

Table of Content

- In Scope
- Out of Scope
- AC 1
 - Flow 1-1 render empty shopping cart
 - Flow 1-2 call bff api
 - Flow 1-3 call service to get dto
 - Flow 1-4 call feign client to get dto
 - Flow 1-5 call backend to get dto
 - Flow 1-6 call usecase
 - Flow 1-7 call domain service
 - Flow 1-8 call repository
 - Flow 1-9 implement repository and inject the implementation
 - Flow 1-10 verify the sql
- AC 2
 - Flow 2-1 render shopping cart
 - Flow 2-2 call bff api
 - Flow 2-3 call service
 - Flow 2-4 call feign client
 - Flow 2-5 call backend api
 - Flow 2-6 call usecase
 - Flow 2-7 call domain service
 - Flow 2-8 call domain repo
 - Flow 2-9 call dao and client to collect data
 - Flow 2-10 call db
 - Flow 2-11 call api
- AC 3
 - Flow 3-1 nested calls
- API Schema
- Project Process Definition

Get the shopping cart info

In Scope

get current shopping cart from backend and display shopping cart info: price, amount for each product, total of the products

Out of Scope

- product info is getting from the external system

AC 1

when i am a customer, i can see a message saying 'Your shopping cart is empty'
when i haven't add any products, so that i can add more products

Example William is reviewing his shopping cart without adding any product

Mockup



Flow 1-1 render empty shopping cart

- **Complexity:** MEDIUM - about 60 minutes

Processes

- **Process 1-1 | Web.UiComponent** add 'ShoppingCart' page add 'shopping cart' icon in menu which can redirect user to 'Shopping Cart' page click 'shopping cart' and entering the 'Shopping Cart' page

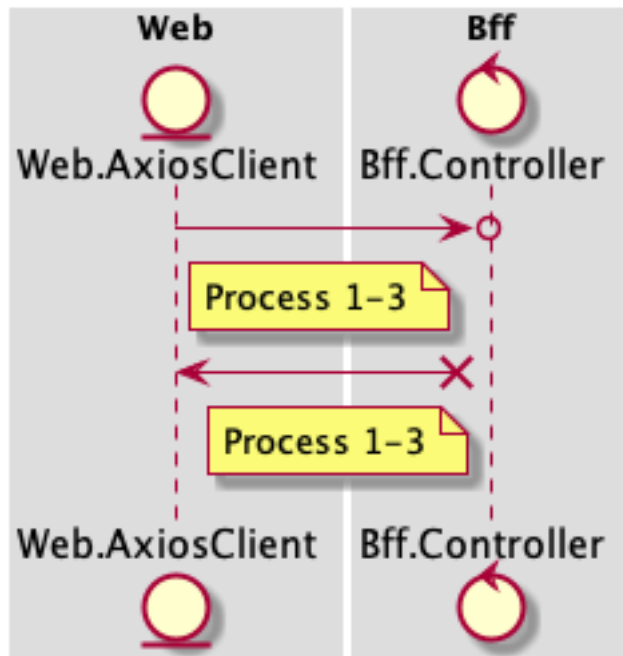
```
interface ShoppingCartProps {
```

```
        items: ProductDto[]  
    }  
}
```

-
- **Process 1-2 | Web.UiComponent, depends on Mock<Web.AxiosClient>**
call the api *Web.UiComponent* -> *Mock<Web.AxiosClient>* return empty
object

-
- **Process 1-1 | Web.UiComponent** display message 'Your shopping cart
is empty!'
-

Sequence Diagram



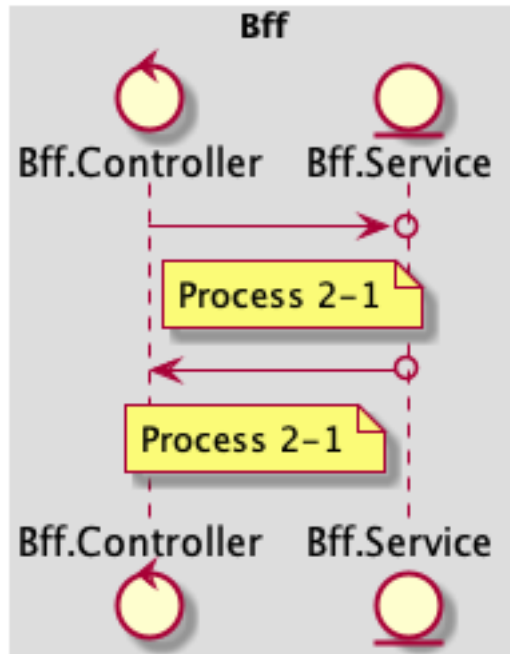
Flow 1-3 call service to get dto

- Complexity: SMALL - about 30 minutes

Processes

- **Process 2-1 | Bff.Controller, depends on Mock<Bff.Service>**
retrieve user id from authentication header *Bff.Controller* ->
Mock<Bff.Service> throw not found exception and respond with 404

