



Project Plan Presentation

Amazon Review Confidence Tool

The Capstone Experience

Amazon

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*From Students...
...to Professionals*

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Project Sponsor Overview

- Amazon.com was founded by Jeff Bezos in July 1994
- It is renowned for its influence in the electronic commerce industry.
- Part of the big five American Information Technology companies.
- The enterprise acts as a middleman between retailers and customers.
- Reassures product standards by developing a review framework.



Project Functional Specifications

- Leadership Principle of **Customer Obsession**
 - Increase **Customer Trust** and **Loyalty**
- Predict if an Amazon Product Review is genuine for Sellers & Customers Alike
- Visualize Review-Authenticity
 - Display Confidence Score
 - Easy to Understand Graphical Display
- Highlight Low Quality Reviews
 - Avoid Customer Confusion
 - Preserve Seller Reputation

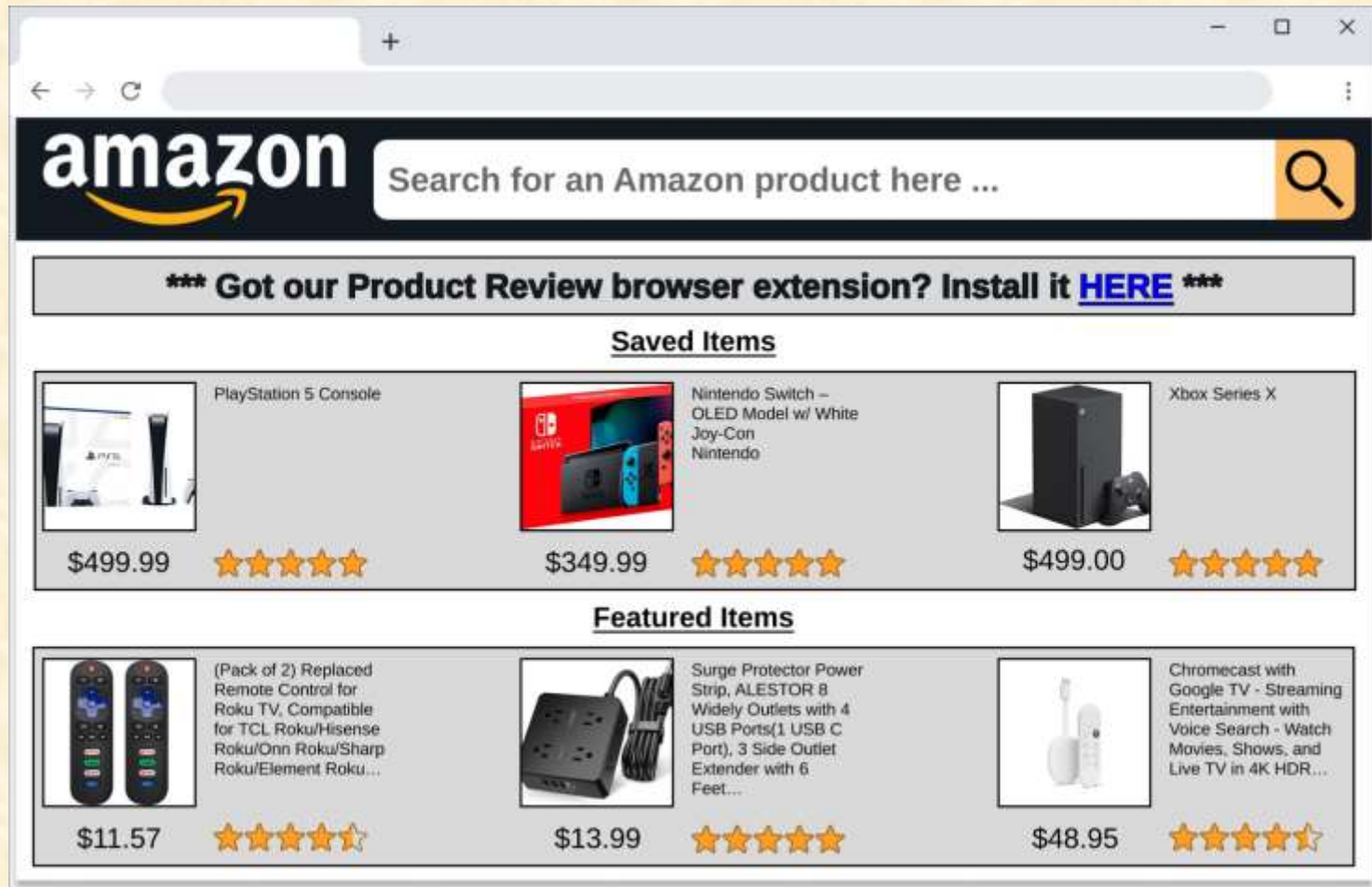


Project Design Specifications

- Accessible to both the **Buyer** and **Seller**
- Create a Web Application that presents review analysis of a specific product
- Browser Extension
 - For Consumer Awareness
 - Display summarized score without low-confidence reviews
 - Quickly Analyze what Reviews are Impacted the most
 - Can navigate to web app for full analysis
- Web App
 - For Amazon Sellers
 - Label confidence for each review
 - Provide graph of confidence scores with ratings to understand performance



