

# **Credit Card Recommendation System**

User Manual

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## SYSTEM OVERVIEW

Our Credit Card Recommendation System is a webapp generally targeted at young working adults looking to apply his or her first credit card. The website will require the applicant to key his or her personal information into the form, calculate which is the best credit card that will maximize cashback for the applicant and return the details of that credit card to user interface.

## USER INTERFACE

Our user interface runs on Vue.js. Once our rule engine returns the resulting credit card match, the resulting credit card with its details coded in Vue.js, will be displayed in the web interface.

## RECOMMENDED BROWSERS

Credit Card Recommendation System supports the following Web Browsers:

- Internet Explorer 11
- Google Chrome Version 72 and above
- Safari Version 12 and above

## REQUIREMENTS

Please ensure you have the following installed. Otherwise, follow the respective links to install your required libraries:

- [Anaconda](#) / [Python 3.6](#) or older
- [Node.js](#)
- Microsoft Visual C++ 14.0 ([Build Tools for Visual Studio 2017](#))

## DEPLOYMENT

# 1. install all front end dependencies

```
cd web/
```

```
npm install
```

# 2. install all backend dependencies

```
pip install requests flask flask_cors durable_rules
```

# 3. (Windows only) run start.bat to start all application

```
./start.bat
```

# 3. (Non windows) you need to run redis server manually, and then run the rules engine by running cc\_system.py inside rules-engine folder

```
python cc_system.py
```

# 4. Try access localhost:8080/home

# Alternatively you just need to run rules engine by running python script and redis

```
start_server.bat
```

# And then access the frontend from AWS host. This static host will connect to your localhost rules engine backend

```
http://machine-reasoning.s3-website-ap-southeast-1.amazonaws.com/home
```

**BUSINESS SCENARIO: SAMPLE INPUT & SYSTEM OUTPUT**

In this section, we will demonstrate the robustness of the credit card recommendation system. Considering requirement on the application of credit card and spending habit of each users, three business cases are demonstrated to examine on the outcome of recommendation. Every input from the users is evaluated to determine their spending habit, which eventually will have an impact on the decision of recommendation. For example, the user who solely spends on petrol will be recommended with a credit card that provides highest cashback on petrol spending. An outline of the system flows has been presented in the Figure 1 below.

**Credit Card Recommendation System:  
Business Process Model & Data Flow**

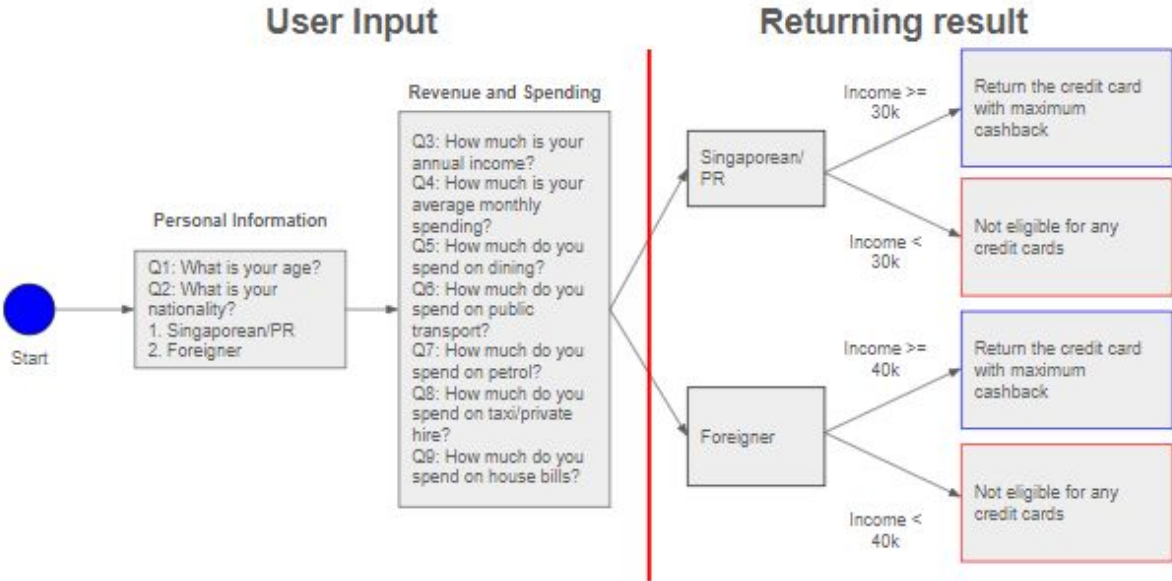
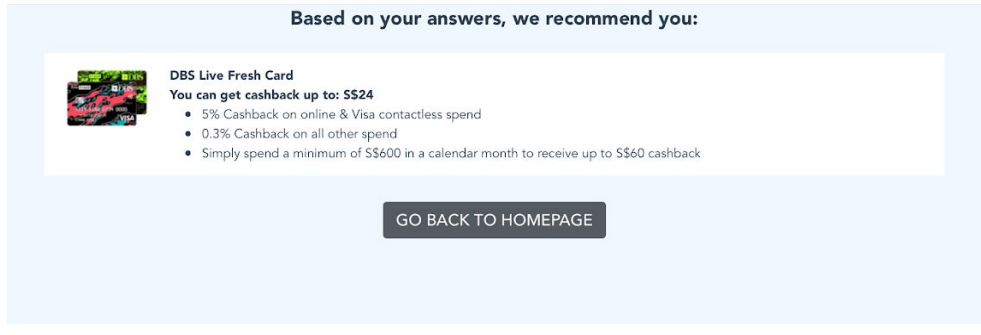