Sequence Diagram



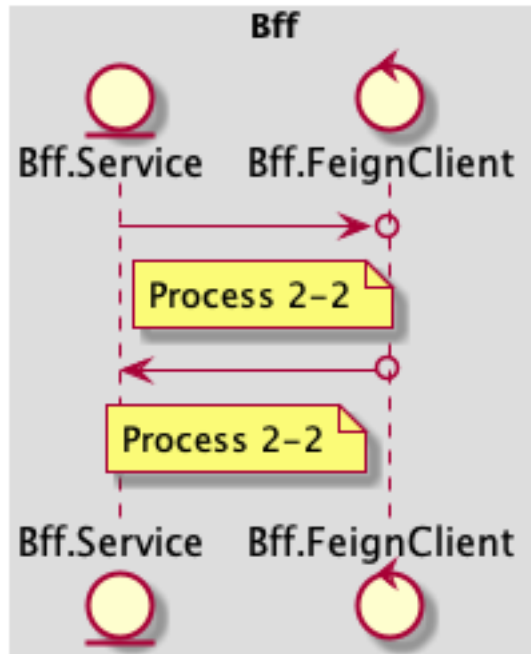
Flow 1-4 call feign client to get dto

- Complexity: SMALL - about 30 minutes

Processes

- **Process 2-2 | Bff.Service**, depends on `Mock<Bff.FeignClient>`
call feign client with user id `Bff.Service` -> `Mock<Bff.FeignClient>` throw
not found exception

Sequence Diagram



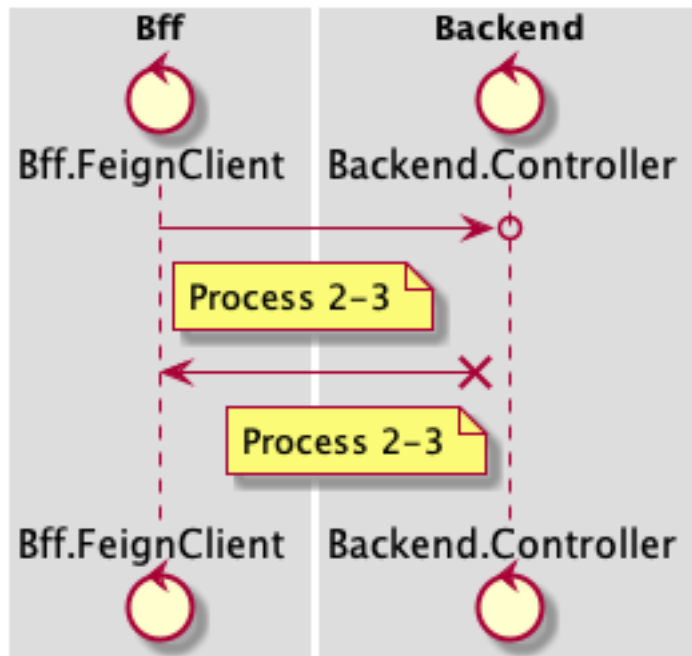
Flow 1-5 call backend to get dto

- Complexity: SMALL - about 30 minutes

Processes

- **Process 2-3 | Bff.FeignClient, depends on Fake<Backend.Controller>**
 > GET /shoppingCart Bff.FeignClient -> Fake<Backend.Controller> <
 404 NOT_FOUND

Sequence Diagram



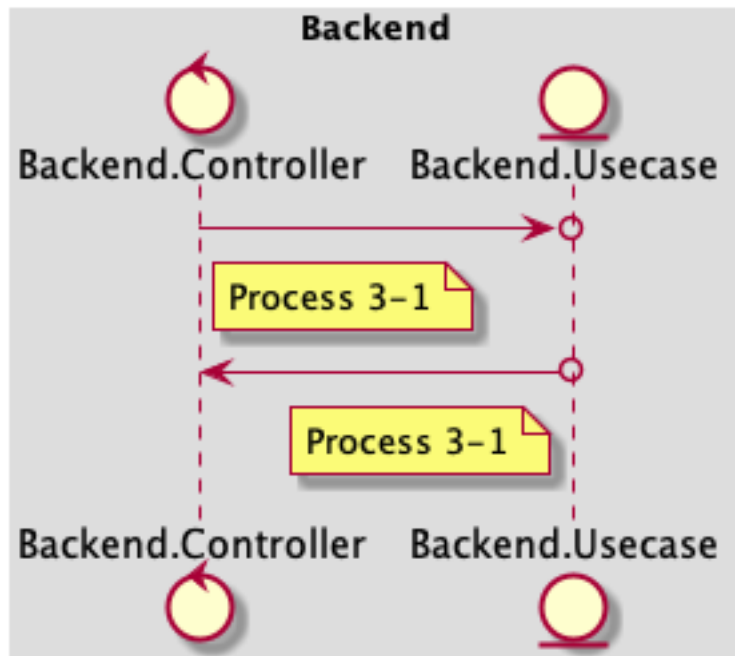
Flow 1-6 call usecase

- Complexity: MEDIUM - about 60 minutes

Processes

- Process 3-1 | Backend.Controller, depends on Mock<Backend.Usecase>
call usecase to find the shopping cart by user id *Backend.Controller* ->
Mock<Backend.Usecase> throw not found exception and respond with 404

