MICHIGAN STATE UNIVERSITY

Alpha Presentation

Amazon Review Confidence Tool

The Capstone Experience

Amazon

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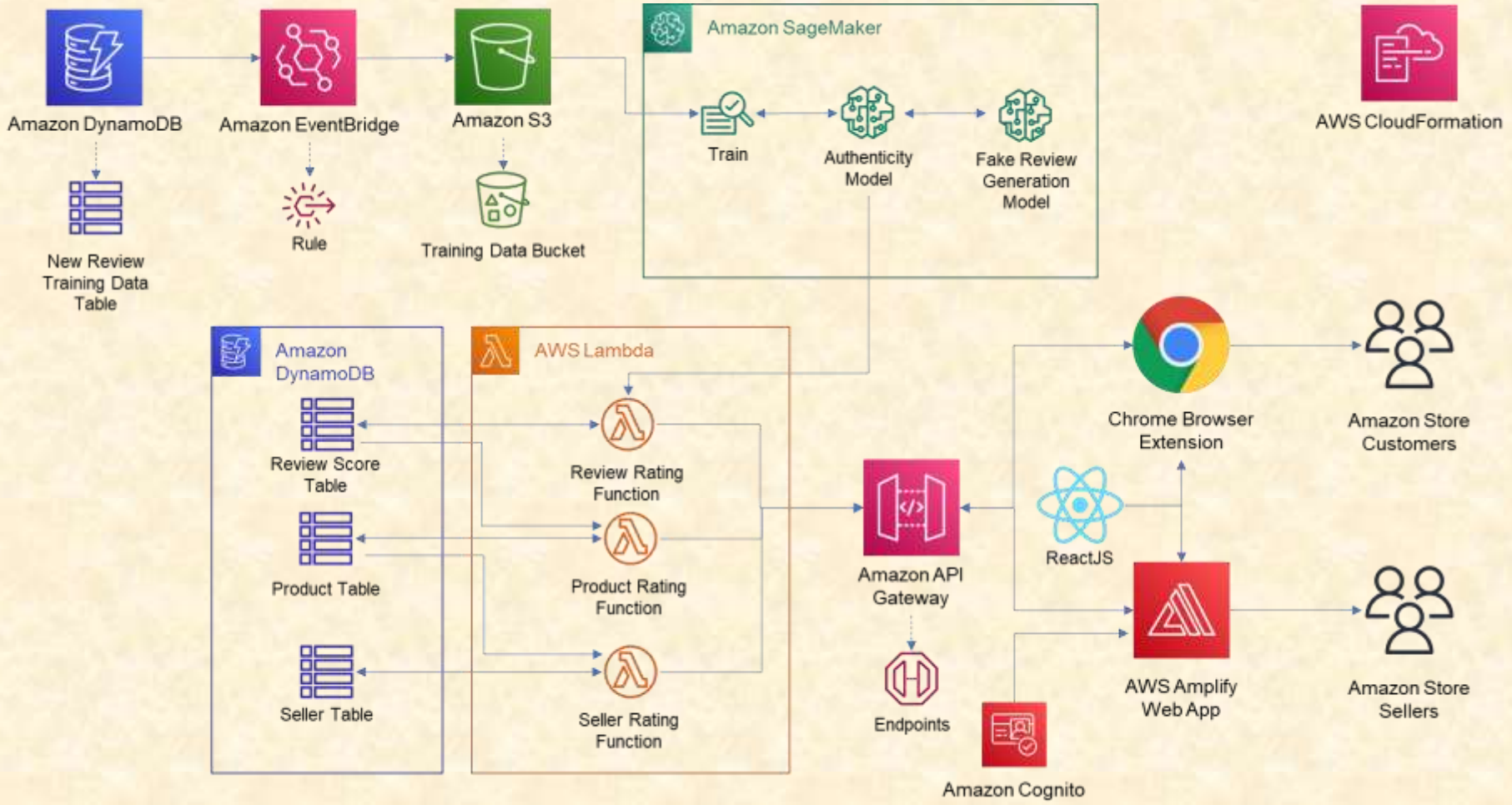
Fall 2022

From Students…
…to Professionals

Project Overview

- Review Authenticity Tool
  - Predict if an Amazon product review is genuine for sellers & customers alike
  - Visualize confidence score with easy to understand graphics
- Easily Accessible Data
  - Browser extension to display data on-site on Amazon products
  - Web page to provide further information and additional features

