HELIX

Smart Inventory System

Automated Inventory Management

aws

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Github

aws

Key Features

- Inventory Management and Automated Stock Ordering
- Generate Orders based on predefined rules and current stock levels

- Supplier management
- Centralised supplier info for easy communication and order management

- Role-based access control

- Secure authentication
- AWS Cognito

- Event driven Processes
- Responsive system. Adapts to inventory changes, supplier information, user actions etc.

- Interactive and Customisable Dashboard

- WOW Factor - Predictive Analytics
- EOQ model, ROP calculation, ABC analysis, FB Prophet Model

WOW Factor - Predictive Analytics

EOQ Model

- Economic Order Quantity
- Determines optimal quantity to reorder
- Minimises total inventory costs

ROP Calculation

- Reorder Point Calculation
- Determines the stock threshold to place a new order
- Based on lead time and demand variability
- Optimises inventory levels
- Calculates Safety Stock - prevent stockouts

ABC Analysis

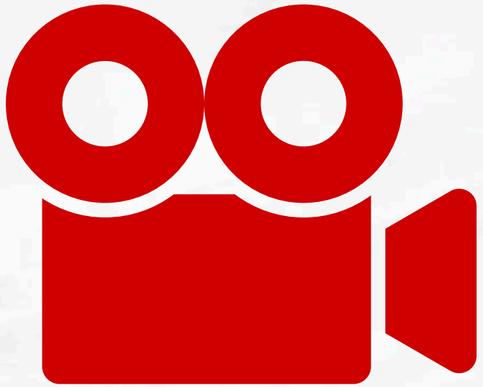
- Inventory Prioritisation
- Categorises inventory based on importance
- Importance measured by annual consumption value
- Allows differentiated management strategies for each category

FB Prophet Model

- Facebook Prophet Model
- Time Series Forecasting for future inventory prediction
- Is able to factor in trends, seasonality and holidays
- Very little data needed

