# Address Lookup Technical Test Instructions

You have been provided a .zip file containing the source code for an address lookup application. The main function of this application is to return a list of addresses for a given postcode.

Unzip the file and import the project into your chosen editor. More information on running and using the application can be found in the README.md file contained within.

The application is version controlled using Git. Create a Git repository containing the provided source code, and push your code changes there. Feel free to commit and branch the project however you deem appropriate.

The application also uses Swagger to provide documentation for consumers. The UI is visible at http://localhost:8080/swagger-ui/index.html once the application is running. Any changes you make to the API should be visible here.

**Note: BlackListService should be treated as a black box for the purposes of this test. It should not be modified as its purpose is to simulate an external API.**

Familiarise yourself with the code, read the tasks, then complete them in order. When complete, provide us with read access to your Git repository.

## Task 1

A new feature has been requested for the address lookup application. There are a number of postcode areas where the pot holes in the road are so bad that a delivery van can't drive there, and the consumer would like those areas to be filtered out. The BlackListService is responsible for marking particular postcodes as invalid, so it'd be useful to be able to filter the addresses returned and remove any that are blacklisted.

Existing consumers may not want or need this filtering, for example if they're delivering on foot, so ensure that there's a way to make this configurable for each request. If the request is being filtered by postcode, and the postcode is blacklisted, an empty array should be returned when this is configured.

## Task 2

An issue has been raised by a customer, and investigation has determined that the address lookup application is the source. When returning the filtered list of addresses implemented in Task 1, it occasionally doesn't blacklist any addresses.

To simulate an unreliable API, we have added a random failure to the BlackListService, which should fail for roughly 1 in 10 cases, and it is this intermittent issue that we need a solution for. It should still be treated as a black box during this task, and should not be modified.

Find an appropriate solution to the problem and implement it, following best practices and existing project conventions where appropriate.

## Task 3

Having completed the tasks above, consider what improvements you might like to see in the code. These could be refactors, optimisations, test improvements, general code housekeeping, etc. Prepare some suggestions for discussion in the next interview.