Sequence Diagram



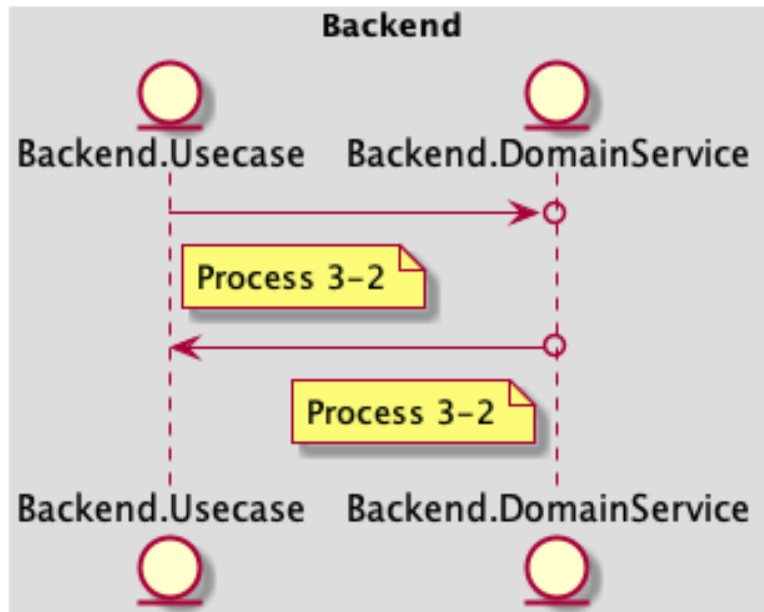
Flow 1-7 call domain service

- Complexity: SMALL - about 30 minutes

Processes

- Process 3-2 | Backend.Usecase, depends on Mock<Backend.DomainService>

Sequence Diagram



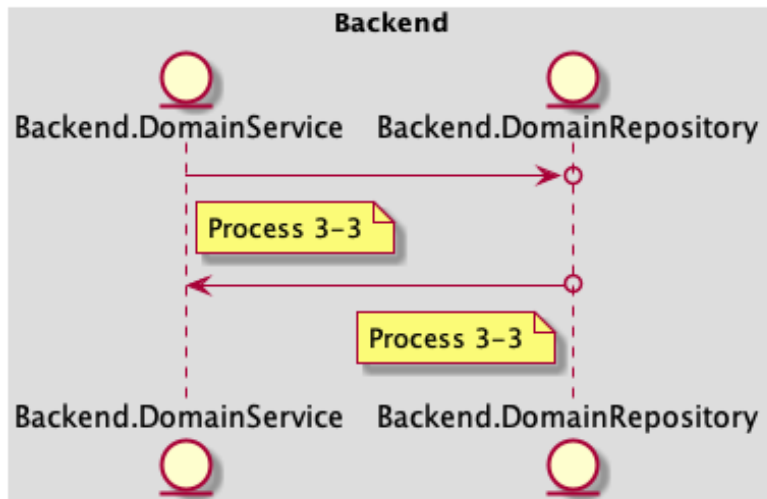
Flow 1-8 call repository

- Complexity: SMALL - about 30 minutes

Processes

- Process 3-3 | Backend.DomainService, depends on Mock<Backend.DomainRepository>

Sequence Diagram



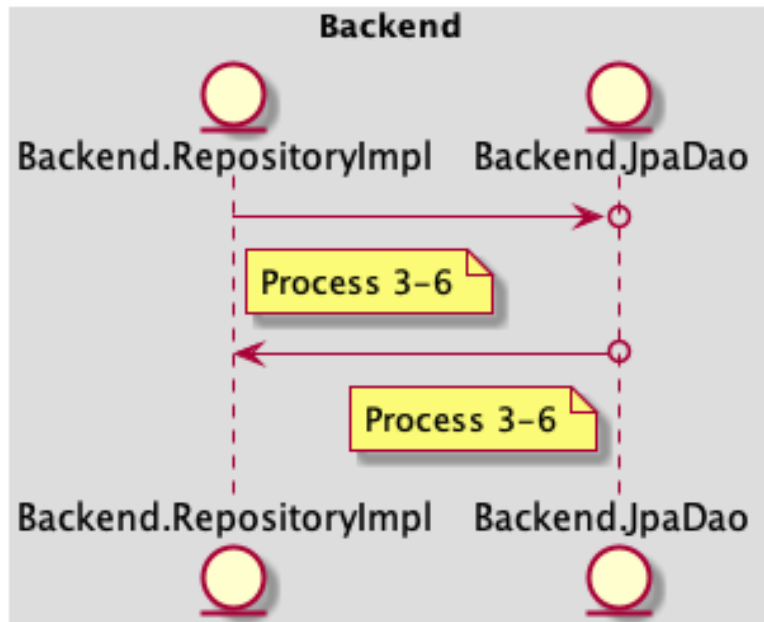
Flow 1-9 implement repository and inject the implementation

- Complexity: SMALL - about 30 minutes

Processes

- **Process 3-6 | Backend.RepositoryImpl**, depends on `Mock<Backend.JpaDao>` implement domain repository and search shopping cart in db *Backend.RepositoryImpl -> Mock<Backend.JpaDao>* returns null

