

Software Engineer Technical Ability Evaluation

Introduction

This document contains a task that tests your skills and aptitude for:

- Clean and Maintainable Code
- Design, architecture, and use of patterns
- Project Organization
- Understanding and interpretation of tasks

If you have any questions or need clarification on anything, please contact ahmed.khalifah@4gtss.com or yasser.abuomira@4gtss.com.

Company Standards:

- We are serious about clean code. We take API / Database design seriously, down to naming conventions
- It is highly recommended for all engineers to read the book Clean Code by Robert C Martin

Practicum:

To help demonstrate your coding experience and style, we have provided a practicum for you to complete.

This practicum will showcase your understanding of clean code, sensible design, minimal architecture, and the use of modern patterns.

When reviewing your practicum, we review it as if it's your best work. Please take the required time to complete this practicum properly. We do not accept rushed or incomplete projects.

We recommend that you write this as if you were intending to maintain it, or preparing for another engineer to maintain it.

General overview:

Mobile Number Portability (MNP) is a service that enables the mobile telephone user to retain his/her own number while switching from one mobile network operator (Donor) to another (Recipient). The MNP gives the subscriber the right to retain his/her number regardless of the mobile service provider and gives him/her the freedom to port his/her number to the eligible operator without forcing him/her to lose his/her number. [ref](#)

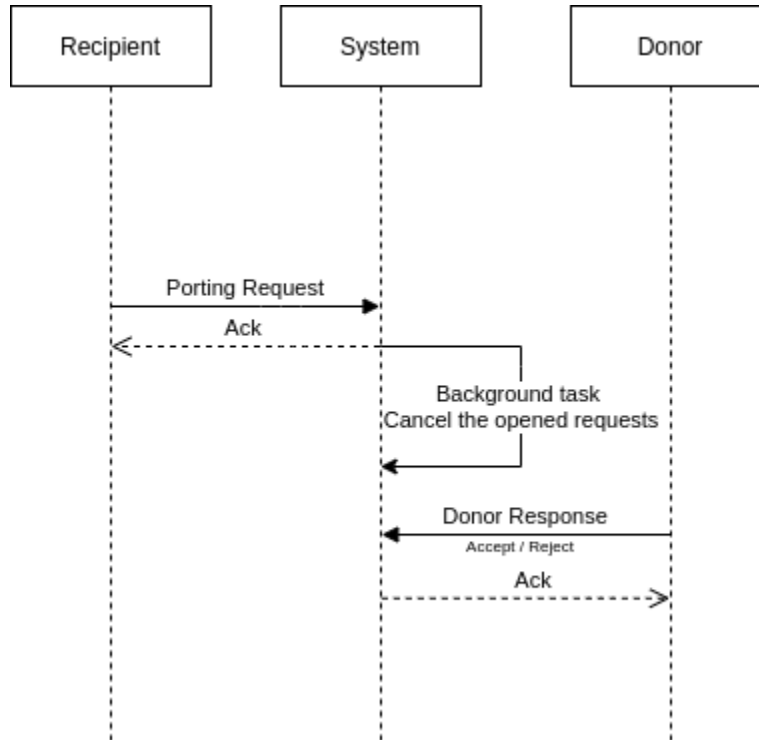
Task Description:

As a mobile network operator (Recipient), I want to be able to submit a porting request, so that the other mobile network operator (Donor) can accept or reject my request.

