Cover Page
Project Report

“B2B e-commerce platform for internal local trade” **Shumeiko Lyubov**

ABSTRACT

Today's trading and e-commerce platforms aim to streamline communication within markets. However, search algorithm optimization prioritizes competition based on the lowest price, creating fierce challenges for small businesses and often pushing customers towards "first-link" options. Additionally, these platforms primarily cater to the buyer side, neglecting broader communication needs within the market. This work explores two innovative solutions to address these limitations.

1. Enhanced Preference Aggregation and Visualization: This solution reimagines how user preferences are collected and presented, allowing for more nuanced and accurate matching between buyers and sellers.

2. Comprehensive Communication Software: This solution provides software tools specifically designed to facilitate diverse communication across various business aspects and stages, fostering deeper interaction and collaboration.

INTRODUCTION

3.1 Purpose

The purpose of that research is to discover how additional features of searchings change the usability of e-commerce platform, concentrated on the non-limit ability of the B2B segment on the market of internal local trade oriented for small farms and individual entrepreneurs.

3.2 Background

The market of b2b services and products are too widely represented, so let's vue their main daily activities and needs through their main roles on the market:

Sellers	Buyers
Investors	Issuers

Sellers / Buyers interaction
Direct sales: Direct interaction between the supplier and the buyer. Resellers: Distributors, wholesale companies, sales agents. Electronic trading platforms: B2B platforms, exchanges, auctions

Investors / Issuers
1. Exchanges: Stock: buying and selling shares of companies. Currency: currency exchange. Commodity: purchase and sale of goods (oil, gas, metals). 2. Brokers: Providing investors with access to the market: Execution of trade orders. Analytics and consultations. 3. Investment companies: Investment management in the interests of investors: Mutual funds (mutual funds). Trust management. 4. Direct investments: Investing in companies directly:

Purchase of a share in the authorized capital.
Venture capital investments.
5. Crowdfunding:

Attracting investments from a wide range of people:
Investment platforms.
Crowdfunding.
6. Government programs:

Provision of investment subsidies and benefits:
State investment programs.
Investment grants.
7. Self-investing:
Purchase of securities on the stock exchange:
Individual investment accounts.
Forex trading.

What challenges do they face?	
Sellers	Buyers
- mainly price oriented approach - brand or site- sensitivity - high competitions - expenses to distributors	- narrow possibilities to change the all conditions of the deal - long-communication response - expenses to distributors - high level of responsibilities
Investors	Initiators
- non-control over the situation - long-communication response - expenses to distributors	- high competitions - long-communication response - expenses to distributors

Sellers	Buyers
- wider line for marketing - access to potential buyers	- additional choice - closer and cheaper
Investors	Initiators

- direct control over particular projects, not a company -	- extension programs - testify models - beginners projects - partnership and cooperation

Motivation

Statement of the problem (**Problem E1**)	Why these important the users	Description of the features ? How they Solve problem (**Solution**)
the problem of using similar features by 2 or more different platforms	saves time	Crowdfunding and e commerce platfor one source
Possibility to use		
Hight level of competition	understanding of currently your position possibility to interact with surroundings	Geposition in search That can add a geolocation parameter to the search query to allow users to search for important problems in their area
List of databases are too strict, not allows to see more possibilities	Possibility to be seen	Map- visualization type You can also use overlays to show additional information, such as the severity of the problem or the source of the data.

4.Structure of the document

Main Chapters

1) Cover Page
2) Abstract
3) Introduction
4) Analysis

5) Design
6) Lesson Learned
7) Conclusion
8) References

Inner Structure

Introduction

1)Purpose
2) Background
3) Motivation
4) Structure of the document

Analysis

1 Functional requirements
2 Non Functional requirements in Volere template
3 Domain model in uml class diagram

Design

1. System structure
2. System interaction and behavior
3 System Deployment

4. Analysis

1.Functional requirements

Description Of The System functionalities

Account creation: Allow users to create accounts with optional fields for delivery address and preferred store locations based on geoposition
System settings: allows to manipulate all settings in a proper way. Enable users to set preferred delivery zone and receive notifications for products/services available within that zone.
Wishlist: Allow users to save products to their wishlists, with inventory availability shown based on their preferred location and form of project or deal.
Messenger: availability to receive and sent messages
Product/Services Listing: Ability to add, edit, and manage product information, including descriptions, images, variations, and SKUs.
Inventory Management: Real-time inventory tracking and updates to prevent mistakes.
Product Categories and Filters: Allow users to browse and search for products easily using categories, filters, and search functions
Route optimization: Calculate and display the most efficient delivery route based on user location and chosen products/services.
System of Visualisation and Location: Interactive map: Integrate a map that displays product/service availability, physical store locations, and delivery zones.
Information networking: Access to your nearest neighbors
Access to platform with 4 separate role: a buyer, a seller, a investor, a finder

