INFRACLOUD

Product/Systems Engineer: URL Shortener

Please note:

- It would be great if you use Golang as a coding language for this assignment.
- Ideally, the assignment should not take more than 2-3 hours.
- Some areas of assignment might need you to understand Docker and if you have not worked on it before - don't worry. You can pick it up fairly easily with documentation or in the worst case scenario - skip the last parts and send us the working code.
- **Apart from a working application, we care a lot about**:
    - Readability of code
    - Tests - Unit tests definitely
    - A good structure to your code and well written file & variable names etc.
- Points marked with [BONUS] are not mandatory but good to have.

***One important thing**: Don't commit all of your code as a single commit - do commit logical units of work so we can see the work as you built it up. **Intermediate/working commits won't affect the way we judge the end result**. Please add anju-infracloud as a collaborator to the project and push to a PRIVATE github repository.*

Assignment

1. Build a simple URL shortener service that will accept a URL as an argument over a REST API and return a shortened URL as a result.
    a. If you have not used or seen a URL shortener before - please visit https://bitly.com/ and try to shorten a URL. The goal of this assignment is not to build a fancy UI but an API only version of that.
    b. Don't use a shortening API - you are supposed to write that part of code.
    c. We expect your assignment to have a decent architecture.
2. The code should have following features:
    a. If I again ask for the same URL, it should give me the same URL as it gave before instead of generating a new one.
    b. If the user clicks on the short URL then he should be redirected to the original URL. Write a Redirection API that implements this functionality.
    c. The URL and shortened URL should be stored in-memory by application.
3. Write a metrics API that returns top 3 domain names that have been shortened the most number of times. For eg. if the user has shortened 4 YouTube video links, 1 StackOverflow link, 2 Wikipedia links and 6 Udemy tutorial links. Then the output would be:
   Udemy: 6
   YouTube: 4
   Wikipedia: 2
4. [BONUS] Put this application in a Docker image by writing a Dockerfile and provide the docker image link along with the source code link.