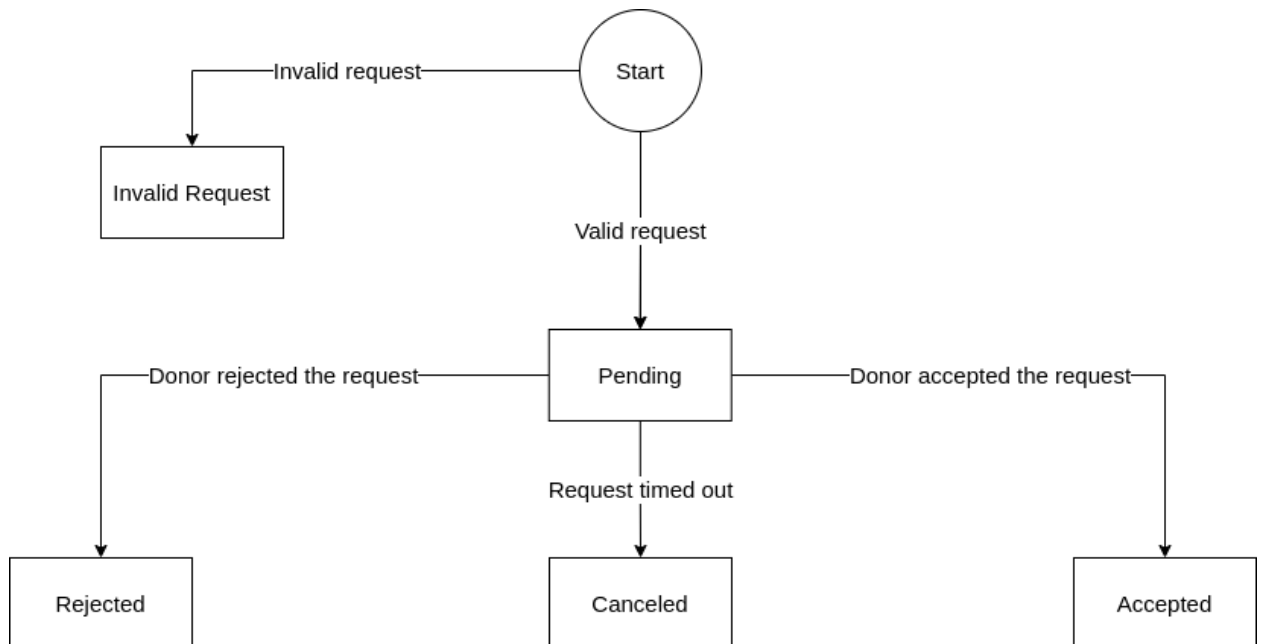
Acceptance:

- Porting request Should accept only a single phone number (per request)
- Reject porting requests that contain a phone number that has a pending request.
- Only the donor can accept or reject the porting request
- Any operator should be able to view all requests
 - If the operator is a recipient or donor so he can view the request
 - If the operator is **NOT** a recipient or donor so he can view the accepted requests only
- Develop a background task that cancels all pending requests that exceed X time without receiving donor accept or reject.
- The application should validate requests schema and reject the invalid requests
- The operator agent should be able to get the current phone number status and the current mobile network holder if the number is ported
- Mock the authentication and the authorization (use request header **`organization`**), i.e. identify the agent's operator by organization header value.

Porting Flow Diagram:



Porting Request State Diagram :



Data:

- Operators
 - Vodafone
 - Orange
 - Etisalat
- Operators mobile number ranges
 - Vodafone 01000000000 - 01099999999
 - Orange 01200000000 - 01299999999
 - Etisalat 01100000000 - 01199999999
- Organization header values
 - Vodafone = vodafone
 - Orange = orange
 - Etisalat = etisalat
- Porting requests timeout = 2 Minutes

Project Requirements:

- Must follow code standards, code must be clean, documented (if needed), and readable
- Feel free to use any programming language, however, you have to use MySQL Database
- Must develop the project in a development branch (ie. dev/initial), then merge into master once complete. Tag the finished release as v1.0.0-dev. If you need to fix things afterward, do so following [SemVer](#). Delete the old branch on remote
- Write a MySQL script to create any necessary tables and insert the initial data

When complete:

Please prepare an email with a link to the repository and a short description.

Send it to ahmed.khalifah@4gtss.com, islam.montasser@4gtss.com, and yasser.abuomira@4gtss.com.

We will follow up shortly once the message has been received and your submission has been reviewed.

Thank you for taking the time to read and complete the tasks in this practicum. We are looking forward to reviewing your submission.