

MICHIGAN STATE

UNIVERSITY

Project Plan Presentation

Android Vulnerability Database

The Capstone Experience

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Spring 2024



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



Project Sponsor Overview

- Founded in 1998 by Larry Page and Sergey Brin, later reorganized under alphabet
- Best known for its search engine ("Just Google it"), acquired Android (aka Android Open-Source Project) in 2005
- Android is the most widely utilized mobile OS (Over 3 Billion active monthly users)
- Our sponsor Shailesh Saini, head on Android Platform Security and Assurance is responsible for ensuring that security issues for Android OS are handled efficiently



Project Functional Specifications

- Situation: Android vulnerability data can be found in ASB and NVD.
- Problem: It is not intuitive to get the information needed from these sources.
- Solution: An API that provides this data and more.

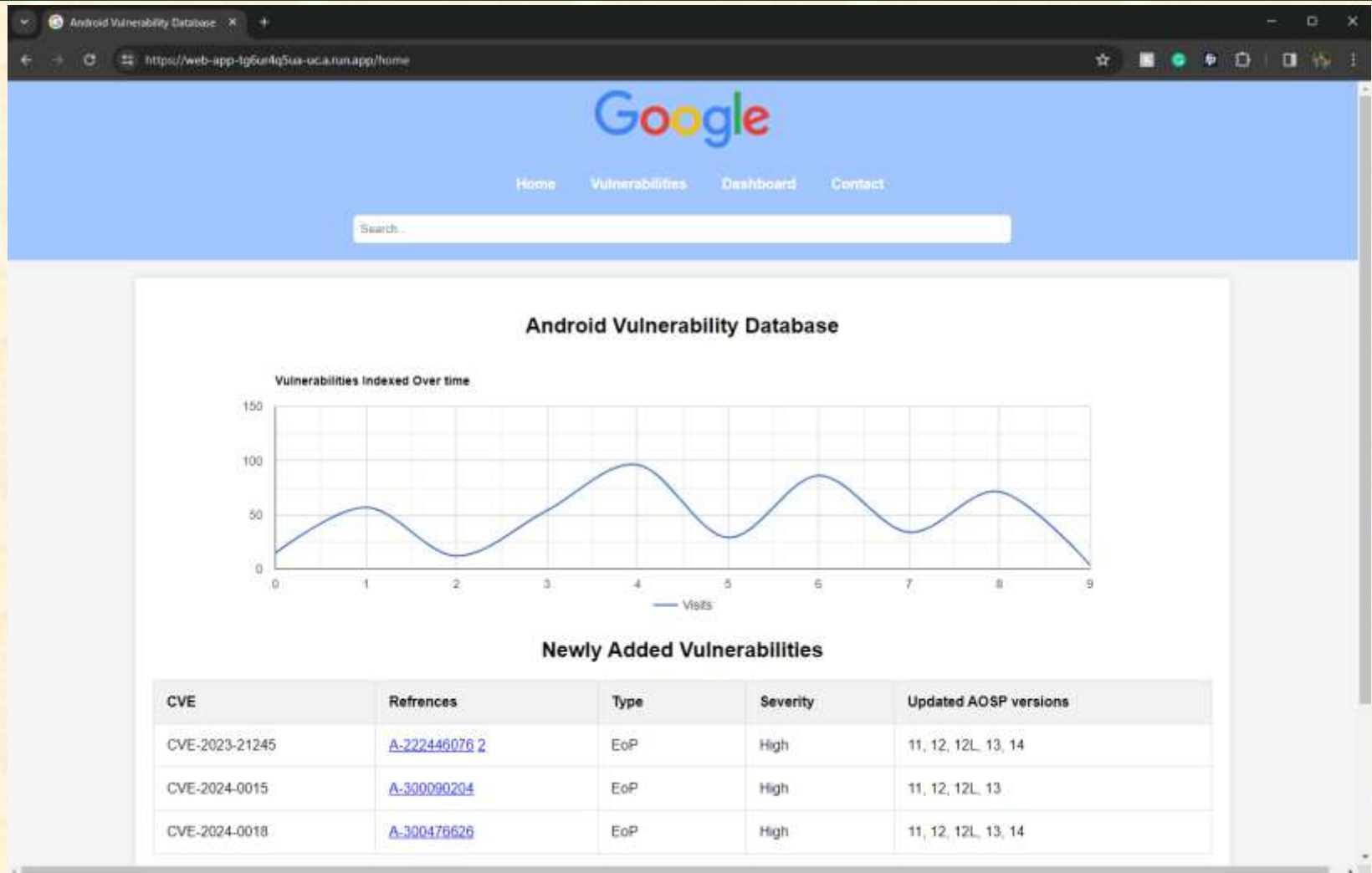


Project Design Specifications

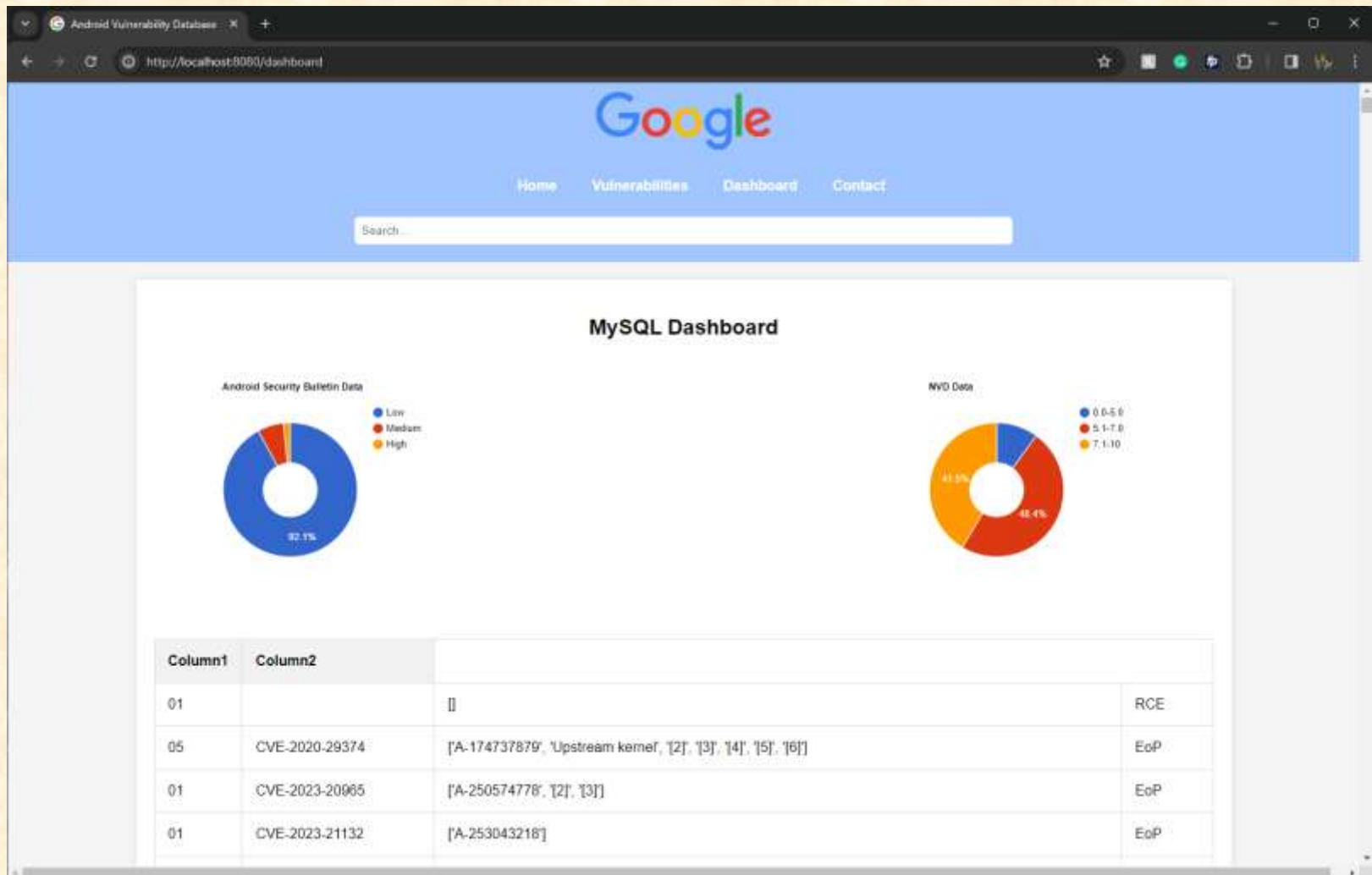
- Google Cloud
- Restful API to connect the web interface to the database
- User friendly Flask web interface to show API results
- Predetermined API calls for users
- Ability to create user specific API calls