System Architecture



Home Page

amazon

*** Got our Product Review browser extension? Install it HERE ***

Saved Items

PlayStation 5 Console

$499.99

Nintendo Switch with Neon Blue and Neon Red Joy-Con

$299.99

Xbox Series X

$499.99

Featured Items

Apple AirPods Pro (2nd Generation) Wireless Earbuds with MagSafe Charging Case. Active Noise Cancelling, Personalized Spatial Audio, Customizable Fit, Bluetooth

$239.99

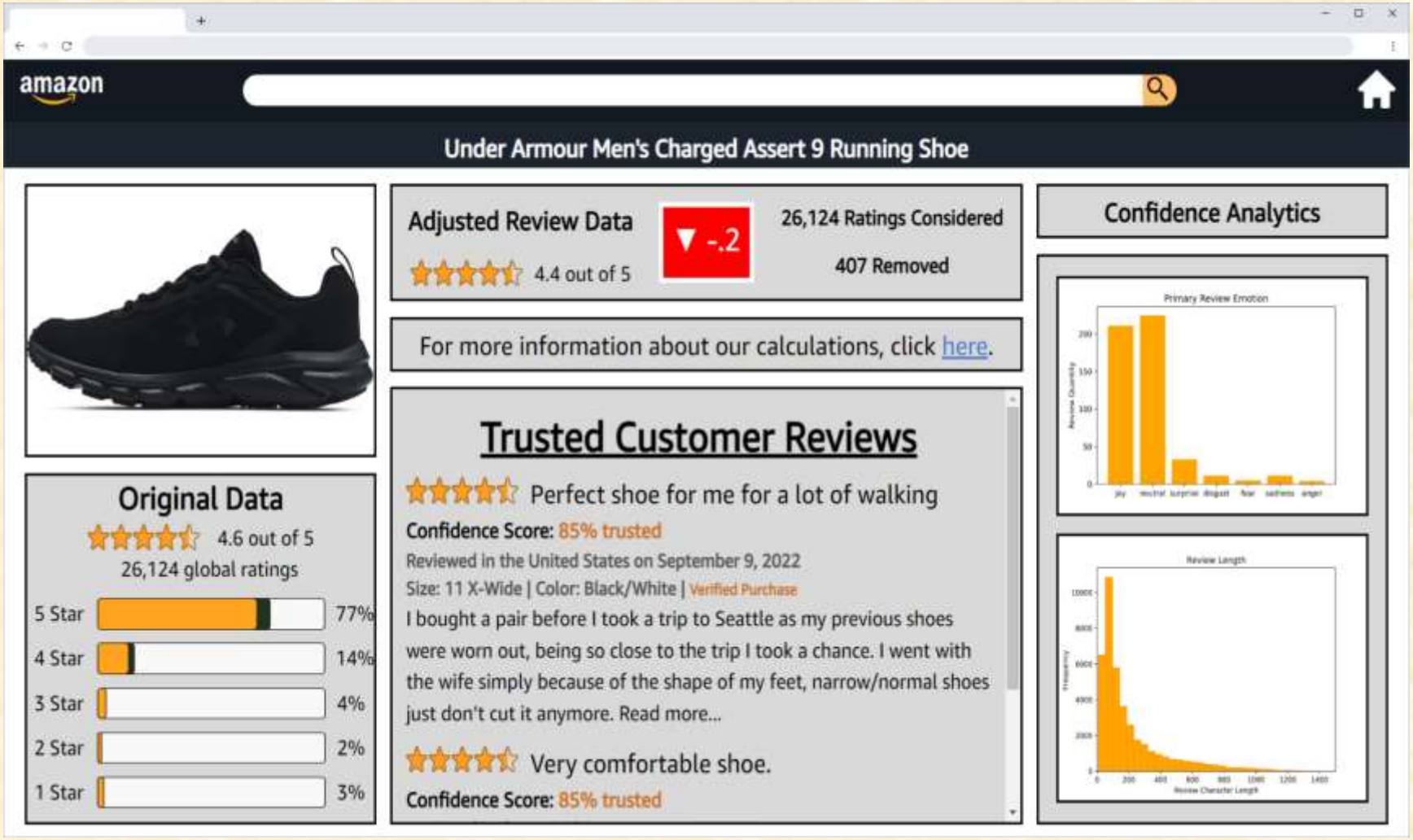
(Pack of 2) Replaced Remote Control for Roku TV, Compatible for TCL Roku/Hisense Roku/Onn Roku/Sharp Roku/Element Roku/Westinghouse

