CS3300 Introduction to Software Engineering

Lecture 10: Tools of the Trade #6

Google App Engine, Google APIs

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Google App Engine

- Google's platform to build web application on Cloud, on a fully managed serverless platform.

- Manages application platform that supports any framework, language or library, worries about the infrastructure so that you can focus on the code.

- *Functions*:
  - all infrastructure to deploy app on cloud- end to end management
  - Scalability
  - monitoring, logging, versioning, debugging using google stack driver diagnostics
  - big data, storage, compute, connectivity support using google cloud
  - Applications run in language specific sandboxes or in docker containers

App Engine Environments

- Standard: Run in language specific sandboxes
  - Complete isolation from OS/Disk/Other Apps
  - **V1**: Java, Python, PHP, Go (OLD versions). Restricted network access for some languages – not Java
  - **V2**: Java, Python, PHP, Node.JS, Ruby, Go (NEWER Versions)

- Flexible- Application instances run within Docker containers
  - Makes use of Compute engine virtual machines
  - Support ANY runtime (with built –in support for Python, Java, Node.js, Go, Ruby, PHP, or .NET)
  - Provides access to background processes and local disks

App Engine **Demo Time**!

Deploy a HelloWorld application to Cloud using App Engine

- Add GCP credits to your account.
- Create a Project on Google Cloud
- Add Billing Information
- Create app engine application
- Enable App Engine API
- Clone sample application from cloud repository: Install maven from cloud shell
- Download Maven Build
- Run app engine on localhost
- Deploy to app engine
- Clean up to avoid billing charges

Google APIs

- Developed by Google which allow communication with Google Services and their integration to other services.

- Examples include Search, Gmail, Translate or Google Maps.

- Third-party apps can use these APIs to take advantage of or extend the functionality of the existing services.

- Provides functionality like analytics, machine learning (the Prediction API) or access to user data (when permission to read the data is given).

- Usage of all of the APIs requires authentication and authorization using the Oauth 2.0 protocol.

Google Maps API

- Integrate, Embed, Query google maps in your application
- Create an interactive map
- Initiate actions like search directions
- Provide updated imagery to your users and help them find your location more easily
- Add markers, comments, icons to places of interest
- https://developers.google.com/maps/documentation Documentation available here to get started

Google Routes API

- High quality directions and real-time traffic updates
- Compute travel times and distances for multiple destinations
- Precise routes for pedestrian, bikers and vehicle travels
- Enjoy snap to road benefits so you know exactly which route your asset is travelling along
- Receive speed limit information for each of those roads

Google Places API

- Access Location Data using coordinates, real-time signals, phone numbers
- Convert addresses to coordinates and vice-versa
- Get time zone, latitude, longitude etc.
- Engage your users further with contextual information about places
- Search for and receive information about local businesses, points of interests on every device with the Places autocomplete feature

🔒 Secure   https://▮▮▮▮▮▮▮▮▮ ct.

www.▮▮▮▮▮ wants to   ✕

📍 Know your location

Block   Allow
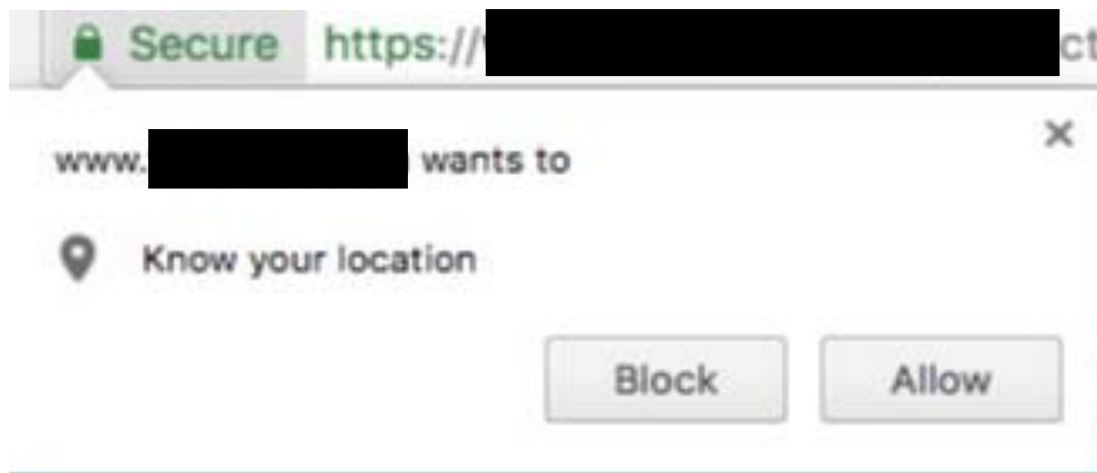
Authentication

- API key required to use any Google API

- Only works in secure contexts (HTTPS)

- Generate your API key on Google Cloud Console-- API Manager-- Enable API--Credentials– API key created