Sequence Diagram



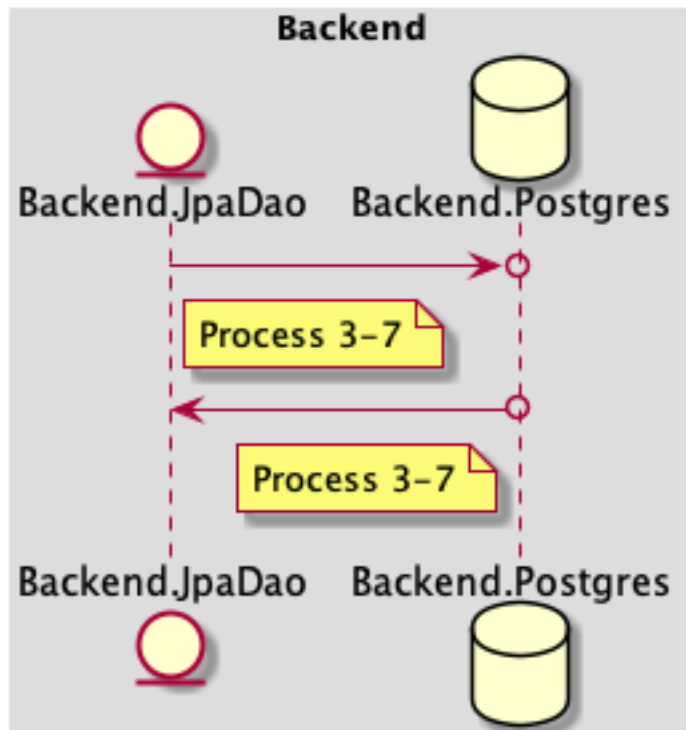
Flow 1-10 verify the sql

- Complexity: SMALL - about 30 minutes

Processes

- Process 3-7 | Backend.JpaDao, depends on Mock<Backend.Postgres>

Sequence Diagram



AC 2

when i am a customer, i can see my shopping cart with the products that i added before, so that i can review the amount and total price of them

Example William is reviewing his shopping cart after added some products

Mockup



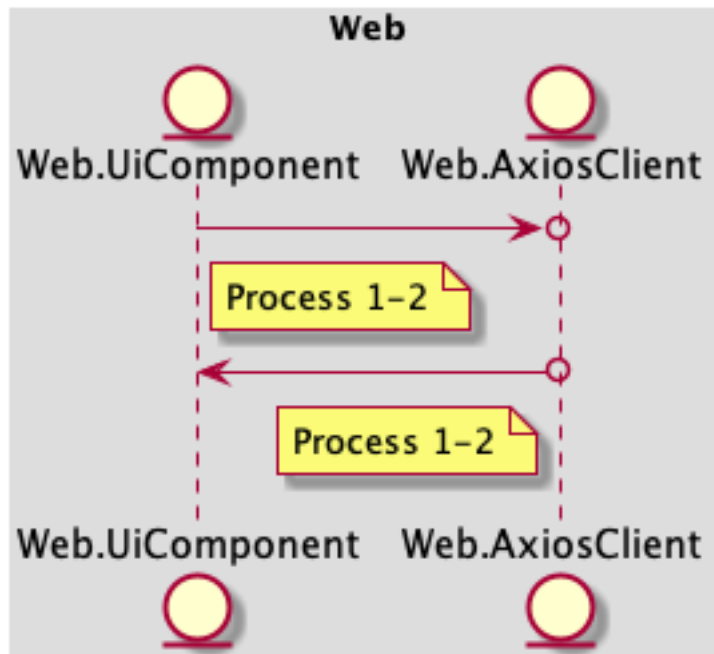
Flow 2-1 render shopping cart

- **Complexity:** SMALL - about 30 minutes

Processes

- **Process 1-2 | Web.UiComponent, depends on Mock<Web.AxiosClient>**
click 'the shopping cart' icon *Web.UiComponent* -> *Mock<Web.AxiosClient>*
receive response with shopping cart info display the product list and the total price

Sequence Diagram



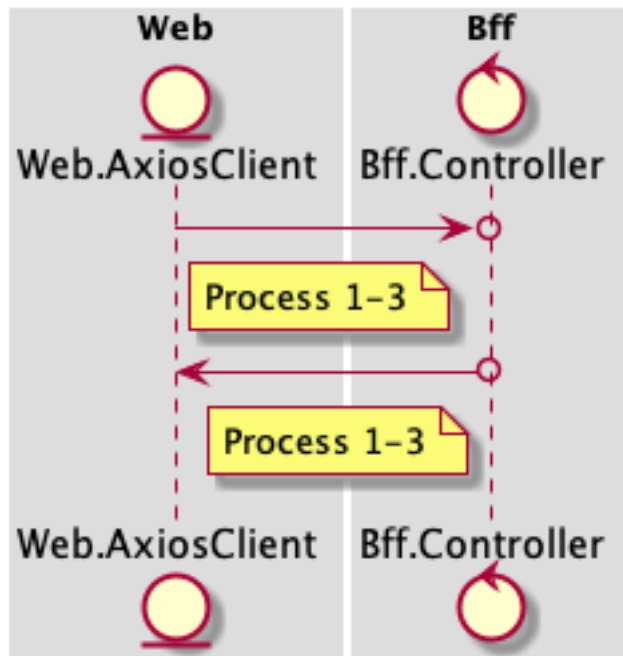
Flow 2-2 call bff api

- Complexity: SMALL - about 30 minutes

Processes

- Process 1-3 | Web.AxiosClient, depends on Fake<Bff.Controller>
> GET /shoppingCart Web.AxiosClient -> Fake<Bff.Controller> < 200
OK