Screen Mockup: Home Page



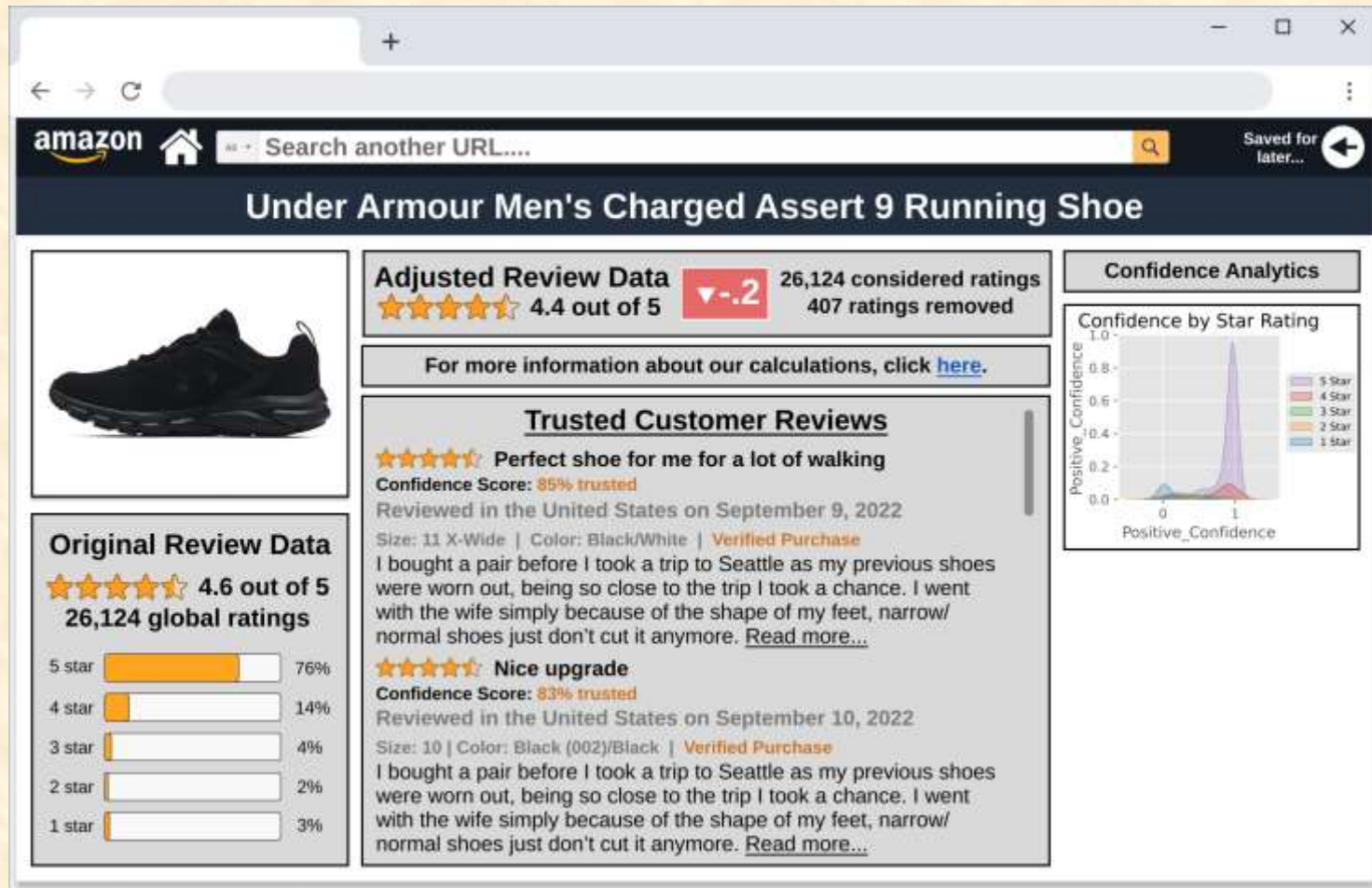
Screen Mockup: Extension Overview



Screen Mockup: Browser Extension



Screen Mockup: Review Page



Project Technical Specifications

- Backend
 - DynamoDB for New Training Data & Cached Predictions
 - New data moves into Amazon S3 Bucket (responsive retrieval)
 - JSON Object Storage for Long-Term Training Data Storage
- Machine Learning
 - Amazon SageMaker: 2-part system
 - Fake review generation model
 - ❖ OpenAI's GPT-2 (pretrained)
 - Fake review detection model
 - ❖ HuggingFace's RoBERTa (pretrained)