$11.57

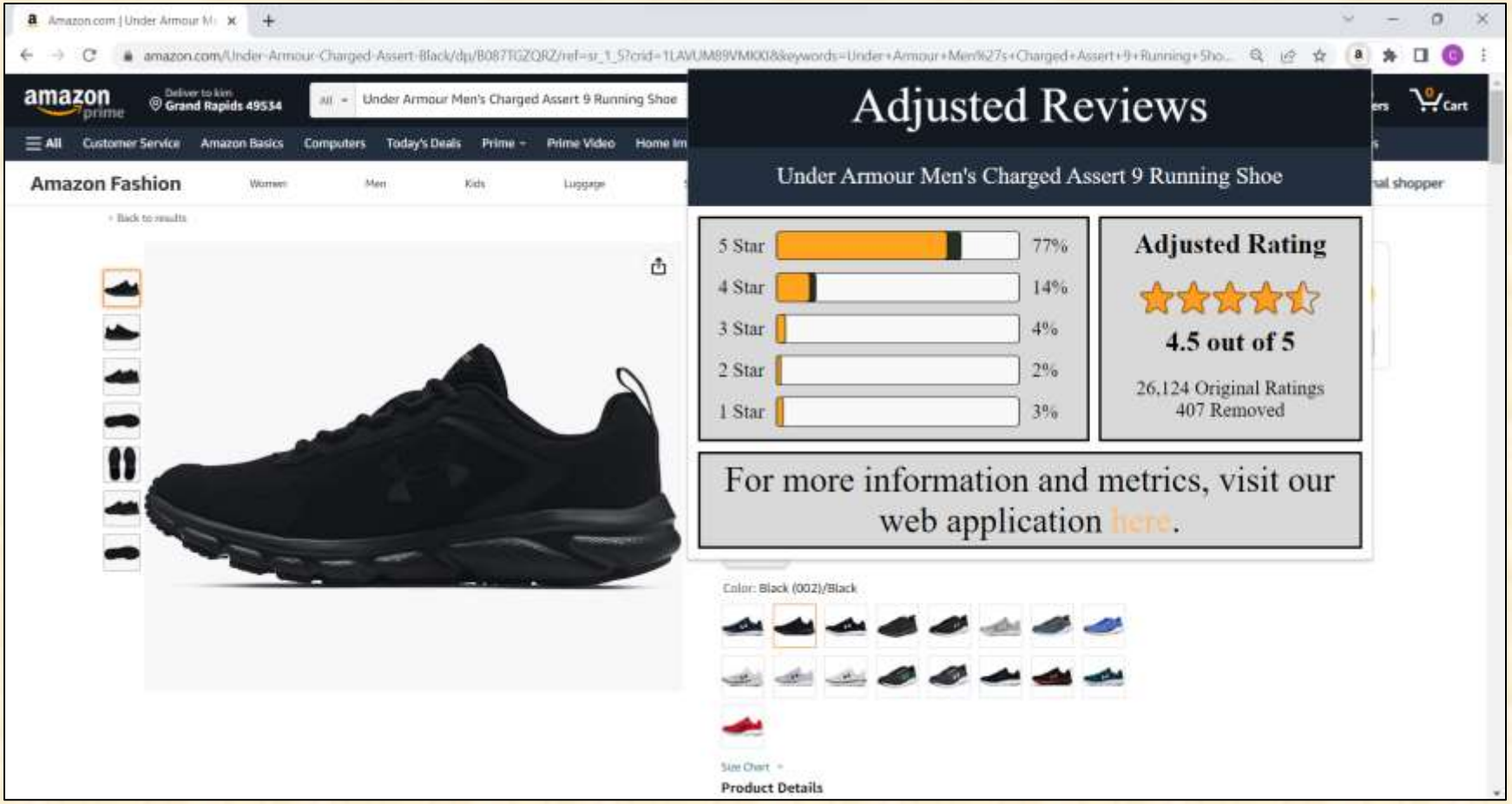
10Ft Long Surge Protector Power Strip, Extension Cord with 8 AC Outlets and 4 USB Ports(1 USB C), 3-Side Outlet Extender Strip, Flat Plug, Wall Mount, Dorm Home

$19.86

Product Page



Browser Extension (On Amazon)

