Overview

The task is to:

1. Create an **App Engine** application written in **Python** that will expose **RESTful API handlers** allowing for linking **partial credit cards** to **customers**.
2. Create a **C# client** for the above API server.
3. Write up **two end-to-end testing scenarios** for the application.

The task is designed to take about 4 hours, so please don't spend significantly more time on it. We will assess your approach, ability to adapt to a new problem space, and various aspects of the system you present but **not** the appearance of its GUI.

You may email us your code or publish it on GitHub. Please avoid using the name yReceipts in your project.

Google App Engine is a Platform as a Service (PaaS) offering that lets you build and run applications on Google's infrastructure. You may find a quick start guide and an SDK at https://cloud.google.com/appengine/docs/python/gettingstartedpython27/introduction .

A customer is a record containing an email address and first name.

A partial credit card is a record of incomplete details of a bank card. It **always** contains trailing digits and may **sometimes** contain leading digits, a card type, start date, expiry date, or any combination thereof. You may choose to ignore some of these data points if you don't think they'd add to the accuracy of your algorithm.

Please find below a picture of a card, whose partial credit card details are:
Trailing digits = 3456
Leading Digits = 5407
Card type = MasterCard
Start date = 08.2012
Expiry date = 08.2015

Please note the following caveats about partial credit cards:

1. Partial details are **not** sufficient to identify a card **uniquely**. It will often be the case that multiple customers match a single partial credit card. Your application needs to take this into account and **return all matches**.
2. A single card can have multiple versions of its partial credit card. For example, in some cases only the leading digits and the expiry date may be known, and in some other cases, further details may be known. It's up to you how your application handles it, but please bear this caveat in mind when designing your algorithms.

Real-life scenario

1. A customer goes shopping.
2. They request an email receipt.
3. Their email address is typed on the till.
4. They're asked if they'd like to link their email address to their card details so it doesn't have to be typed again when they visit the shop again.
5. When they do visit again, their email address is suggested based on their card number and can be selected from a list of suggestions instead of being typed.

Scope of the task

Your **App Engine** API server should expose two HTTP API handlers:

1. PUT handler that will accept partial credit card and customer information in JSON and store it.
2. GET handler that will return matching customers in JSON given partial details of a credit card.

Your **C# API** client should expose a GUI where:

1. The text of a card slip can be entered (please find sample card slips below).
2. The user will be shown any matching email addresses for the entered card slip.

Please also provide usage examples and two end-to-end testing scenarios.

Out of scope

You needn't publish your application; please share the complete source code with us.

Useful tools and resources

Cloud Endpoints Frameworks consists of tools, libraries and capabilities that allow you to generate APIs and client libraries from an App Engine application. You may use this to build your API if you wish so.

Postman - REST Client will allow you to interact with your API handlers without a GUI.

Please don't hesitate to ask any questions you may have.

Good luck!

Sample Credit Card

Sample Card Slips

The slip on the left represents the card depicted above, while the slip on right represents another card.

MASTERCARD Auth Code: 759830 Merchant ID: 887 Account Number: **********3456 Expiry: 08/15 NO CARDHOLDER VERIFICATION	Please debit my account Visa Debit 8768xxxxxxxx7682 Auth Code: 87ff6f