Lab 8

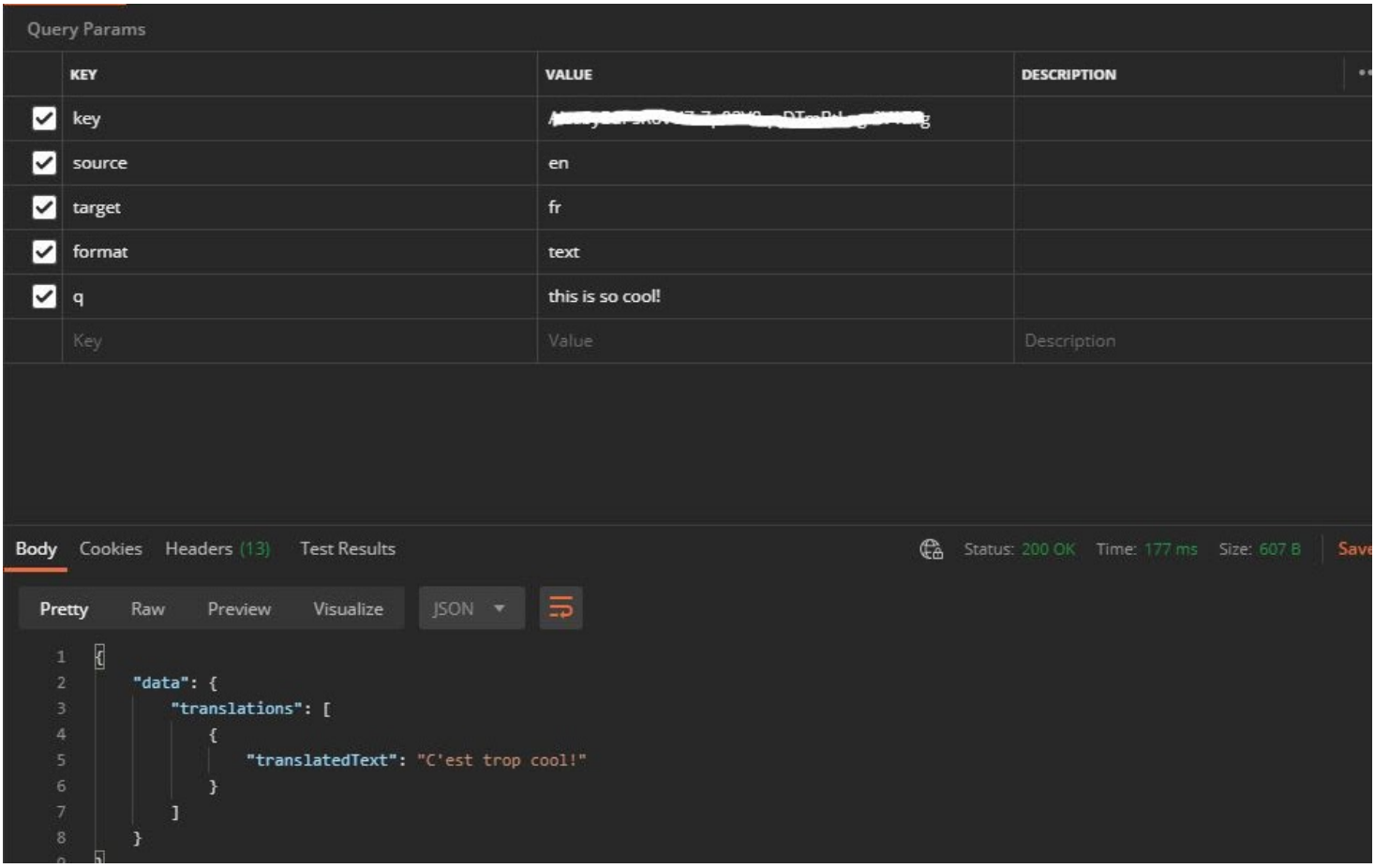
Web Services

In this lab you will practice using web services through their REST APIs.

Step 1: Set up Google App Engine (Optional)

This part is optional because it requires you to set up a billing account associated with your Google account. Note that you will not need to actually charge anything to your account. If you prefer not to do this, you can use the API key in the starter code. But ultimately you might find it useful to have your own Google App Engine account set up.

- Go to the Google API library page.
- You will need to log into a Google account; you can use your UW email addresses for that.
- Click on the Google Cloud Translation API and click on Enable.
- You will be asked to select an existing project (if you have any) or create a new project. You can do either.
- It will take a moment to enable the API (spinning wheel). Once it is done, you should land on the Dashboard for the Google Cloud Translation API under the project you selected.
- Click on "Credentials" on the left menu; then click on "Create credentials" > "API key."
- once you have your API key you can test the translate API in postman (see img below)



Step 2: Test the Google Translation API

Here is a CodePen starter code that "speaks" the text entered in a text box. Fork this to your own CodePen account and extend it to use the Google Translation API (see documentation here) to translate the text in the box and speak it in the target language. You will mainly need to complete the implementation of the "translateAndSpeak" and "handleTranslationResponse" functions. See /*TODO*/s in the starter code for more guidance.

Next you will try a basic functionality provided in the Google Natural Language Understanding API, called *sentiment analysis*. First fork your implementation of the Google Translation API test from Step 2 as your starting point. Next, you will need to:

- Change the base URL to: https://language.googleapis.com/v1/documents:analyzeSentiment. You can use the same API key as before.
  - Note on this, you can use the same API key/project but you will need to enable Cloud Natural Language API - if you test in postman you will receive a link to do this
- Create a JavaScript object to be sent as the request. Use this documentation to figure out what key-value pairs the request should have.
- Send the request using the POST method.
- Change the handler function to process the particular response type that this service provides; e.g. display the sentiment score and magnitude on the screen.
- Generally clean up the HTML and JavaScript code and rename variables to make sense for this application.

(Optional): Explore another Google web service

Optionally, create another Codepen that illustrates the functionality of a different Google API. You can use the examples from class or the Codepens you created in this lab as a starting point. Make sure your page describes what web service functionality is illustrated and instructs the user on what to do to observe the functionality.

(Optional): Combine sensor data with a web service

As another optional exercise, use the geolocation sensor to obtain the device's current location and demonstrate a web service functionality that uses this information. Some APIs you can use to provide different functionalities with geolocation:

- Google Maps Web APIs and Web Service APIs to display a static or dynamic map, search for places and get information about them, get street view images, get directions or traveling distance using different forms of transportation, among other things.
- Weather API to get the current local weather or forecast
- News API to get local news

Make sure your page describes the web service functionality and instructs the user on what to do to observe the functionality.

Complete this lab by submitting a public link to your Codepen pens or projects on Canvas, by Dec 1 Tuesday, 11:59pm. We will test the translation and sentiment analysis pages making sure:

- Two different sentences are correctly translated
- Three different sentences return the expected sentiment

We will inspect code as needed. See Canvas for a grading rubric.