Figure 1: Business Process Model & Data Flow

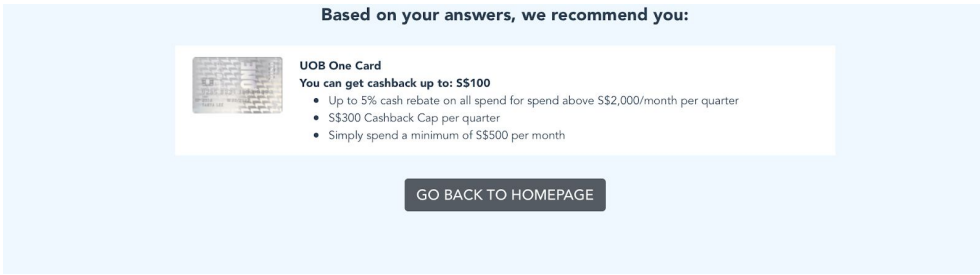
## Scenario 1

<p>Characteristic of user</p>	<p>25 years old Singaporean who is employed in Finance industry. He is current staying with his parents, both of which are still working in the management level. He eats out most of the time as both parents are still working.</p>		
<p>Questions:</p>	<p>What is your age? : 25          What is your nationality? : Singaporean/PR          How much is your annual income? : \$60,000          How much is your average monthly spending? : \$600          [Breakdown] How much do you spend on dining? (Please answer in % of monthly spending you have) : 60          [Breakdown] How much do you spend on public transport? (Please answer in % of monthly spending you have) : 20          [Breakdown] How much do you spend on petrol ? (Please answer in % of monthly spending you have) : 0          [Breakdown] How much do you spend on taxi/private hire ? (Please answer in % of monthly spending you have) : 20          [Breakdown] How much do you spend on house bills ? (Please answer in % of monthly spending you have) : 0</p>		
<p>System output:</p>			
<p>Analysis of system output</p>	<p>Features</p>	<p>Output</p>	<p>Explanation of system's output</p>
	<p>Recommended Credit Card</p>	<p>DBS Live Fresh Card</p>	<p>Based on the user's inputs, the system has recommended DBS Live Fresh Card as the cashback rebates of this card matches the user's spending patterns the most amongst all the cards in the database, and it allows the user to get the most cashback amount as compared to the other cards.</p>
<p>Cashback amount</p>	<p>S\$24</p>	<p>This is the monthly cashback amount the user can get if he were to pay all his expenses via the recommended credit card.</p>	

## Scenario 2

Characteristic of user	20 years old foreigner who is studying in National University of Singapore. She stays in the school hostel and most of her lunches are provided by hostel during weekdays. Her parents are staying overseas and they send her some money for her daily expenses on a monthly basis.		
Questions:	<p>What is your age? : 20</p> <p>What is your nationality? : Foreigner</p> <p>How much is your annual income? : \$0</p> <p>How much is your average monthly spending? : \$300</p> <p>[Breakdown] How much do you spend on dining? (Please answer in % of monthly spending you have) : 80</p> <p>[Breakdown] How much do you spend on public transport? (Please answer in % of monthly spending you have) : 20</p> <p>[Breakdown] How much do you spend on petrol ? (Please answer in % of monthly spending you have) : 0</p> <p>[Breakdown] How much do you spend on taxi/private hire ? (Please answer in % of monthly spending you have) : 0</p> <p>[Breakdown] How much do you spend on house bills ? (Please answer in % of monthly spending you have) : 0</p>		
System output:	<div style="text-align: center; background-color: #e0f0ff; padding: 10px;"> <p>Looks like you are not eligible for any credit cards. Please try again in the future :)</p> <p><a href="#">GO BACK TO HOMEPAGE</a></p> </div>		
Analysis of system output	Features	Output	Explanation of system's output
	Recommended Credit Card	NA	Based on the user's inputs, the system did not recommend any credit card as the user did not qualify for any card's minimum requirements in the database.

### Scenario 3

<p>Characteristic of user</p>	<p>50 years old Singaporean who is working as a Vice President in a local bank. He is the sole breadwinner of his family. His family consists of his spouse as well as 2 kids, who are studying in local secondary schools.</p>		
<p>Questions:</p>	<p>What is your age? : 50          What is your nationality? : Singaporean/PR          How much is your annual income? : \$120,000          How much is your average monthly spending? : \$3,000          [Breakdown] How much do you spend on dining? (Please answer in % of monthly spending you have) : 30          [Breakdown] How much do you spend on public transport? (Please answer in % of monthly spending you have) : 0          [Breakdown] How much do you spend on petrol ? (Please answer in % of monthly spending you have) : 30          [Breakdown] How much do you spend on taxi/private hire ? (Please answer in % of monthly spending you have) : 0          [Breakdown] How much do you spend on house bills ? (Please answer in % of monthly spending you have) : 40</p>		
<p>System output:</p>			
<p>Analysis of system output</p>	<p>Features</p>	<p>Output</p>	<p>Explanation of system's output</p>
	<p>Recommended Credit Card</p>	<p>UOB One Card</p>	<p>Based on the user's inputs, the system has recommended UOB One Card as the cashback rebates of this card matches the user's spending patterns the most amongst all the cards in the database, and it allows the user to get the most cashback amount as compared to the other cards.</p>
	<p>Cashback amount</p>	<p>S\$100</p>	<p>This is the monthly cashback amount the user can get if he were to pay all his expenses via the recommended credit card.</p>