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ΣΕ ΣΥΝΕΡΓΑΣΙΑ ΜΕ

Fintech Java Project

Team 5 - G.A.D.A.

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Dimitris Fountoulis

Alexios Kotsampasis

With the kind contribution of Eleni Vasilaki.

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1. Introduction

1.1 Team

After some milliseconds of thinking, we decided to adopt the team nickname G.A.D.A. - inspired by ΓΑΔΑ (Γενική Αστυνομική Διεύθυνση Αττικής). How come? It's better to be left in the unknown.

Four strangers come together by a higher authority, with a common goal - to awe and inspire. Driven by laughs, music and last-minute anxiety.

Georgios Karypidis - The Java GOAT.

Alexander Kyriakou - The oldest of them all, at the peak age of twenty-nine. An anxious know-it all headache, who for some reason decided to steer the wheel.

Dimitris Fountoulis - The lieutenant of this team. I try to keep the balance between the members and the time for these projects.

Alexios Kotsampasis - The soldier of the team.The guy who chose to get vaccinated and has his postgraduate diploma ceremony, at the final week of the project.

High speed internet connection was our thread of communication. Each one of us aimed for shared experience and our aim was that everyone contributes to the development of the project in one way or another. Thanks to Google Meet and Messenger, we managed to accomplish the present magnum opus. Enjoy!

1.2 The future of electronic payments

A payments convergence is taking place, and it involves more than mere banking channels.

Emerging technologies are bridging banks to social networks and setting the stage for cross-continent payments rails. Those bridges also are opening doors for connections between merchants and telcos, and are bringing unbanked consumers closer to more traditional financial services.

Payments are quickly migrating from paper to electronic format, which is setting the stage for new financial products and services that cater to the unbanked. The problem, for banks and credit unions, is that electronic payments also create opportunities for non-traditional financial-service providers, and that means more competition.

The so-called electronification of payments and the entrance of new payment providers have made payments globally more efficient, but they also have introduced new security risks.

New banking providers are coming to Greece, see **TBI bank** for example, and the unification of all European digital transactions is unavoidable. Instant Payments for participating banks

in EU within Single Euro Payments Area (**SEPA**) are some small sights on what the future of ebanking holds for the customer of tomorrow. Will it be through stablecoins (cryptocurrencies) or some other blockchain magic? We decide.

2. Diagrams

In Unified Modeling Language (**UML**), object diagrams provide a snapshot of the instances in a system and the relationships between the instances. By instantiating the model elements in a class diagram, you can explore the behaviour of a system at a point in time.

The first diagram shows how the current business flow of the Payment system runs.