2. Description Of The System users and their functionalities

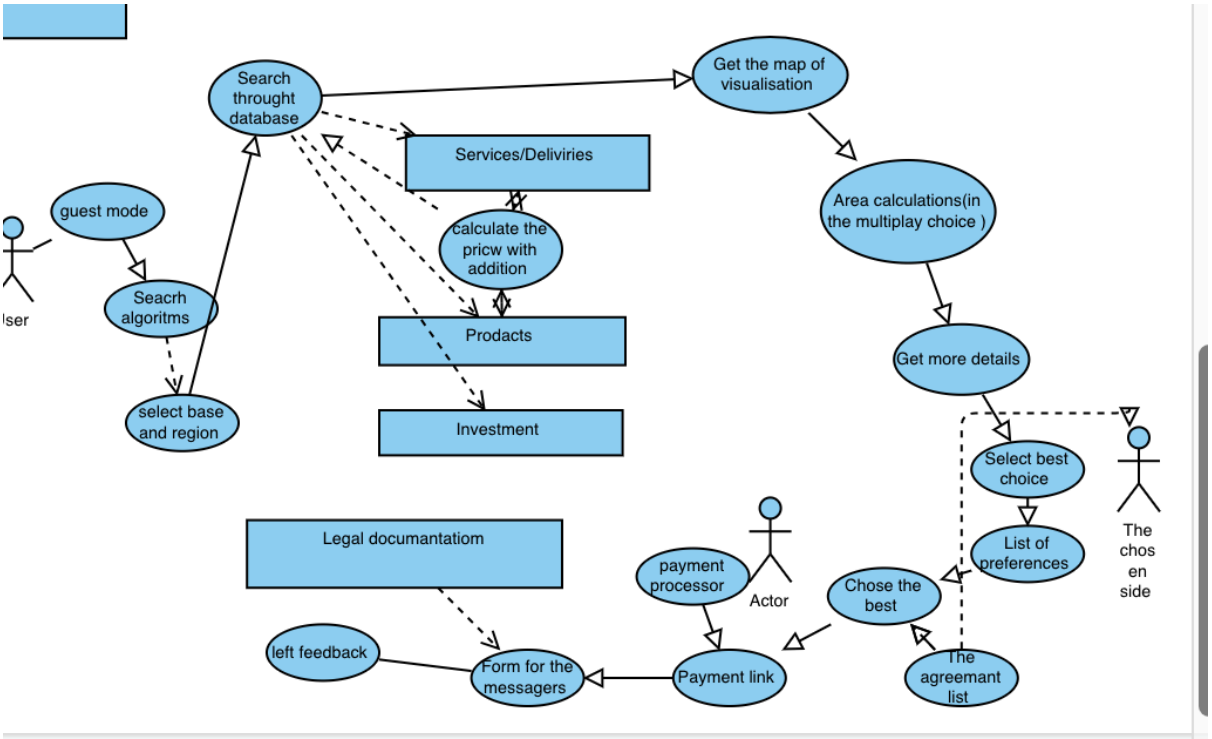
Requirement	*Why are they involved?*	What it achieves	Difference	*How does it affect relationships between users ?*
Search through database	Allows users to find specific information efficiently	Represented a database of byers sellers investors and possible projects with all related information	More efficient than manual browsing, personalized results possible	Provide other possibility to understand what are the purposes of communicatio n
Get the map of visualization	Creates visual representatio ns of data for clearer understanding the region and the price	Get the response in the map way on the wich are located tags with the prices	Makes complex data easier to grasp, identifies patterns and trends	Allows to communicate business in the closure distances Allows small projects to be seen
Services/Deliv eries	Allows in the particular case (if the services itself not a results) to calculate the ending price of the deal	Represents as an algorithm that on parameters of search calculate through the distances of the price of delivery or independency of volume as the price of service	Improves efficiency, clerability	Saves time and effort, aids in planning and estimation
Investment	Allows to	It represented	No difference	Allows to be