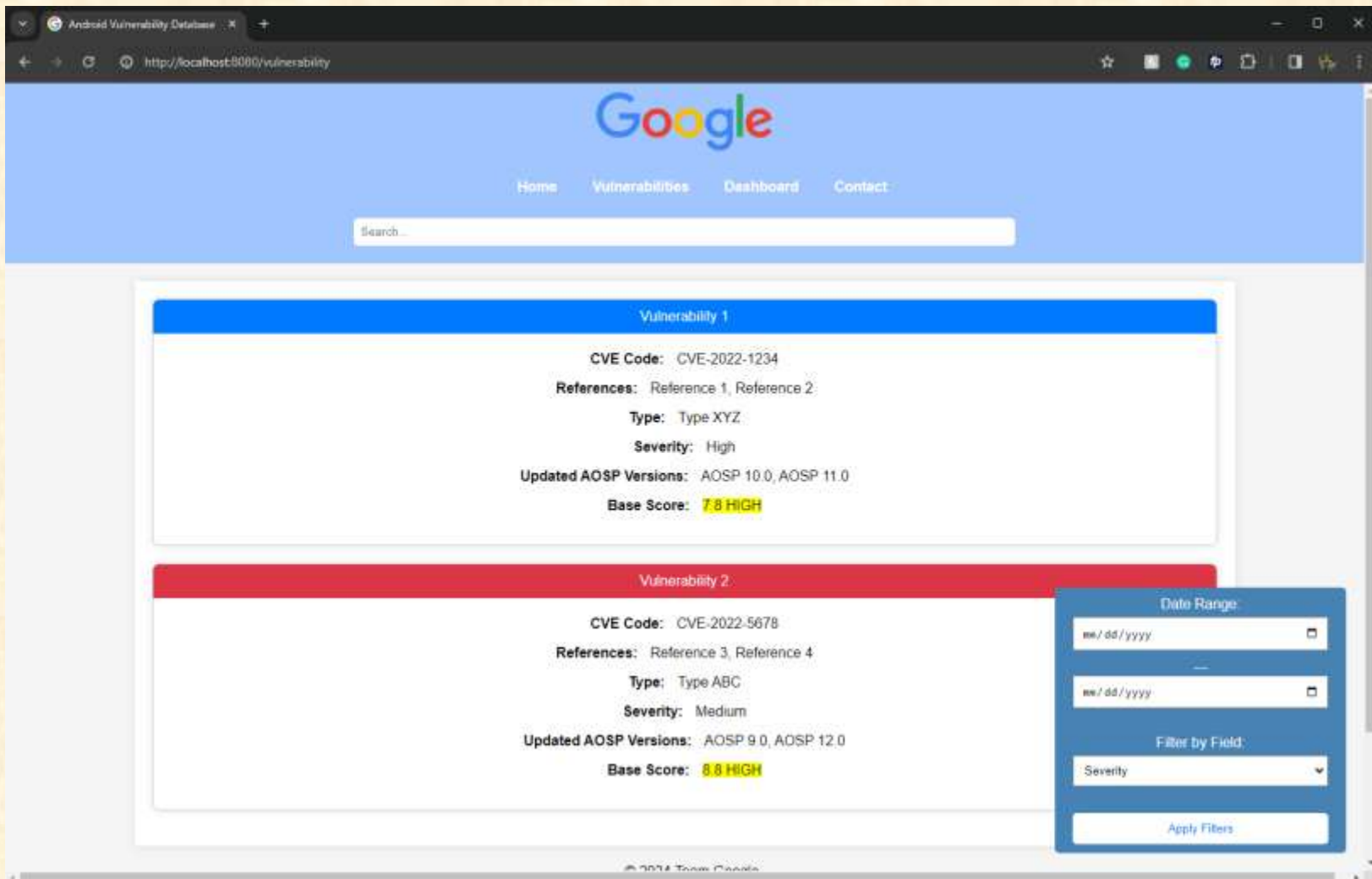
Screen Mockup: Home Screen



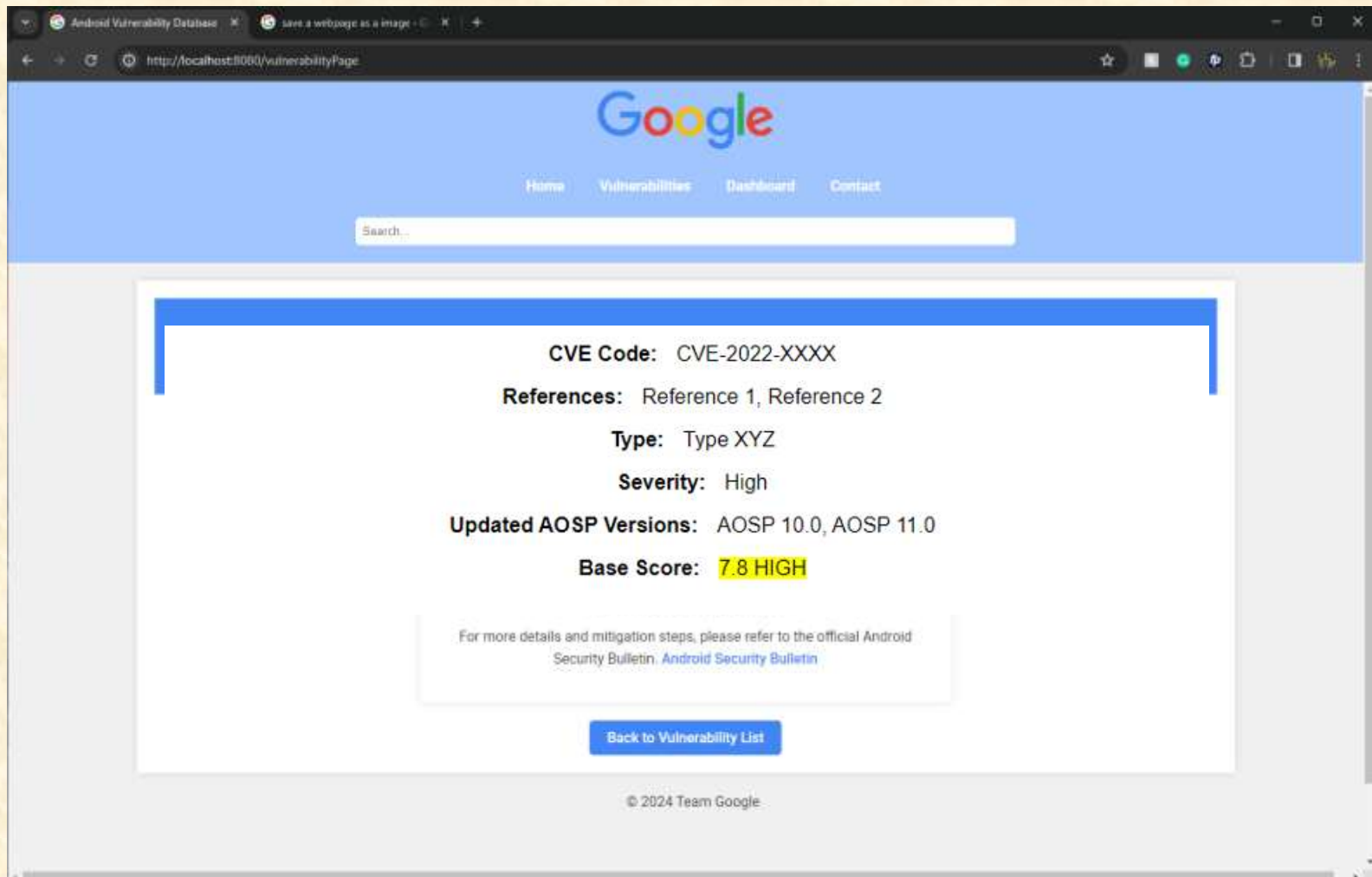
Screen Mockup: Database Dashboard



Screen Mockup: Vulnerability Index



Screen Mockup: Vulnerability Page

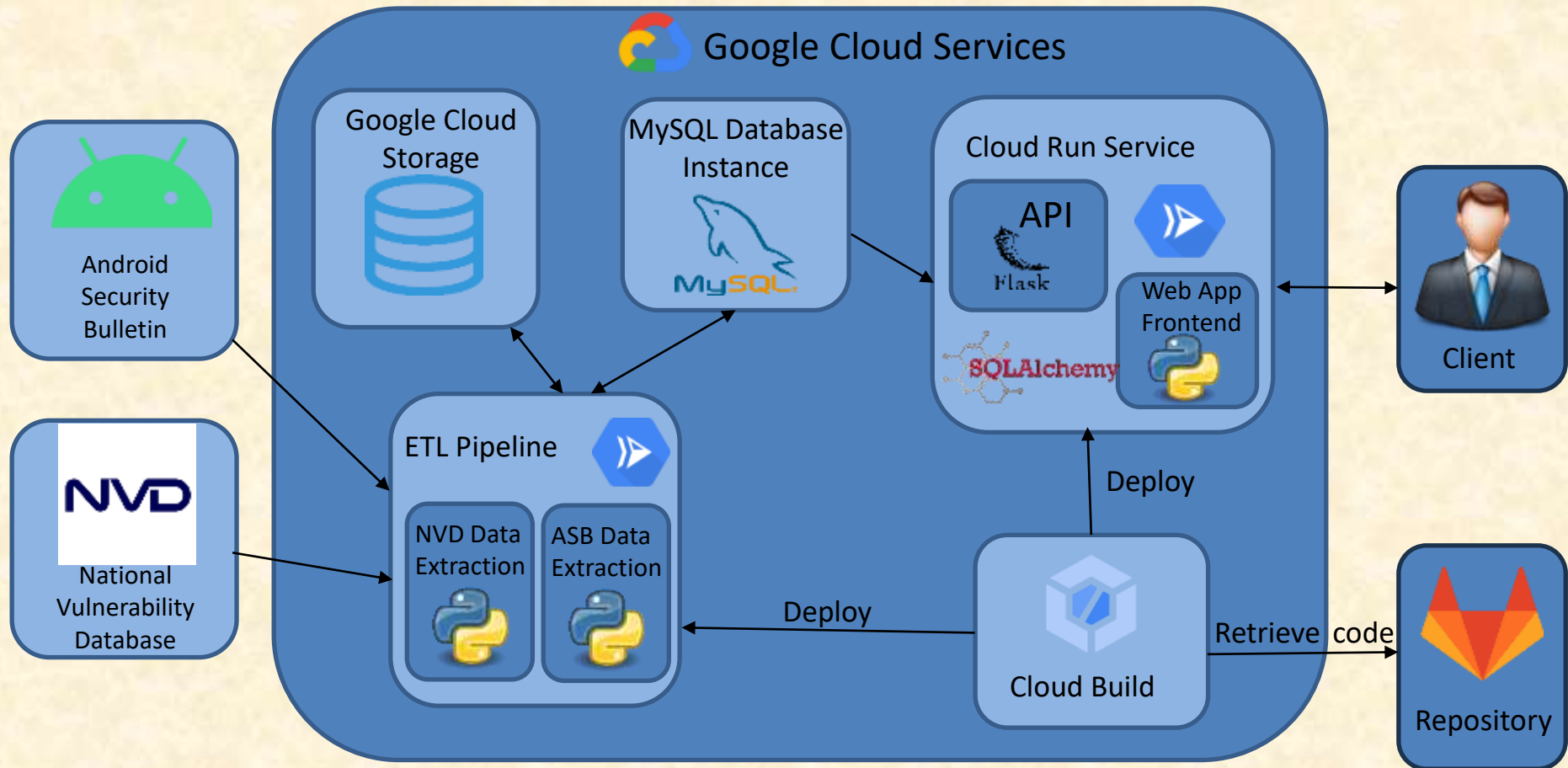


Project Technical Specifications

- Python Scripts for Web Scraping Data
- Store data and scripts in Google Cloud Storage
- MySQL database hosted on Google Cloud
- Virtual Machine hosted on Google Cloud
- Flask Web Application
- Flask REST API and SQL Alchemy for communication between website and MySQL database



Project System Architecture



Project System Components

- Hardware Platforms
 - Local Environments
 - Google Cloud Computing
- Software Platforms / Technologies
 - Google Cloud Platform
 - Cloud Run
 - Cloud Build
 - Cloud Storage
 - MySQL Instance
 - Python
 - Flask
 - SQLAlchemy



Project Risks

- Visualizing Data Patterns
 - We are unsure what patterns to look for in our data and if there are patterns that are identifiable
 - Communicate in detail with our customer for what patterns to look for and look at other vulnerability databases
- Google Cloud APIs and services
 - Don't know which of Google Cloud's many API's will best suit our needs
 - Google has first party documentation on their APIs we can read
- Data Verification
 - Need to verify that the data we collect and store is correct
 - We have identified that Google Cloud has a Data Validation Tool (DVT) that we are testing



Questions?

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