

## Proposed Solution: Automated Data Validation Using Bash Script

### Automated Test Environment Description

Operating System: Any variant of Linux (be it Ubuntu, MacOS or Windows with WSL).

#### 1. Tools Required:

- Bash: For scripting in automating the execution of test cases.
- curl: For making calls to the external API for data retrieval.
- jq: A small, micro-utility to filter and extract data from the JSON returned by the API.

External API: There will be a mock API used in this case, which is a JSONPlaceholder. This API only provides data in a JSON structure for free.

Data File (CSV): A CSV file that lists the correct values for the created test cases with 10 rows and 5 columns for the unique key and other attributes being name, email, phone and, website.

#### 2. CSV File Creation

This file (data.csv) has 10 rows and 5 columns consisting of a primary column with a unique key (user id), and a secondary column with name, email address, telephone number and a web address.

#### 3. Bash Script

- ☐ Read data from the CSV file.
- ☐ Query the external web API using curl.
- ☐ Parse the API data using jq.
- ☐ Validate if the API response matches the expected values from the CSV file for the unique key (e.g., user\_id).
- ☐ Output the result (pass/fail) for each test case.

#### 4. Run script (perquisites)

- Ensure that the curl and jq tools are installed
- Ensure that the script has permission to execute (chmod +x validate.sh)
- Run the script and parse the "user\_id" as an argumen: ./validate.sh 1
- Example output:  
Passed

Test Passed: Data for user\_id 1 matches!

Failed

Test Failed: Data for user\_id 2 does not match. Expected: "Ervin Howell","Shanna@melissa.tv","010-692-6593 x09125","anastasia.net" Actual: "Ervin Howell","Shanna@melissa.tv","010-692-6593 x09125","anastasia.net"

## **6. Automating with CI/CD**

For continuous validation, we can integrate the script into a CI/CD pipeline using GitHub Actions. Every time a change is made to the CSV or Bash script, the validation will automatically run.

Example GitHub Actions Workflow validate.yml file

Similar scripts can be added using Postman or Pytest for CI/CD depending on the team preferences and project requirements.