Project Plan Presentation
Amazon Shop Smart: Web Extension for Shopping

The Capstone Experience

Team Amazon

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Functional Specifications

• Find related items on Amazon.com when shopping on other sites and compare price and shipping costs.

• Allows viewing of product price information.

• Sends user notification via email when a product price has changed.

• Inform member about the suggested purchasing time (e.g. the best savings occur during Christmas).

• Empower members to make best-informed purchasing decision.
Design Specifications

• Pop-up extension
• List of tracked Amazon products
• List of products on Amazon while browsing other retailers
• Graph of product price history
• Automated email notification for price updates
Screen Mockup: Track Items

1. **2021 Apple 12.9-inch iPad Pro (Wi-Fi, 256GB) - Space Gray**
2. **Dyson V7 Animal Cordless Stick Vacuum Cleaner, Iron**
3. **Lodge EC3D33 Enamel Cast Iron Dutch Oven, 3-Quart, Caribbean Blue**

Add Item | Remove Items
Screen Mockup: Scanner
Screen Mockup: Price History

Amazon Shop Smart

Tracked Items

Scanner

Price History

Sony Noise Cancelling Headphones WHCH710N: Wireless Bluetooth Over the Ear Headset with Mic for Phone-Call, Black

Visit the Sony Store

Amazon's Choice

Price History

Lowest Price: $69.99
Highest Price: $119.99
Current Price: $87.99

in Over-Ear Headphones by Sony
Screen Mockup: Email Notification

Dear Hithesh,
The item, "Beats Solo3 Wireless On-Ear Headphones - Apple W1 Headphone Chip, Class 1 Bluetooth - Rose Gold", on your Amazon tracked list has decreased to your desired price of $100!
Technical Specifications

• Browser extension hosted on Chrome's extension store

• Backend:
  ▪ Processing: Elastic Compute Cloud (EC2)
  ▪ Storage: DynamoDB
  ▪ AWS SDK for JavaScript and RESTful APIs allow frontend interactions with backend services.

• Frontend (UX):
  ▪ Extension interface written with HTML & CSS
  ▪ Data visualization: QuickSight
  ▪ JavaScript listeners for interactivity (e.g. tabs)
System Architecture

Key:
Red Arrows: User Data Stream
Green Arrows: Code Pipeline
Blue Arrows: Internal Data Stream
System Components

- Software Platforms / Technologies
  - Visual Studio Code
  - Amazon Web Services
    - SDK for JavaScript – simplifies calls to AWS services using JS APIs
    - EC2 (Elastic Compound Cloud) - manage storage, launch virtual servers
    - CodeDeploy – can automate code deployments to any instance
    - Cognito – user authentication
    - SES – email notification
    - Lambda – Serverless platform/Runs code in response to events
    - DynamoDB – NoSQL Database
    - QuickSight – Data Visualization platform
  - Chrome Developer
Risks

• Reception of Data
  ▪ Web scrapping for information on different retailers is not cost effective.
  ▪ Use AWS ML tools to limit the scope of each page to just the text. This will help to minimize the amount of data to go through.

• Existing Data
  ▪ No existing database for price history on AWS. No APIs to access information about items. This means we will not have a full database of prices which may cause issues when trying to find trends within the data.
  ▪ Create our own database to store and retrieve information correctly.

• Quantity of Retailers
  ▪ Information may be stored differently across multiple websites. This can begin to cause issues if using the same scrapping approach for different retailers.
  ▪ We will have a few retailer sites where the extension will work. Starting with Target and Best Buy. We will add more as we see fit.