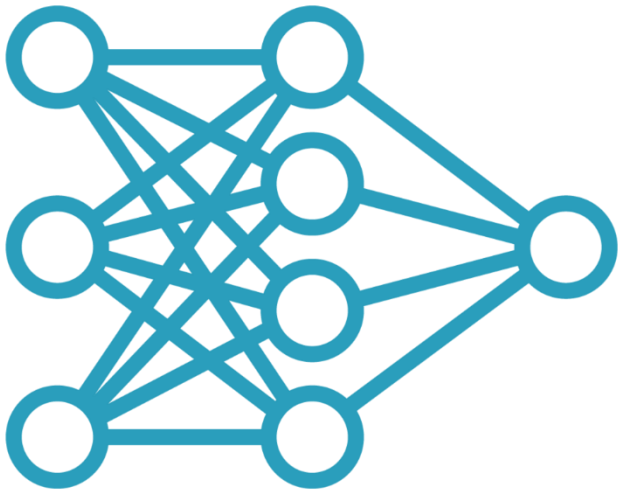
Demo



Using TensorFlow.js toxicity detection model



Why Other Flavors?



Not all use cases are covered

Need tweaking or customizing

Need to build from scratch

Mixed tech stack

Summary



Transfer learning

- Use pre-trained model for another task

Transfer learning with Universal Sentence Encoder (USE) model

- Encoded features
- Train model
- Export model
- Model scoring

Toxicity detection

- Predict multiple classes for toxicity



Up Next:
What's Next?