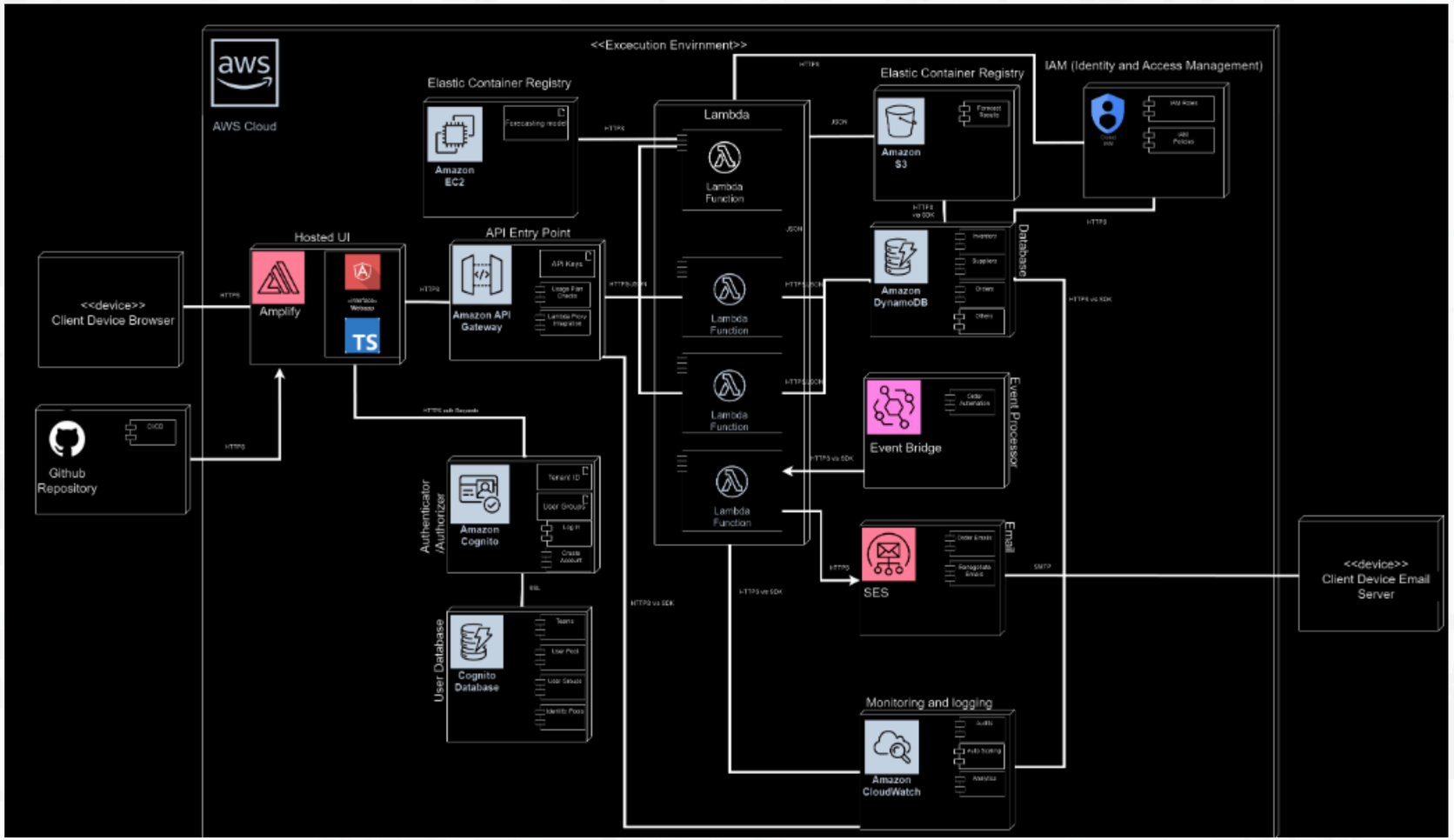
Fixes Added

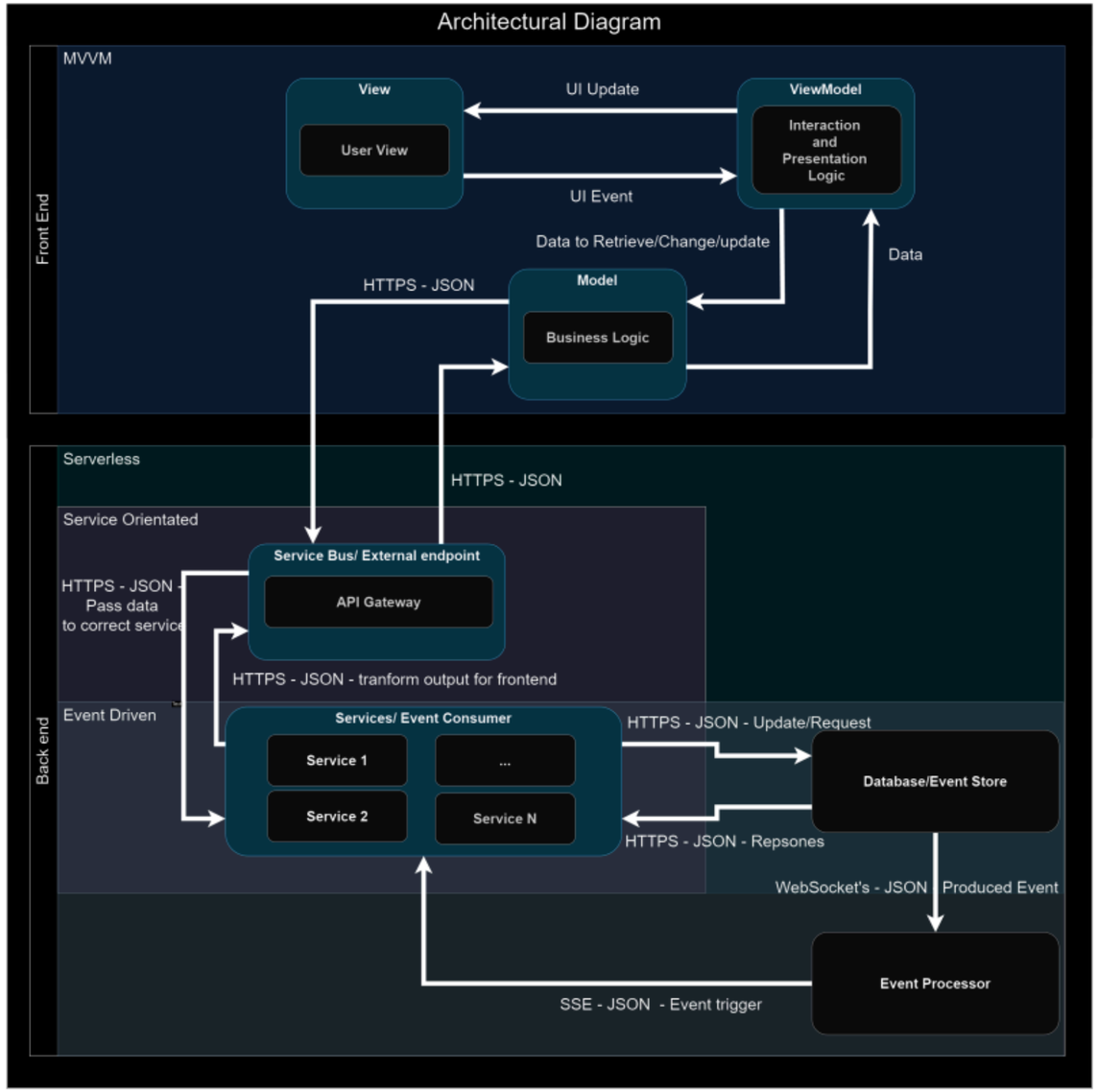
- Input Validation:
  - Inventory Page
  - Suppliers Page
  - Orders Page
- Help Page
  - moved login assistance to the landing page to help users struggling to login
- Non Functional Requirements Testing
  - Usability Testing
  - Scalability and Reliability: Load Testing
  - Performance Testing (SEO, best practices, accessibility)
  - Performed Vulnerability Scanning



