**Task for a System Analyst position at Nuvei**

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# 1. Preface

## Task Description

Nuvei decided to redesign its gateway system for payment processing and you are required to specify new design for this system. This section of the test describes required functionality of the system

**Please provide answers in English**

## System Description

Payment Gateway system serves as interface between online merchants and bank.

The basic flow of the system:

1. Online merchant shop sends request to gateway with credit card, client and purchase data.
2. Gateway validates request that was received from the merchant
3. Gateway applies additional tests to prevent fraud attempts, that are provided by external references and sends request to bank.
4. After receiving response from the bank, gateway system returns response to the client.

The Gateway system charges online shop a symbolic fee that actually generate income of the company.

## Transaction processing requirements

Gateway is required to allow processing of different types of transaction:

1. Purchasing of the items from online shop,
2. Cancelation of purchase (this operation is executed in case that end user decided to cancel purchase prior to shipping)
3. Risk validation of end user (validation of credibility of end user in order to prevent fraud attempts)

## Bank integration requirements

Gateway system is required to support multiple banks (sometimes with totally different API) to provide service to customers located in different countries.

## Transaction management

Gateway is required to provide web-based user interface for Risk management team to review transactions that are processed at gateway and to allow canceling suspicious transaction. Suspicious transactions are defined by Risk Analyst in manual manner after inspection of transactions.

## Reports

Managerial team of the company required to define set of reports that will allow estimating measures of monthly activity of the system.

# 2. Gateway specification



## Transaction flow diagram

Please specify diagram that represents transaction flow between different parts of the system. Please use sequence or activity diagram in case you are familiar with them.

## ERD

Please suggest ERD of the gateway system described in task definition. The ERD should contain tables and relations between them based on relational database model.

Optionally usage of non-relational database may be suggested in addition to relational one.

## System interface

The system as described in section 1.2 processes requests from online merchants, please specify formats of request and response of the system (preferably in json)

Optionally system may be designed as set of Rest API calls

## Transaction management screen

Please specify preview of transaction management screen

(section 1.5) and provide basic specification of the screen.

## Management reports

Please specify set of reports for management team (CEO, CFO) that are based on data that is accumulated at Gateway system.

# 3. General tasks



## Country specific page

Please provide architecture diagram, define entities and connections between them for system described below.

Nuvei is interested to provide page with possibility to enter credit card details to customers worldwide. In order to make it user friendly the page will be localized to language of the country of the end user

The typical flow is following:

* user navigates to default page
* the page has interface to IPGeo system via web service in order to get country ID for specific IP
* based on country ID, the relevant payment page will be displayed to user

## Specification document

Please provide structure of typical low-level design/specification document. The structure may be provided as headlines of the sections.

## Multi language support

Managerial team of Nuvei provided new requirement:

the gateway system that you've designed is required to provide response to merchant shop in different languages in order to be more friendly for users in non-English speaking countries.

Please provide the best structure to your opinion of table that will keep error messages (Responses to merchant) in different languages.