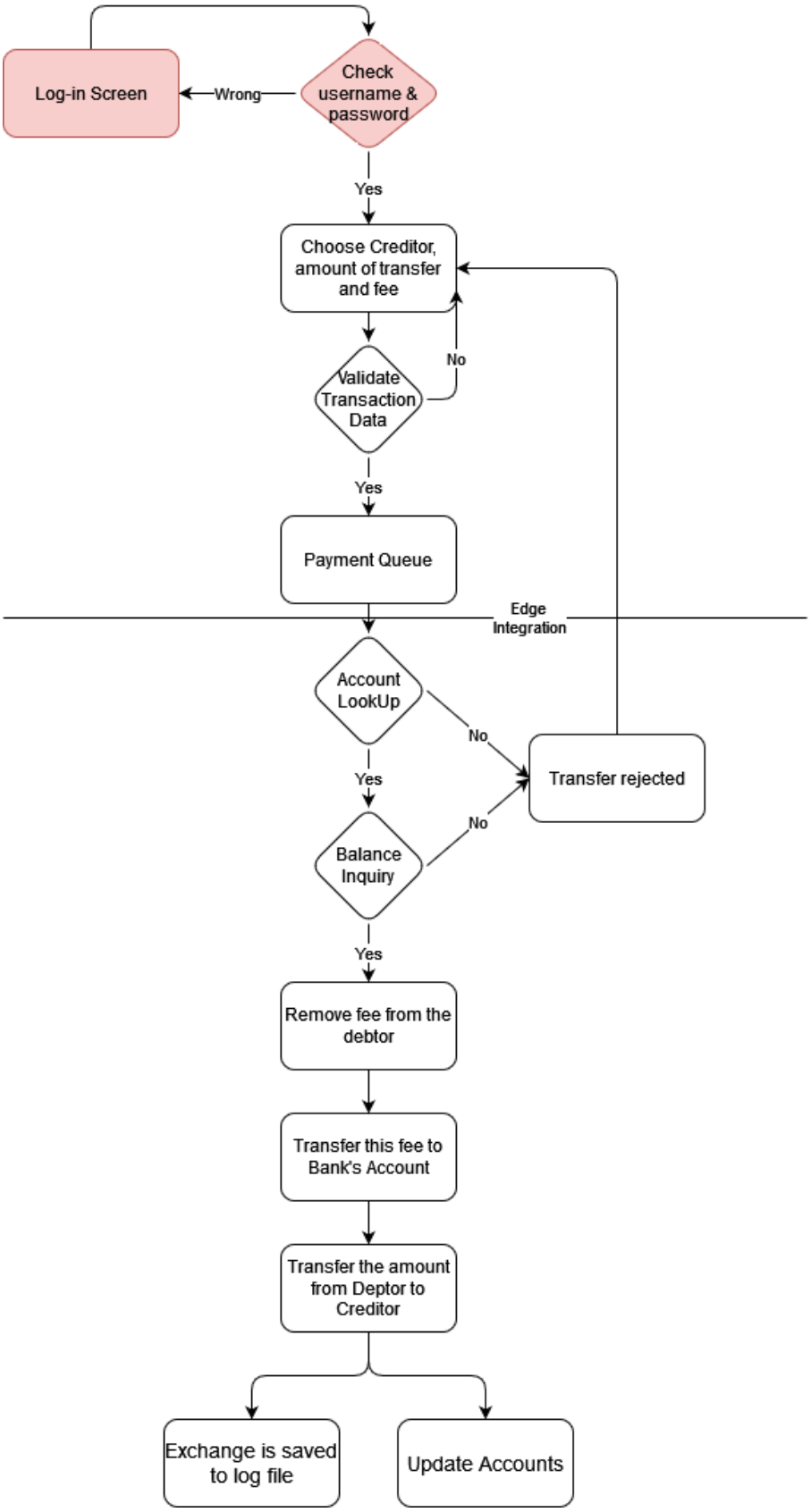
- The system starts with the debtor choosing the creditor account and the amount for the transfer.
- After this we applied the fee for the bank.
- Checked the validity of the transcription.
- Put the request into the Payment queue.
- Then the system checked the accounts and the balance for the debtor.
- Under the condition that all checks verify that the program runs as planned, the system transfers the fee from debtor to the bank's account.
- After this, the amount of the transaction which is removed from the debtor is deposited to the creditor.
- Then, the system updates the accounts and saves the exchange to a log file.

The second diagram shows how the business flow of the improved Payment system runs.