Sequence Diagram



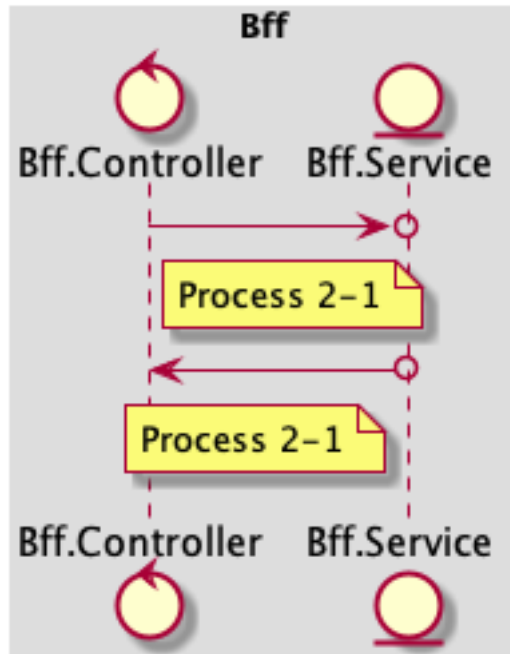
Flow 2-3 call service

- Complexity: SMALL - about 30 minutes

Processes

- **Process 2-1 | Bff.Controller**, depends on `Mock<Bff.Service>`
 retrieve user id from authentication header `Bff.Controller -> Mock<Bff.Service>`

Sequence Diagram



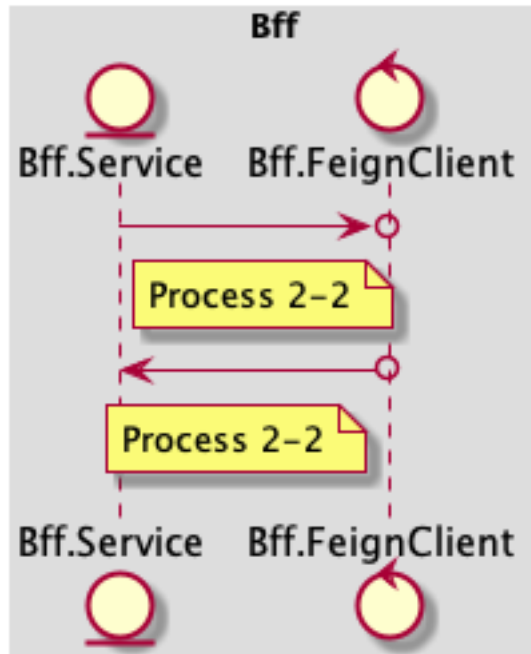
Flow 2-4 call feign client

- Complexity: SMALL - about 30 minutes

Processes

- Process 2-2 | Bff.Service, depends on Mock<Bff.FeignClient>

Sequence Diagram



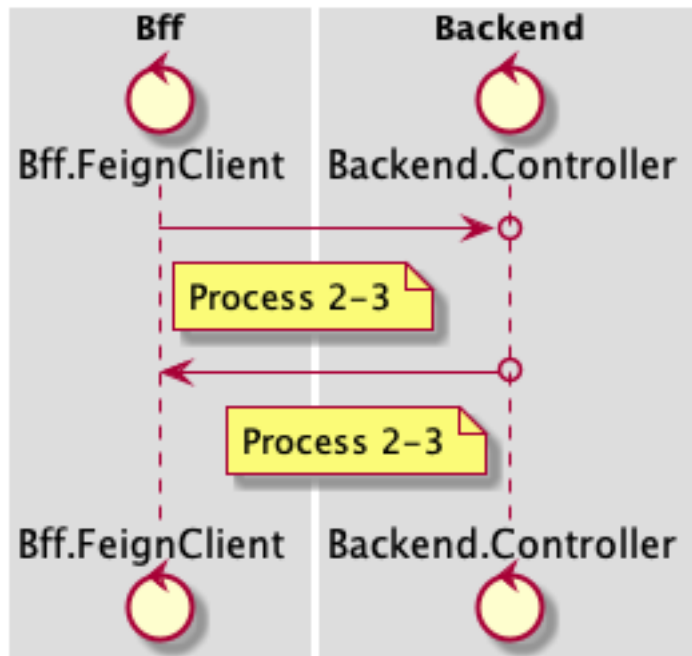
Flow 2-5 call backend api

- Complexity: SMALL - about 30 minutes

Processes

- Process 2-3 | Bff.FeignClient, depends on Fake<Backend.Controller>
> GET /shoppingCart Bff.FeignClient -> Fake<Backend.Controller> < 200 OK