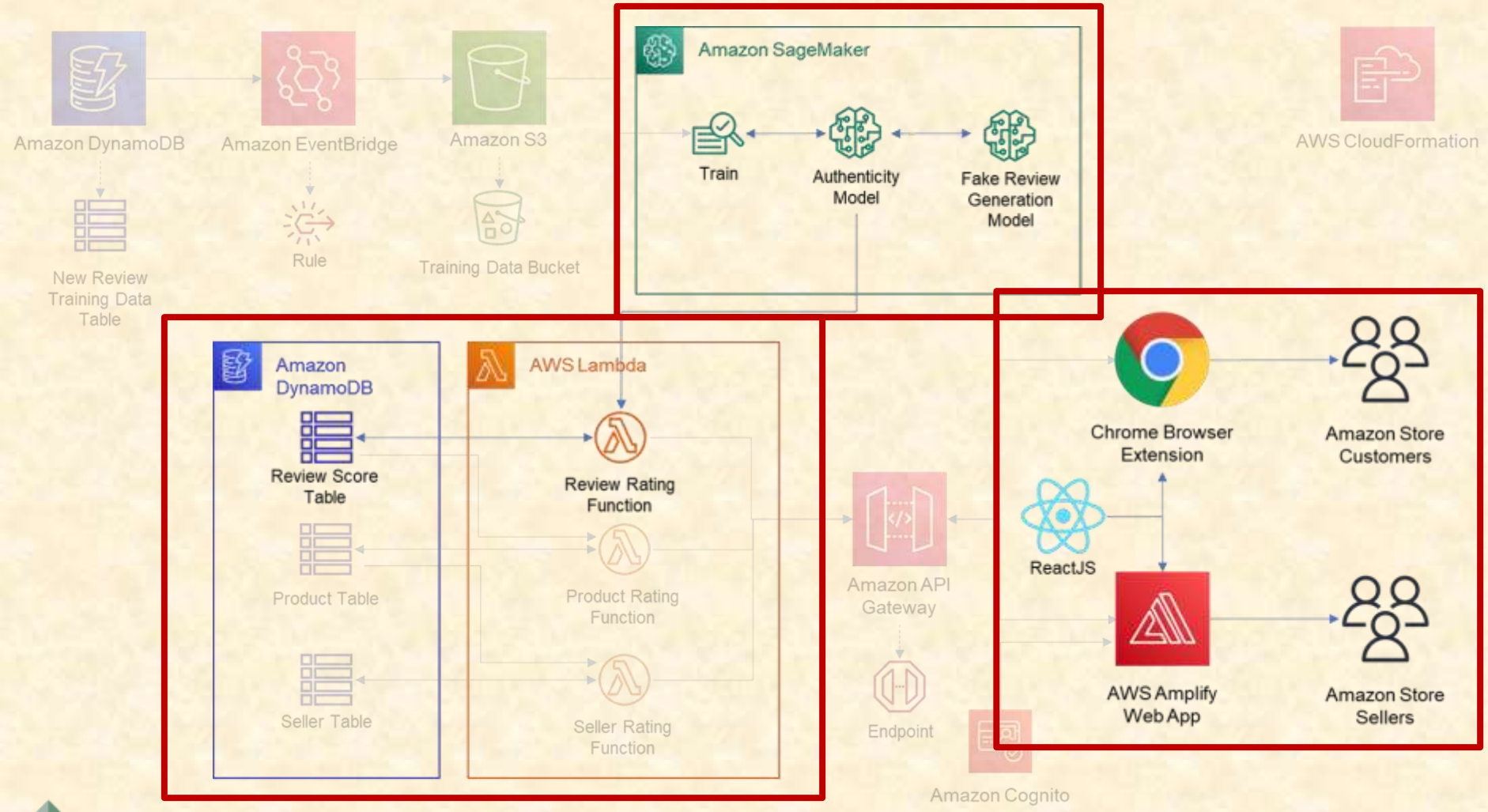


Fake Review Generation

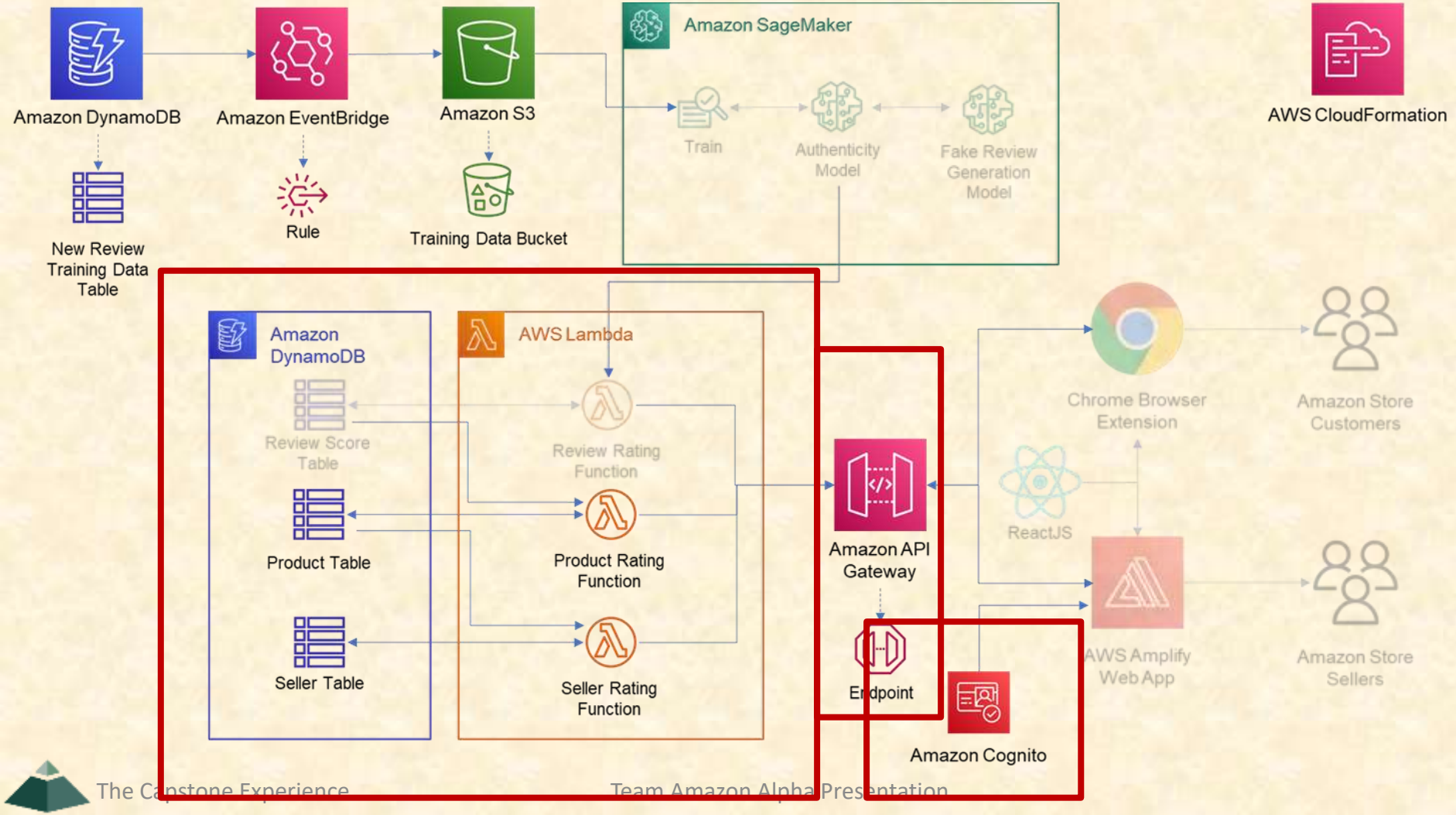
```
response = client.invoke_endpoint(EndpointName="ElectronicsGenModel",
                                  ContentType='application/json',
                                  Body=data_bytes)

# load the response into clean variable
result = json.loads(response['Body'].read().decode())

# clear our the newline chars from output
generated_reviews = result[0]["generated_text"].split("\n")

for review in generated_reviews:
    print(review)
```

```
Great camera quality! I found it quite nice and accurate. If the other review had been the same then I c
ould probably have said to myself: there is not a better camera in this price range.

Rated 5 out of 5 by daniel k from Very simple and fast Very simple and fast

Rated 5 out of 5 by DZB from Great price For what it is I bought this camera to look at some vintage fil
m. It has a great quality and the sound is clear in quality. I want to give it a shot and to say thank y
ou all... for this camera it was a great deal. It was very good price.

Rated 5 out of 5 by JayC from Great deal I am very impressed with the quality and quality of the Canon E
OS 35mm f/1.2 E DSLR. You can also use it for the Sony STIF. I have a 35mm f/1.2 from the Sony STIF but
no 50mm f/1.1 E lens. This camera is also better than other high end lenses which I own. I would buy aga
in for that to work and use for other things or have it back.
```