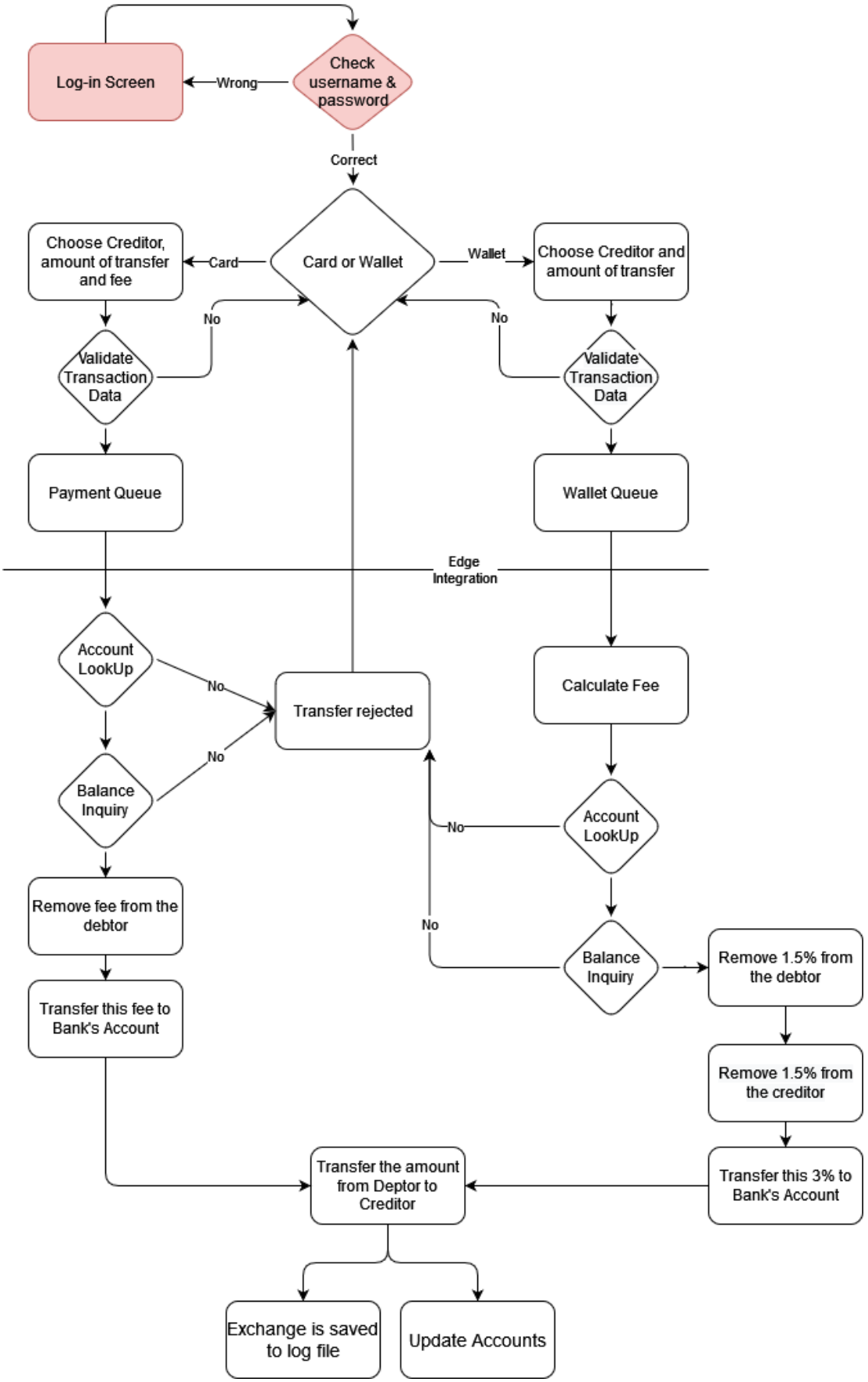
- The first step requires the debtor to choose between card or wallet method.
- After this, the debtor chooses the creditor account and the amount for the transfer.
- If the debtor chose the card method look at the first diagram.Otherwise, the system follows this flow.
- Checked the validity of the transcription.
- Put the request into the Wallet queue.
- The system calculates the fee for the bank.
- Then the system checked the accounts and the balance for the debtor.
- Under the condition that all checks verify that the program runs as planned, the system transfers the fee from debtor and creditor (1.5% respectively) to the bank's account.
- After this, the amount of the transaction which is removed from the debtor is deposited to the creditor.
- Then, the system updates the accounts and saves the exchange to a log file.

We didn't program the Red shapes but we decided to add them into the diagram after the Security lesson with Mr. Dimitris Iracleus and because with these steps the system will be more practical. Thanks to Eleni Vasilaki we had the opportunity to get familiar with diagrams.net, which was used to create the below diagrams representing our Fintech project.

2.1 Card payment



2.2 Card & eWallet payment



2.3 Postman

http://localhost:8080/api/feeder

Card payment in Postman

POST http://localhost:8080/api/feeder

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

```
{
    "cid":"CU001",
    "creditorName":"Thomas Thomaidis",
    "creditorIBAN":"GR44025635700006",
    "debtorName":"Dimitris Iraklis",
    "debtorIBAN":"GR74813235701234",
    "paymentAmount": "10.00",
    "valueDate": "20211219",
    "paymentCurrency": "EUR",
    "feeAmount":"3.00",
    "feeCurrency":"EUR"
}
```