Sequence Diagram



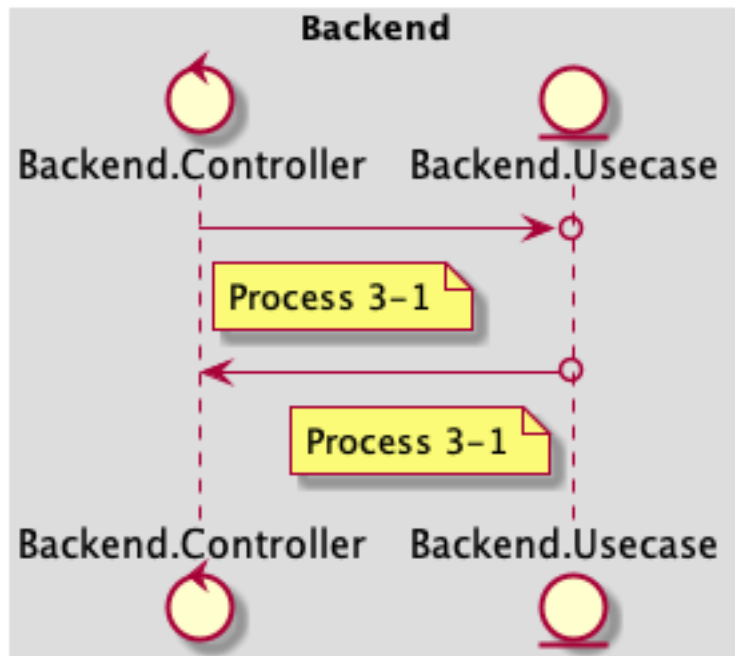
Flow 2-6 call usecase

- Complexity: SMALL - about 30 minutes

Processes

- Process 3-1 | Backend.Controller, depends on Mock<Backend.Usecase>
call usecase to find the shopping cart by user id *Backend.Controller -> Mock<Backend.Usecase>*