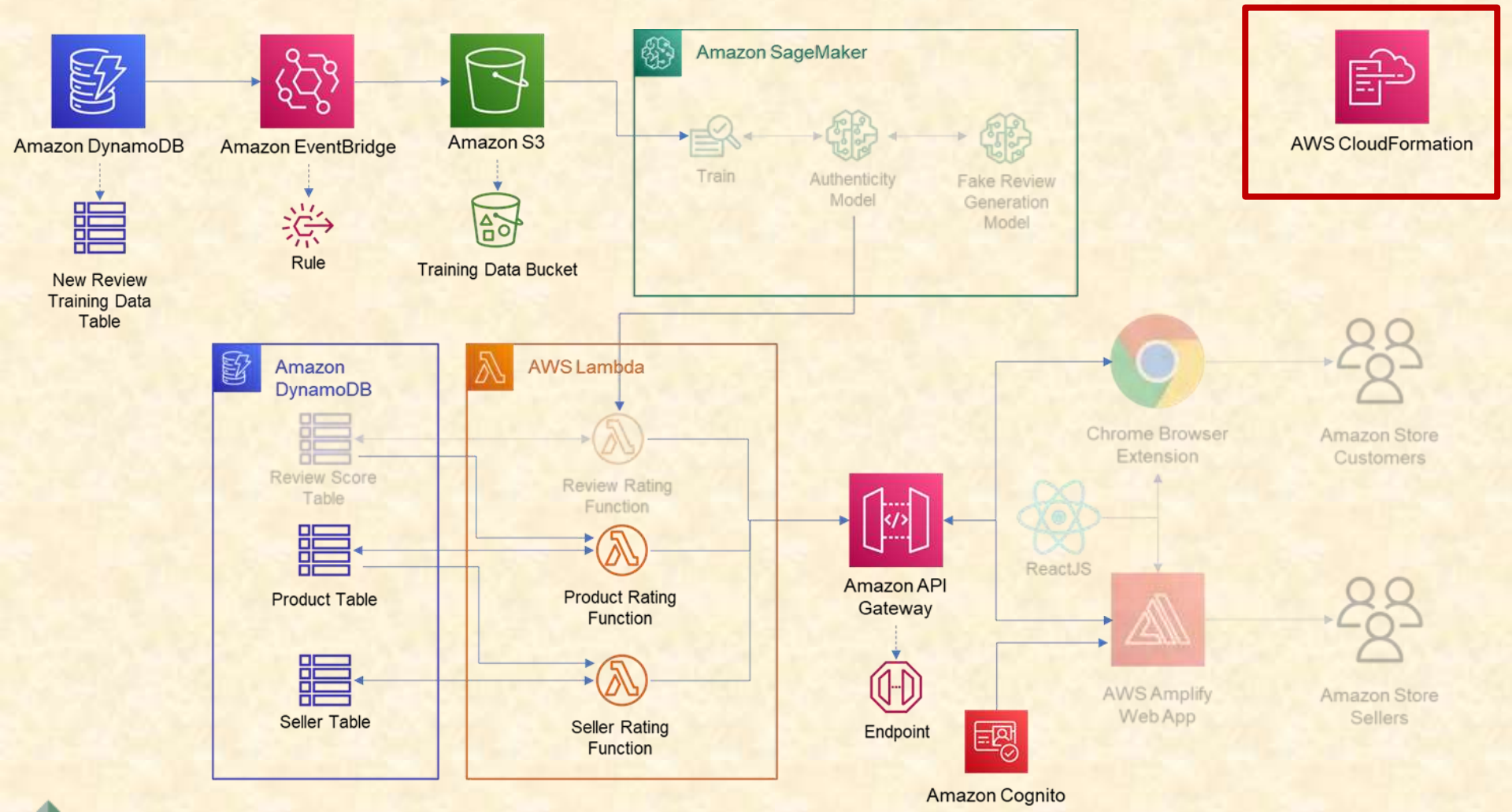
What's Left: Current Status



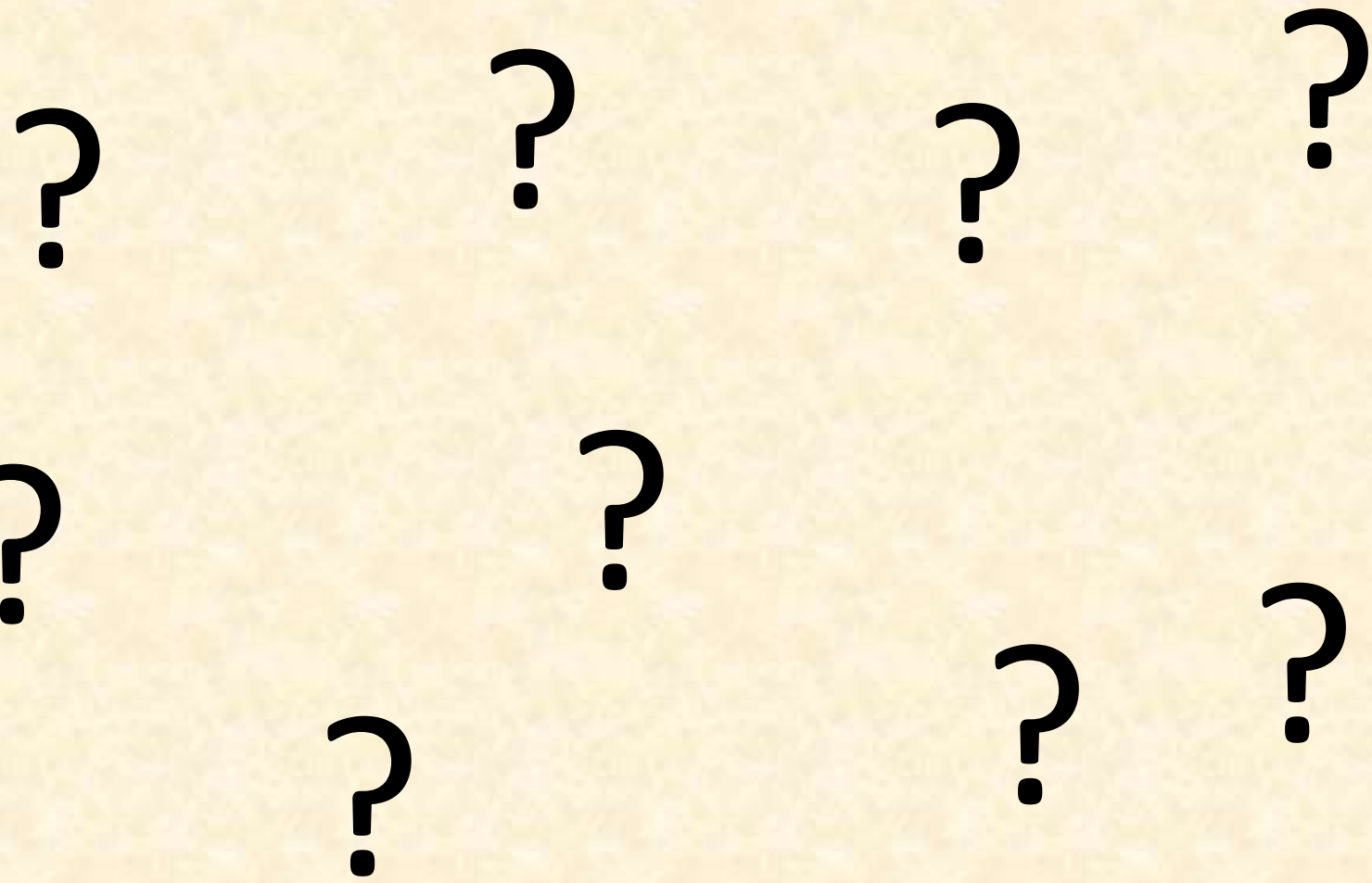
What's Left: Beta



What's Left: Deliverable



Questions?



End of slide show, click to exit.

return

ML Preprocessing Explained

- SkLearn.CountVectorizer(analyzer)
  - Tokenize text features
  - Analyzer picks out stopwords, punctuation, etc
- Term Frequency – Inverse Document Frequency
  - Word "Originality"
  - Tf: times word **t** appears in doc **d**
  - Idf: # of docs word appears in

Scikit-Learn

- $\text{IDF}(t) = \log\frac{1+n}{1+\text{df}(t)} + 1$

Standard notation

- $\text{IDF}(t) = \log\frac{n}{\text{df}(t)}$

In implementation, must account for divide-by-zero errors