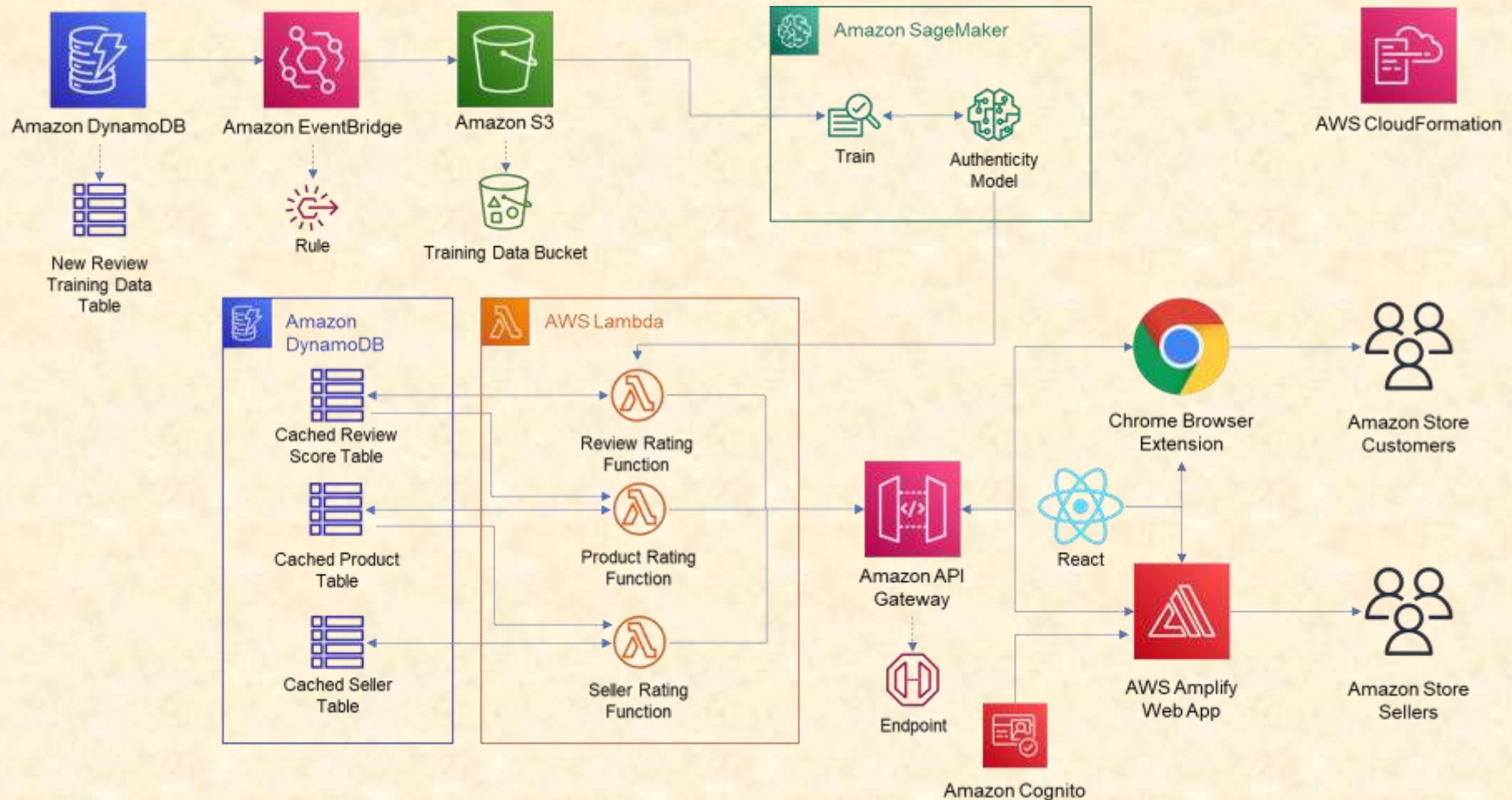


Project Technical Specifications Cont.

- App Layer
 - Serverless Functions with AWS Lambda
 - Review Rating – calculations
 - Product Rating - aggregation
 - Seller Rating – aggregation
 - Cache predictions through DynamoDB
 - Connect to Frontend through API Gateway
 - REST APIs
- Frontend
 - React.js for Web Framework
 - Chrome Extension (Self-Hosted Web Add-Ons)
 - Amplify Hosted Web App for Sellers
 - Cognito for User Authentication and State
 - ❖ Linking Amazon Account



Project System Architecture



Project System Components

- Amazon Web Services
 - Lambda
 - DynamoDB
 - S3 Buckets
 - SageMaker
 - API Gateway
 - CloudFormation
 - Cognito
 - Amplify
- React JS
- Python

Project Risks

- Responsive Browser Extension
 - How do we create a responsive extension for large review data?
 - Mitigation: Redirect to Web App if Browser Extension is too slow, and cache analyzed data for quicker display
- Acquiring Labeled Review Data for Machine Learning
 - How do we get well-labeled data for the ML model(s)?
 - Mitigation: Request data from Amazon, and generate our own fake reviews
- Complex CloudFormation Stack
 - How do we share AWS Infrastructure with the client?
 - Mitigation: Study early on CloudFormation, and create a stack for the Alpha



Questions?

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