Exercise

Write a digital address book service and client.

The service
Write an HTTP server that:

- Stores the following contact fields: First name, last name and email address.
- Exposes an HTTP API to perform CRUD operations.
- For simplicity:
  - It is ok for the API to be unauthenticated.
  - It is ok to keep data in memory or local file/s, do not use a database.

The client
Write a CLI client that consumes the server API and provide commands to:

- Create a new contact
- Delete a contact
- Update a contact

- Search contacts by email:
  Given a string S, it should get all contacts that have the exact string S as email.
  e.g: Searching for contacts with `email=john.lennon@thebeatles.com` should return contact 1.

- Search contacts by last name:
  Given a substring S, it should get all contacts that contain S as part of its last name.
  e.g: Searching for contacts by `lastName=arr` should return contact 3 (Harrison) and contact 4 (Starr).

Non-Functional Requirements:

- Add unit tests to the server for all operations
- Add an integration test case for search that exercises both components
- The server should print an anonymized (obfuscate all personally identifiable information) formatted audit log into a file, which should be usable for static metrics analysis
- For simplicity, do not unit test the client

Important
Focus on engineering good practices as if it were production code. Provide a make file with the following targets:

`make build`   To build the services
`Make unit-test`   To run unit tests
`Make integration-test`   To run integration tests

Guidance
You shouldn't need to spend more than 2 hours on this exercise.
Focus on the solution design and maintainability.

Data examples:
(Feel free to include more data for testing)

Contact 1
Name: John
LastName: Lennon
Email Address: john.lennon@thebeatles.com

Contact 2
Name: Paul
LastName: McCartney
Email Address: paul.mccartney@thebeatles.com

Contact 3
Name: George
LastName: Harrison
Email Address: george.harrison@thebeatles.com

Contact 4:
Name: Ringo
LastName: Starr
Email Address: ringo.starr@thebeatles.com