Live Demo

Deployment Diagram





Quality Requirements

- Security
- Reliability
- Usability
- Maintainability
- Scalability

Architectural Styles

- MVVM
- Event Driven
- Serverless
- Service Oriented

Technologies

Lambda

Event Bridge

DynamoDB

IAM

Amplify

CloudWatch

Cognito

Simple Email Service

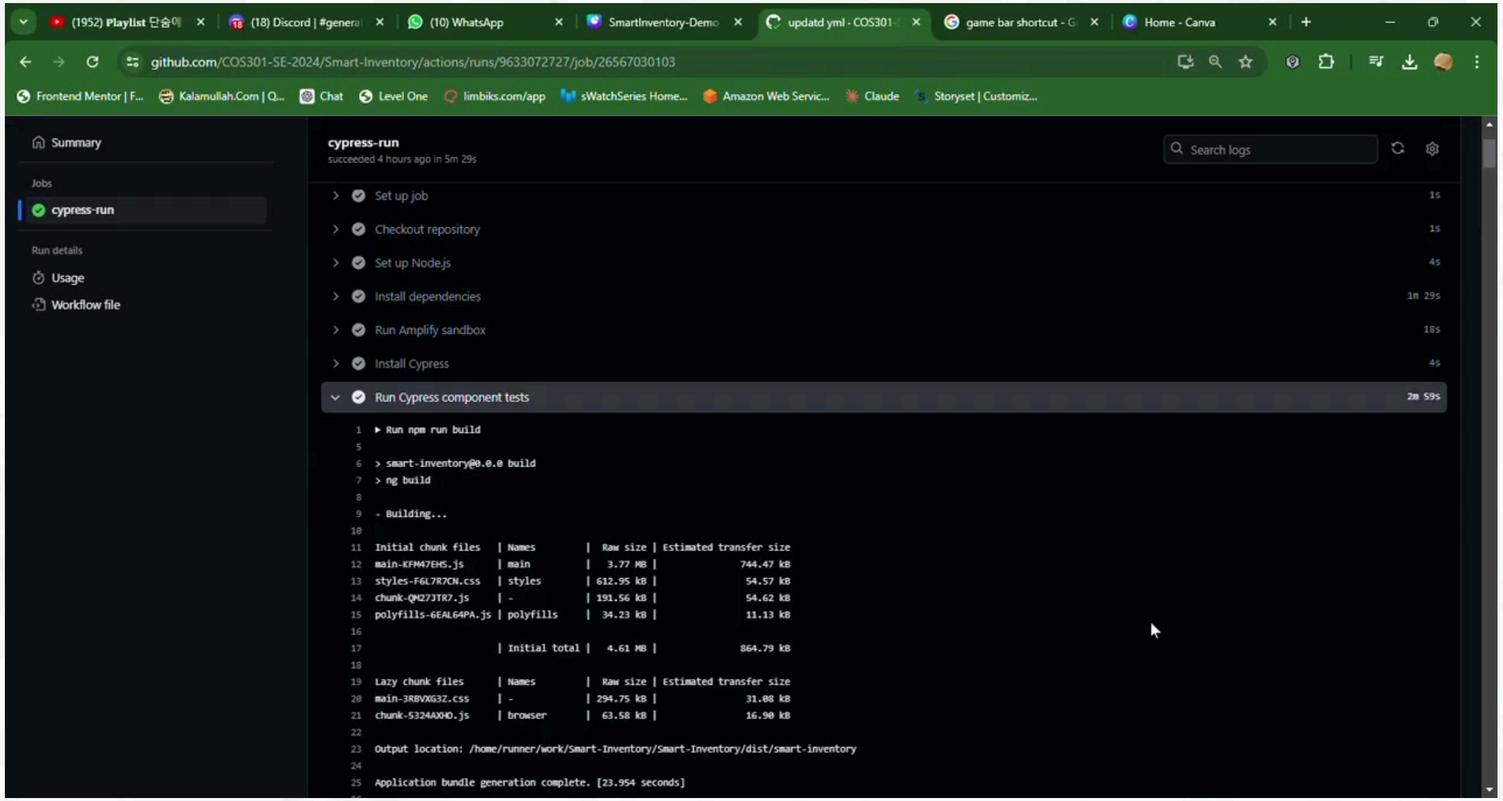
Simple Notification Service

API Gateway

Docker

Angular

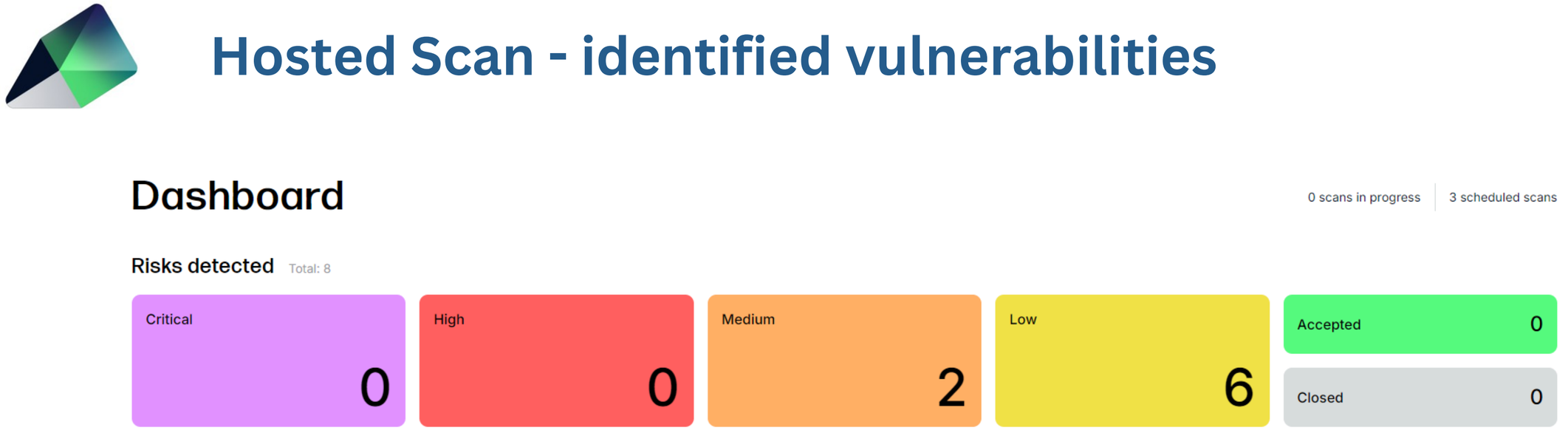
Testing



Cypress Testing

Security

Hosted Scan - identified vulnerabilities



Security

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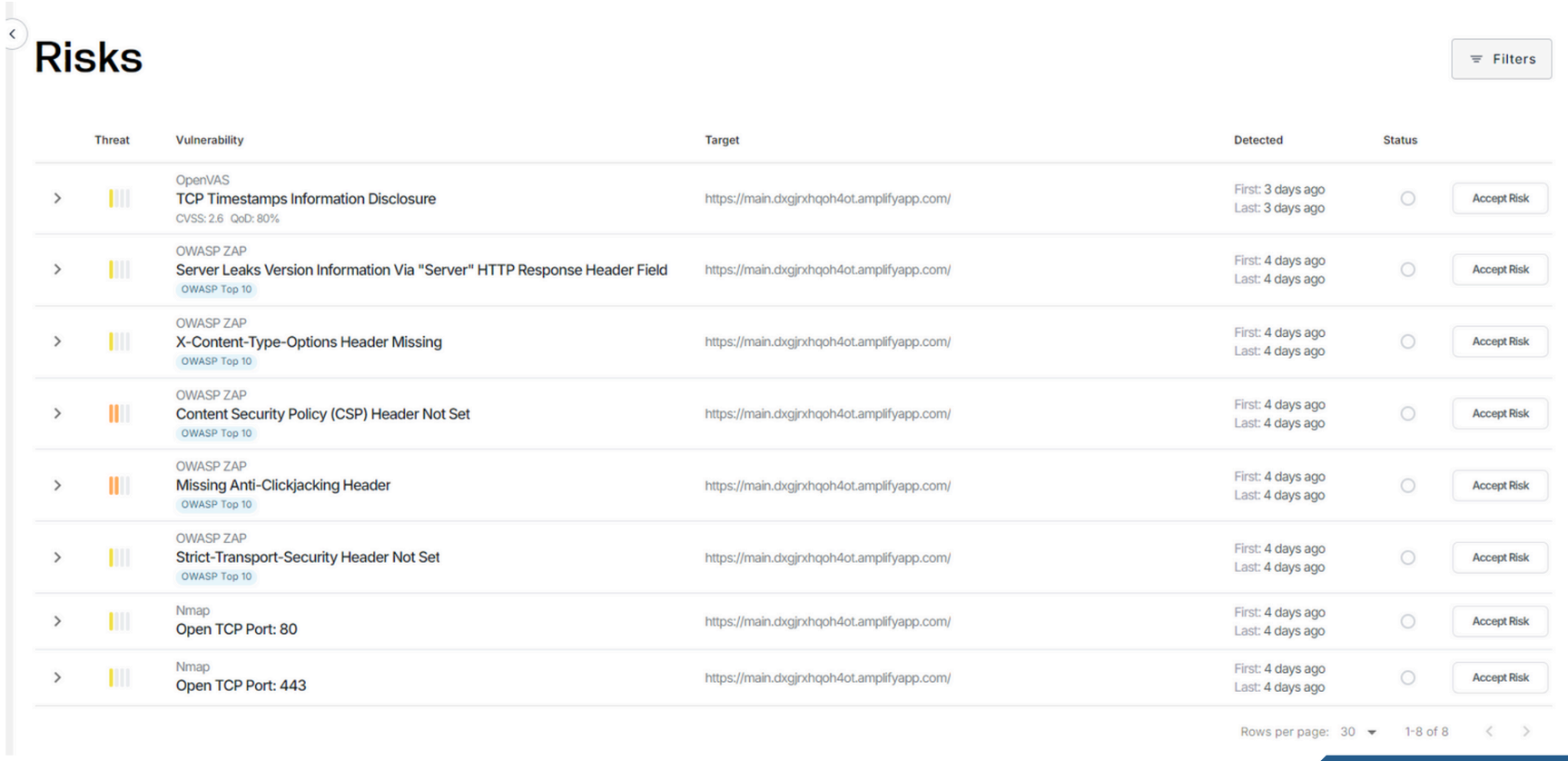