Sequence Diagram



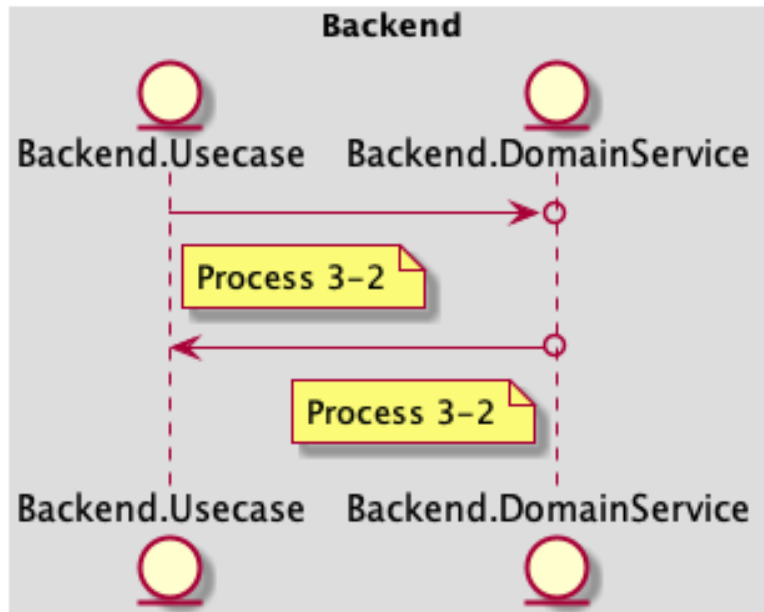
Flow 2-7 call domain service

- Complexity: SMALL - about 30 minutes

Processes

- Process 3-2 | Backend.Usecase, depends on Mock<Backend.DomainService>

Sequence Diagram



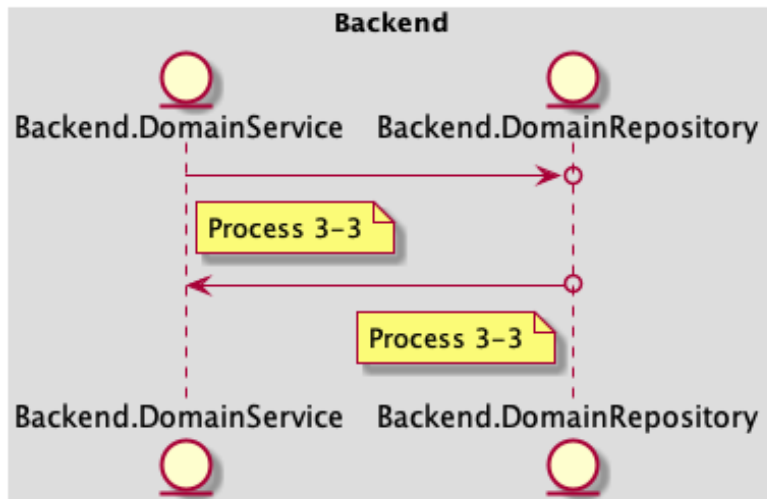
Flow 2-8 call domain repo

- Complexity: SMALL - about 30 minutes

Processes

- Process 3-3 | Backend.DomainService, depends on Mock<Backend.DomainRepository>

Sequence Diagram



Flow 2-9 call dao and client to collect data

- Complexity: SMALL - about 30 minutes

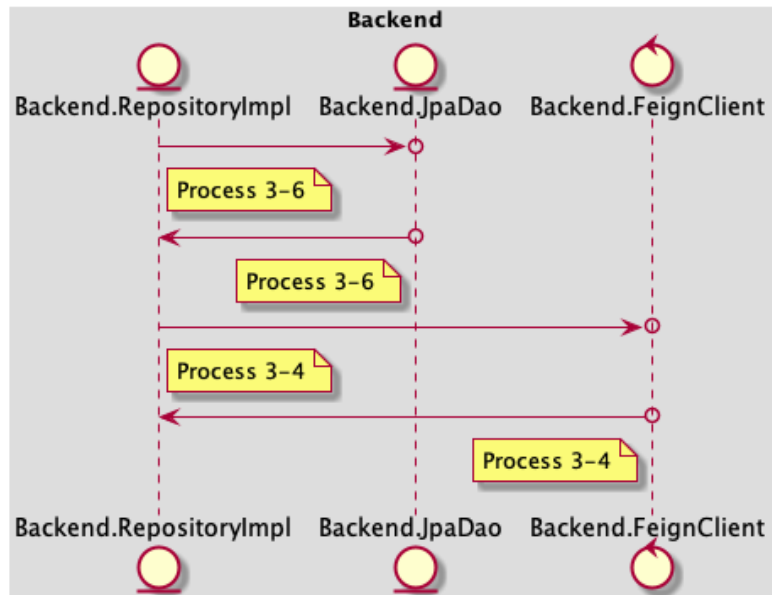
Processes

- Process 3-6 | `Backend.RepositoryImpl`, depends on `Mock<Backend.JpaDao>`
 implement domain repository and search shopping cart in db
 get shopping cart with product id

Backend.RepositoryImpl -> Mock<Backend.JpaDao>

- Process 3-4 | `Backend.RepositoryImpl`, depends on `Mock<Backend.FeignClient>`
 get product by id *Backend.RepositoryImpl -> Mock<Backend.FeignClient>*
 returns shopping cart

Sequence Diagram



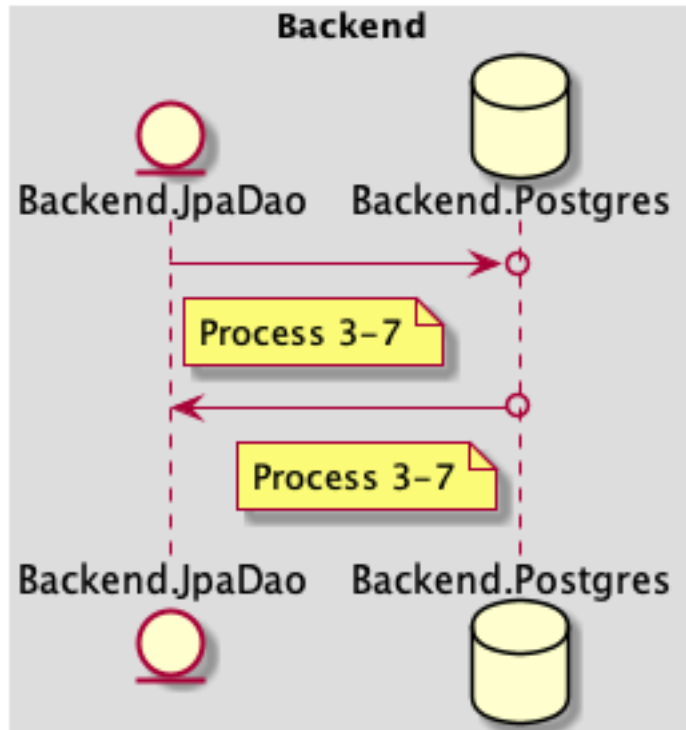
Flow 2-10 call db

- **Complexity:** SMALL - about 30 minutes

Processes

- **Process 3-7** | `Backend.JpaDao`, depends on `Mock<Backend.Postgres>`
 use h2 `Backend.JpaDao` -> `Mock<Backend.Postgres>`

Sequence Diagram



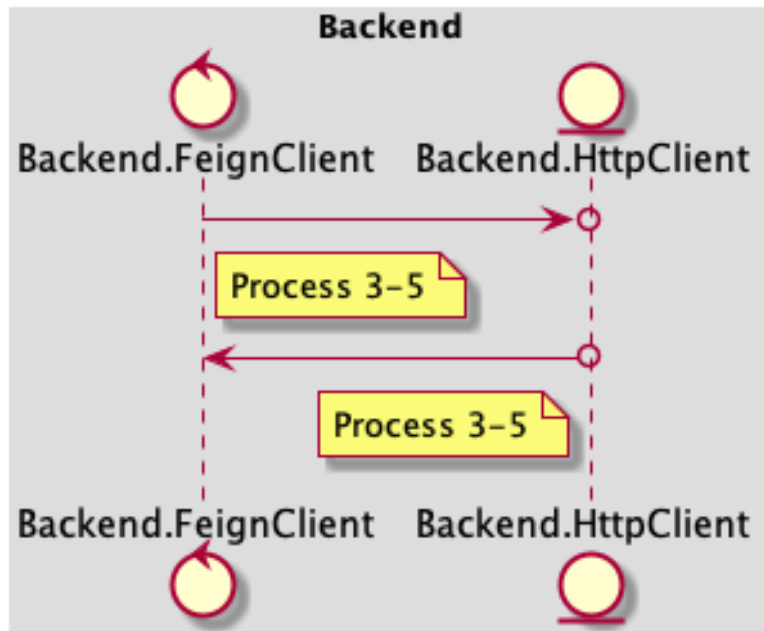
Flow 2-11 call api

- **Complexity:** SMALL - about 30 minutes

Processes

- **Process 3-5** | **Backend.FeignClient**, depends on **Mock<Backend.HttpClient>**
use Wiremock *Backend.FeignClient* -> *Mock<Backend.HttpClient>*

