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Situation:

JVMConsultant is a staffing company whose main brand is located in Warren Michigan. JVMConsultant has different clients as General Motors, and so on.

Currently, I am working for the client General Motors as a contractor. My role is the company is Full Stack Developer, so I am in charge to work for the back-end and front-end software. My manager is Marco Carnevale. He is working from Canada. The team is conformed for 9 developers. Depending of the task complexity, we work in pair programming.

General Motors has a big software department conformed for many teams focused on specific areas like mobile applications, sales, etc. I am working for the team called onStar Home. OnStar Home is in charge to work at the core of the business, this means other teams work based on our job. Currently, there are two teams working in parallel with us, the teams are Mobile onStar and onStart Tool.

Project: Mobile OnStar

General Motors has a product called onStar which provides direct communications with clients by smartphone. Currently, the users or clients are able to subscribe to the system with two offers, one month trial where the user could access all the features of onSar without paying anything or providing any credit card. Another offer is a normal subscription, where the user can access all the features for an undefined time. For this offer, the user has to pay, so a credit card is required. This offer can be canceled at any time.

The logic we should add to this business is to create a new offer, called 1+2 month. This new offer is about to give the users three months free, so basically, two months are added to one month trial but the difference is, for this one, credit card is required. The reason for this new offer, is because we receive many communications for clients saying the application is good, they like it, but they are not sure so they would like to continue testing before deciding to pay the complete subscription but one month is not enough.

To achieve this new objective, the Mobile onStar team and onSar team works together. The mobile team, working in the modifications in Android and iOS applications to show this new offer and send the precise information to the back-end.

The onStart team, we are working on modifying the back-end creating a new API focused on 1+2 offer and also modifying the front-end angular, to receive the data from mobiles applications, processing the offers, and consume the services from the back-end.

The workflow in the front-end has changed. Now, the one month trial, for the reason it does not need a credit card, as soon the application receive one month trial param in the URL, the back-end registers the user to the subscription and the front-end shows a thank you for the subscription page.

For the 1+2 offer, the front-end displays a payment component where the user has to register the billing address and payment methods. The back-end register to this offer and the front-end shows the thank you for the subscription page.

Task:

As Full stack developer, I work in the front end and back-end tasks. The front-end tasks are, first, to extract the params from the URL to know which offer the user had chosen. The next task is to change the screens to show to the user. For the one month trial the application has to display the thank you page, for 1+2 the application has to display the payment component and then the thank you page.

The back-end tasks are, first, to create a new API for the 1+2 offer which one receive the user information, the billing address information like street, city, state and zip code, and the payment method information but for this, we do not process the credit card information, for this we use a zuora component, which one is an external component for payment.

The next task is to divide the API params. Currently, we have only one API to register one month trial and normal offer, and, in the back-end there was a big if-else statement to process these offers. Now, with two API, one for one month trial where the billing address and payment method information were deleted so this one only receives the user information to register.

For the 1+2 offer, the new API, receives user information, billing address and payment information.

Action:

For the onStar back-end project, I use Spring boot framework, I learned this framework in Enterprise Architecture and Software Architecture, where I studied the principles of Spring Boot and microservices. With all the knowledge, I have applied Spring Security, microservices with RestController with all the annotations like GetMapping

For the onStar front-end project, I work with Angular, I learned this technique in Modern Web Applications, where I worked creating applications to consume web services from a back-end server like Spring boot or Node. With all the knowledge, I have applied and used the libraries to consume web services like HttpClient.

To create the offers subscription, I need to extract the offeringCodes from the URL sent by the mobile applications. With window.location.search, we can access the needed params, accountNumber, and offeringCodes. Once we get these params, these ones are storage in the browser so we can access them from components inside the angular project.

To create one month trial subscription, we only need the accountNumber and offeringCodes params, so these ones are sent to the back-end to one month API, if the response is Http.OK, the front-end skip to

the thank you page. If there is some error and we do not get Http.OK, the front-end displays an error page.

To create the 1+2 offers, other information es needed, therefore the front-end displays the payment component where the user is able to enter the billing information and payment information.

All the params, for the one month trial and 1+2 offers, are sent to the back-end by the library HttpClient, which is an asynchronous library because we have to wait for API response from the back-end.

General Motors implements Scrum and we have all the roles explained in Software Engineering such as Project Owner, Scrum Master, and developers. For Scrum, we have scrum meeting every morning to say all the Tasks we worked on yesterday and the tasks we will work on today. In these meetings, we discuss possible solutions for problems and ask the Product Owner about the business.

Result:

Currently, we are in the test phase, at beginning of the tests, we had some errors related to the back-end and front-end. For the back-end the most common error was the API did not receive the complete params. For the front-end, the most common error was the params were not extracted correctly from the URL.

Most of the errors are fixed now, so we have made a test for the one month trial, and 1+2 offers workflows. The workflows in general are working. Now, the only errors we have are about the timing and css on the screens.

To test, we have to do the complete the process, therefore we use android and iOS smartphones. For android we test with android 12, the last version of the operating system.

We use continuous integration, Jenkins, so we can see the logs for any error.