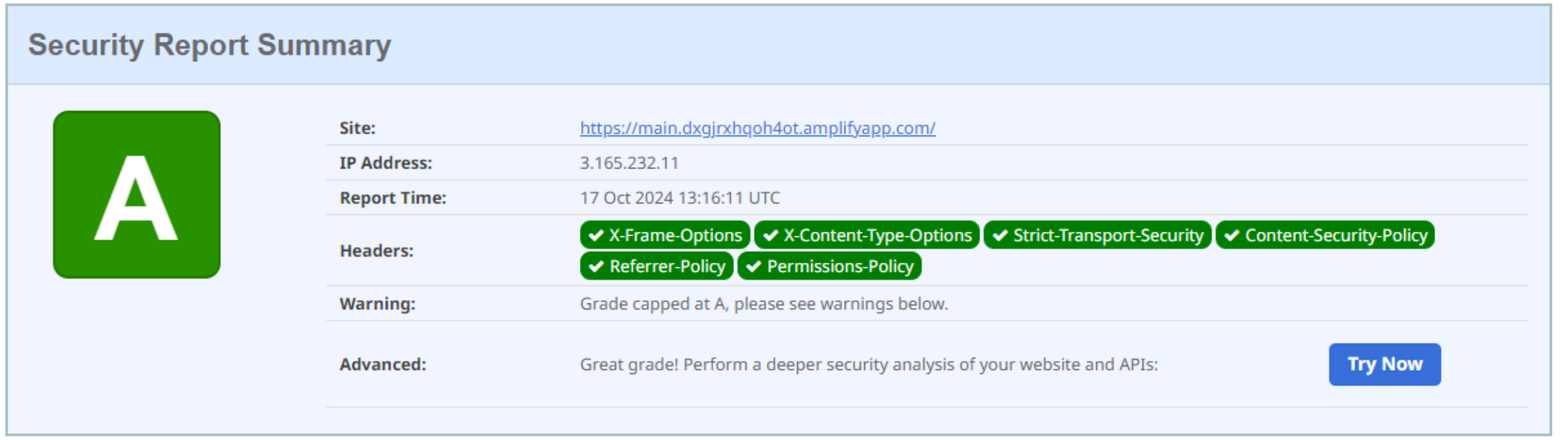


Security

Security Headers
Powered by Probely

POST Scan



Usability

Conducted usability tests with 50 users

Results:

Link to usability google form

Link to usability google form spreadsheet

Link to usability test report

Reliability and Scalability

Response Time