Sequence Diagram



AC 3

dsl demo

Mockup

Google



Links

- Google 1
- Google 2

Flow 3-1 nested calls

- **Complexity:** SMALL - about 30 minutes

Processes

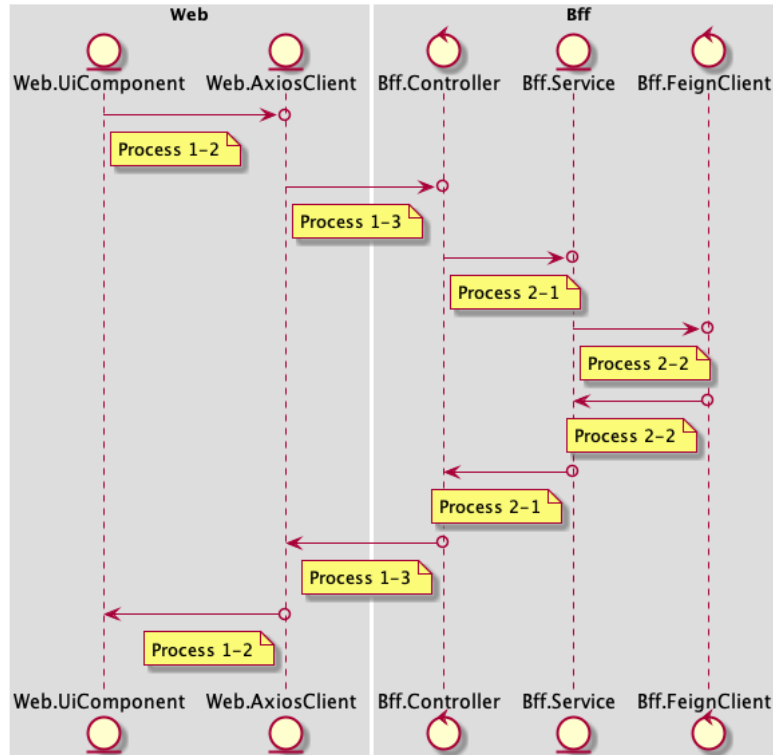
- **Process 1-2 | Web.UiComponent, depends on Mock<Web.AxiosClient>**
click *Web.UiComponent* -> *Mock<Web.AxiosClient>* send request

- **Process 1-3 | Web.AxiosClient, depends on Fake<Bff.Controller>**
> GET /go-google *Web.AxiosClient* -> *Fake<Bff.Controller>* < 200 OK

- **Process 2-1 | Bff.Controller, depends on Mock<Bff.Service>**
execute *Bff.Controller* -> *Mock<Bff.Service>*

- **Process 2-2 | Bff.Service, depends on Mock<Bff.FeignClient>** >
GET /go-google *Bff.Service* -> *Mock<Bff.FeignClient>* < 200 OK

Sequence Diagram



API Schema

Get ShoppingCart

GET /shoppingCart

- 200 OK
- 404 NOT_FOUND

Project Process Definition

Web

Process 1-1 | UiComponent => Real<UiComponent>

- Just import related ui component, testing with snapshot

Process 1-2 | UiComponent => Mock<AxiosClient>

- Mock axios client
- Call axios client, assert component state

Process 1-3 | AxiosClient => Fake<Bff.Controller>

- Fake api endpoint
- Call fake api, assert the response and error handling is correct

Bff

Process 2-1 | Controller => Mock<Service>

- Mock service
- Call service, verify the expected input parameters and assert the expected output return

Process 2-2 | Service => Mock<FeignClient>

- Mock feign client
- Call feign client, verify the expected input parameters and assert the expected output return

Process 2-3 | FeignClient => Fake<Backend.Controller>

- Setup endpoints in wiremock with fake payload
- Setup wiremock's url as base url
- Call upstream endpoints and verify the data object that formatted from json is expected

Backend

Process 3-1 | Controller => Mock<Usecase>

- Mock usecase
- Call usecase, verify the expected input parameters and assert the expected output return

Process 3-2 | Usecase => Mock<DomainService>

- Mock domain service
- Call domain service, verify the expected input parameters and assert the expected output return

Process 3-3 | DomainService => Mock<DomainRepository>

- Mock domain repository
- Call domain repository, verify the expected input parameters and assert the expected output return

Process 3-4 | RepositoryImpl => Mock<FeignClient>

- Mock feign client
- Call feign client, verify the expected input parameters and assert the expected output return

Process 3-5 | FeignClient => Mock<HttpClient>

- Fake http client (using wiremock)
- Call http client, stub the request and response and assert the expected response status and payload

Process 3-6 | RepositoryImpl => Mock<JpaDao>

- Mock jpa dao
- Call jpa dao, verify the expected input parameters and assert the expected output return

Process 3-7 | JpaDao => Mock<Postgres>

- Fake db (using h2 or docker)
- Call fake db, init some test data and assert the execution result set is expected