MIDDLE EAST TECHNICAL UNIVERSTIY

DEPARTMENT OF COMPUTER ENGINEERING

SUMMER PRACTICE REPORT

CENG 300

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END DATE: 30.08.2022

TOTAL WORKING DAYS: 31

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1. INTRODUCTION

In X-Gen Partners, I worked in a Real Time Payment Engine Project.
This project is being used in CESKA bank, and makes transactions.
During my 31 days of internship, I have had the opportunity to analyze a massive software and system on which a big bank stands.
And I have been able to practice some technologies and languages,
such as SQL, and working on remote linux machines.

2. INFORMATION ABOUT PROJECT
2.1. RTPE-CSAS
This is a software project being used on **CESKA** bank. **RTPE** stands for
Real Time Payment Engine, and every bank has an **RTPE** running in
the background, and this is the system that organizes almost every transaction, message transfer, and so on.

RTPE-CSAS is not the only **RTPE** project around the world, nor the only
RTPE project being developed by **valantic**. Indeed, there is a core part
for the **RTPE** project, and it is modified with according to the each
bank's needs. There is a team for the core project and a dedicated
team for each bank. The banks' needs constantly changes, and thus
The project constantly evolves, and needs to be up to date.ö

The software has two versions. **Development** version, and the **release** version. A new version of the project has being released every
two week, with some exceptions. Sometimes, if there isn't enough
Changes, a new version does not get released.

This software is such a complex task, and its task is such critical that,
valantic has its own software to develop the **RTPE**, and their own
softwares,that the **RTPE** runs on. The main software is called **X-Gen**,
And the software for building **X-Gen** projects is called the
X-Gen Rule Designer. This is such an important project that there
Is also a team dedicated for developing this software.

2.2. X-Gen

   X-Gen is a project written in mostly **Java** and **C++**.
X-Gen runtime runs the projects written with **X-Gen Rule Designer**.
X-Gen Rule Designer is a graphical tool that is used for building
Real Time Payment Engine projects. As far as I have observed,
X-Gen can be used for other types of areas other that financial systems.
But it has been specialized such that it works in harmony with almost
every communication system that banks are using. Thus, it is very
suitable and easy to build a **RTPE**, using **X-Gen** and its tools.
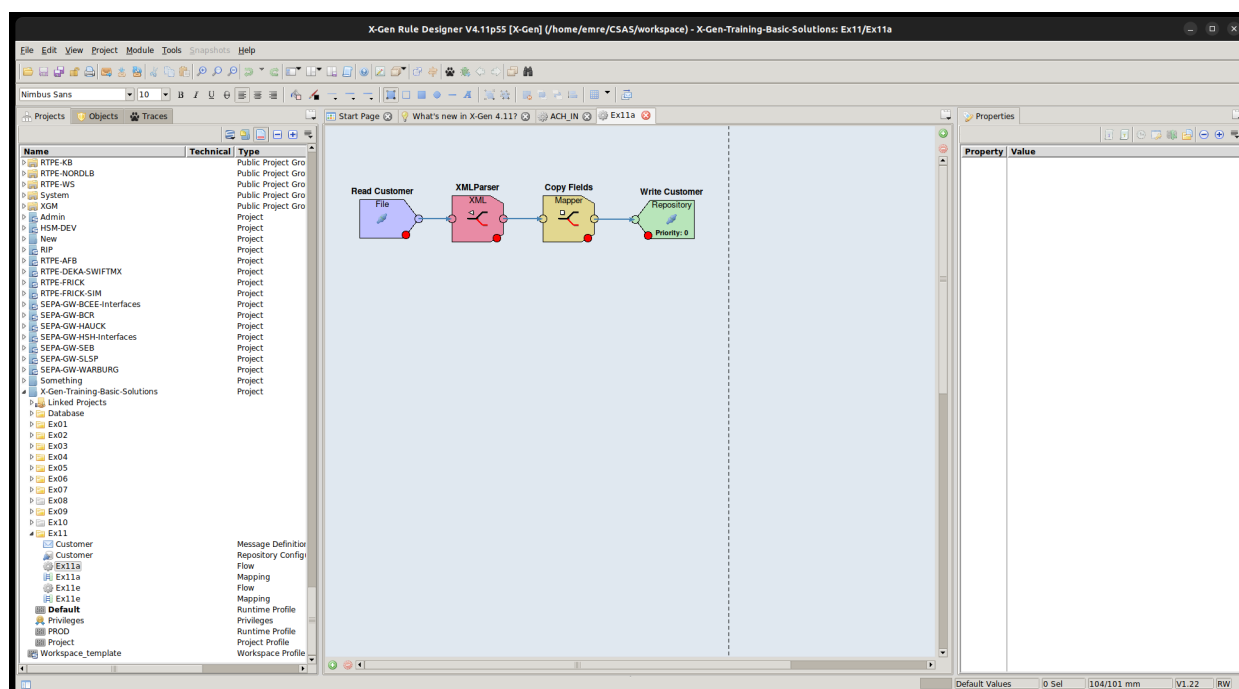
Figure 1: A screenshot from X-Gen Rule Designer

An **X-Gen Project** consists of flows. A flow consist of basically 5 parts.

1. Input: Input is being get using a source adapter. A source could
Be a file, a database, a email service, or any other communication
protocol used by banks.

2: Parsing: The message brought by the source adapter is converted
to X-Gen internal representation, so that it can be processed by X-Gen.

3: Mapping: In this part, all the business logic is applied. There are
lots and lots of operators such as basic operators like addition,
Multiplication; to string operations, splitting; time operators, random
number generators etc. Here, the input fields are mapped into the
output fields.

4: Building: Processed message is converted into the message type,
to be sent to wherever it will go.

5: Output: Processed and converted message is finally directed to
the destination.

There are a lot to configure within these parts. Even if this 5-part

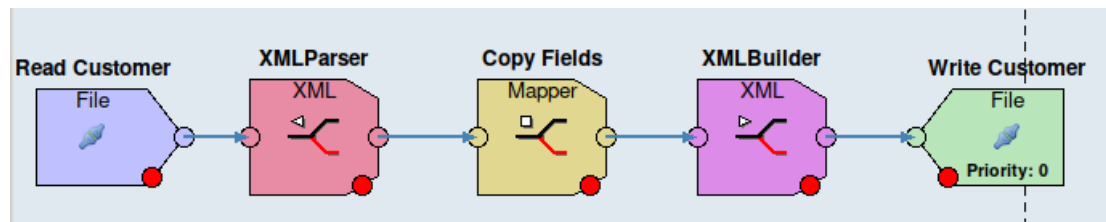design seems trivial, real projects get much more complex.

Figure 2: An example 5-part flow

3. ORGANIZATION

The organization uses a ticket system during the development, for several purposes. There is a ticket for every issue, and every engineer logs its working time into the specific issue. A ticket can be of various type. These types can be, implementation, testing, Documentation, debugging etc..
For the communication, the company uses Microsoft Teams and email services.
Meetings are done in Teams, messages and communication is done
through Teams, scheduling is done through teams, file sharing is done
through Teams. Microsoft Teams has an important place in the communication
Organization.

4. CONCLUSION

In conclusion, valantic is a big company, and such a big company uses advanced softwares for the communication between the colleagues and for job sharing. And since the customers are also big
banks, there should be no place for errors. To provide such an insurance, they have built their own software and tools just to be used on their own business area.