Body Cookies Headers (5) Test Results Status: 200 OK

Pretty Raw Preview Visualize JSON

```
true
```

http://localhost:8080/api/wallet/feeder

eWallet payment in Postman

POST http://localhost:8080/api/wallet/feeder

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

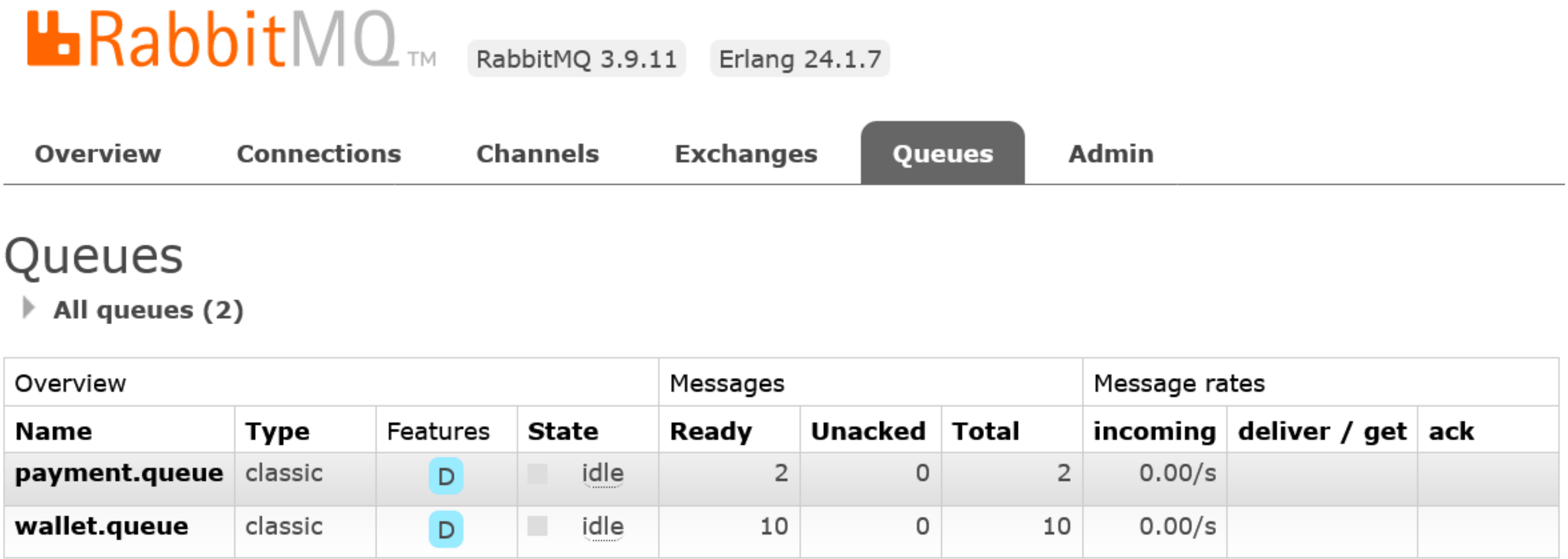
```
{
    "cid":"CU001",
    "creditorName":"Thomas Thomaidis",
    "creditorIBAN":"GR44025635700006",
    "debtorName":"Dimitris Iraklis",
    "debtorIBAN":"GR74813235701234",
    "paymentAmount": "10.00",
    "valueDate": "20211219",
    "paymentCurrency": "EUR"
}
```

Body Cookies Headers (5) Test Results Status: 200 OK

Pretty Raw Preview Visualize JSON

```
true
```

2.4 RabbitMQ



2.5 Log file

```
Debtor Dimitris Iraklis with IBAN GR74813235701234 paid creditor Thomas Thomaidis with IBAN GR44025635700006 with TYPE wallet the amount of 10.00(EUR).The fee was 0.30(EUR).
Debtor Dimitris Iraklis with IBAN GR74813235701234 paid creditor Thomas Thomaidis with IBAN GR44025635700006 with TYPE wallet the amount of 10.00(EUR).The fee was 0.30(EUR).
Debtor Dimitris Iraklis with IBAN GR74813235701234 paid creditor Thomas Thomaidis with IBAN GR44025635700006 with TYPE wallet the amount of 10.00(EUR).The fee was 0.30(EUR).
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```

3. Conclusion

The present project was somehow challenging for most of us, but thanks to good teamwork, Google and Eleni (♥) we managed to overcome, successfully as it seems, any knowledge gap in our possession, and bring it into fruition.

We learned,

- What Spring is.
- The magic tool that is called IntelliJ.
- How, with enough time in your hands, you can create unicorns.
- Good teamwork always wins!

It was a pleasant journey overall, thank you everyone.

4. Q & A

Thank you for your attention!

Any questions?

(please don't)