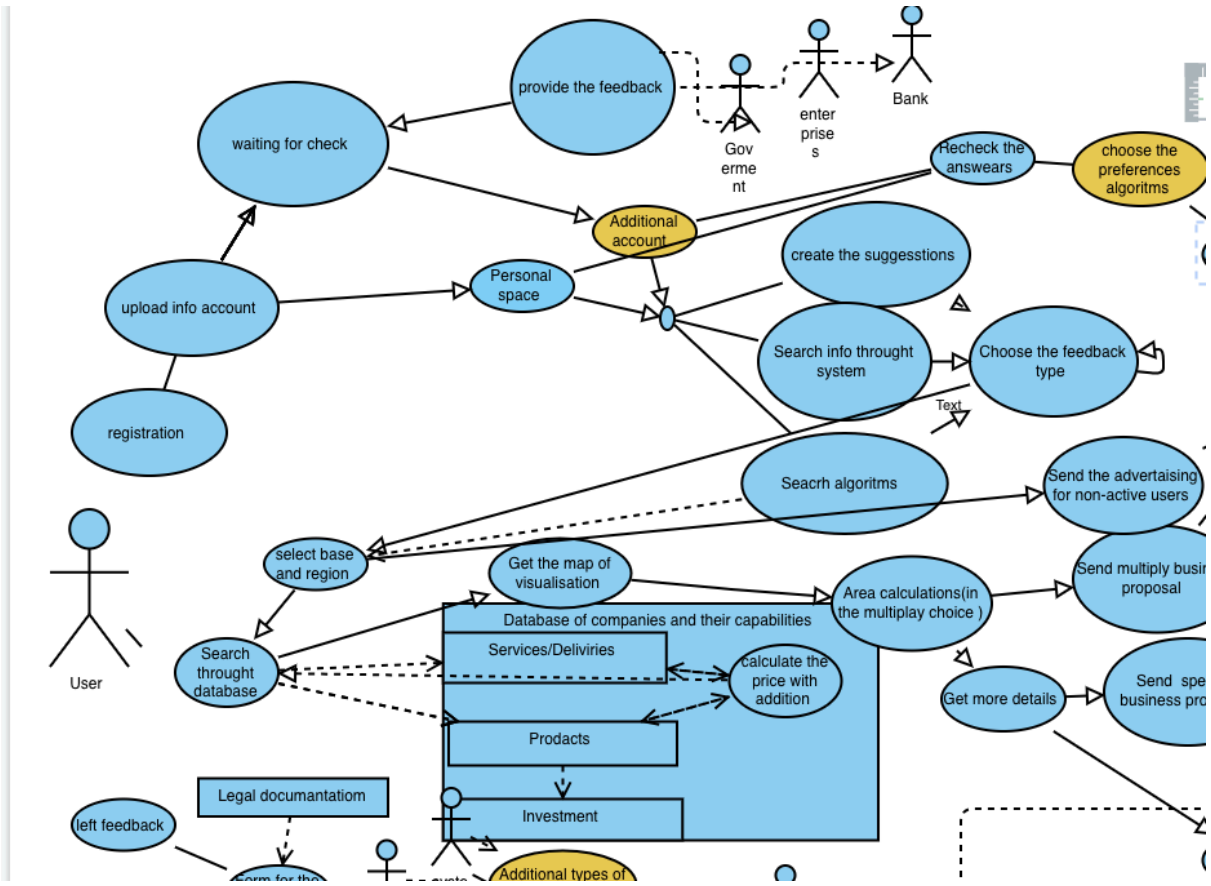
Requirement	*Why are they involved?*	What it achieves	Difference	*How does it affect relationships between users ?*
/project part Crowdlending	support small project with a little price and the height control availability Allows to search new Investments on the wider platform oriented not only for Crown landing	as a regular product with the standard specification there are objects the price etc, but with a special pirate on the system	it's only them multiplication of functionality	the communicatio n and relationship between Enterprises be more wider and specific
Legal documentatio n	Allows not to worry about legal part and in the cases of not succeed relationship to protect the interest by the force	Provides legal terms and conditions Provides as a possibility for enterprises to Share all needed documentatio n	Protects users, clarifies responsibilitie s, ensures compliance	Get relationship more stability and organized
Payment processing	The possibility to comfortably paying online via Bank	Standart online payment	Simplifies payments, reduces manual effort, improves cash flow	-

Requirement	*Why are they involved?*	What it achieves	Difference	*How does it affect relationships between users ?*
Leave feedback		Enables users to provide input and suggestions	Improves user experience, identifies issues, drives product development	
Messenger form	To be aware of all new information and actions that are happened	Collects all needed information and send to users	Simplifies communication, organizes data, ensures accountability	

3. Specific requirements

Use Case Diagram




provide the feedback
Gov erme nt
enter prise s
Bank
waiting for check
Recheck the answears
choose the preferences algoritms
Additional account
create the suggesstions
upload info account
Personal space
Search info throught system
Choose the feedback type
Text
registration
Seacrh algoritms
Send the advertaising for non-active users
User
select base and region
Get the map of visualisation
Area calculations(in the multiplay choice)
Send multiply busi proposal
Database of companies and their capabilities
Services/Deliviries
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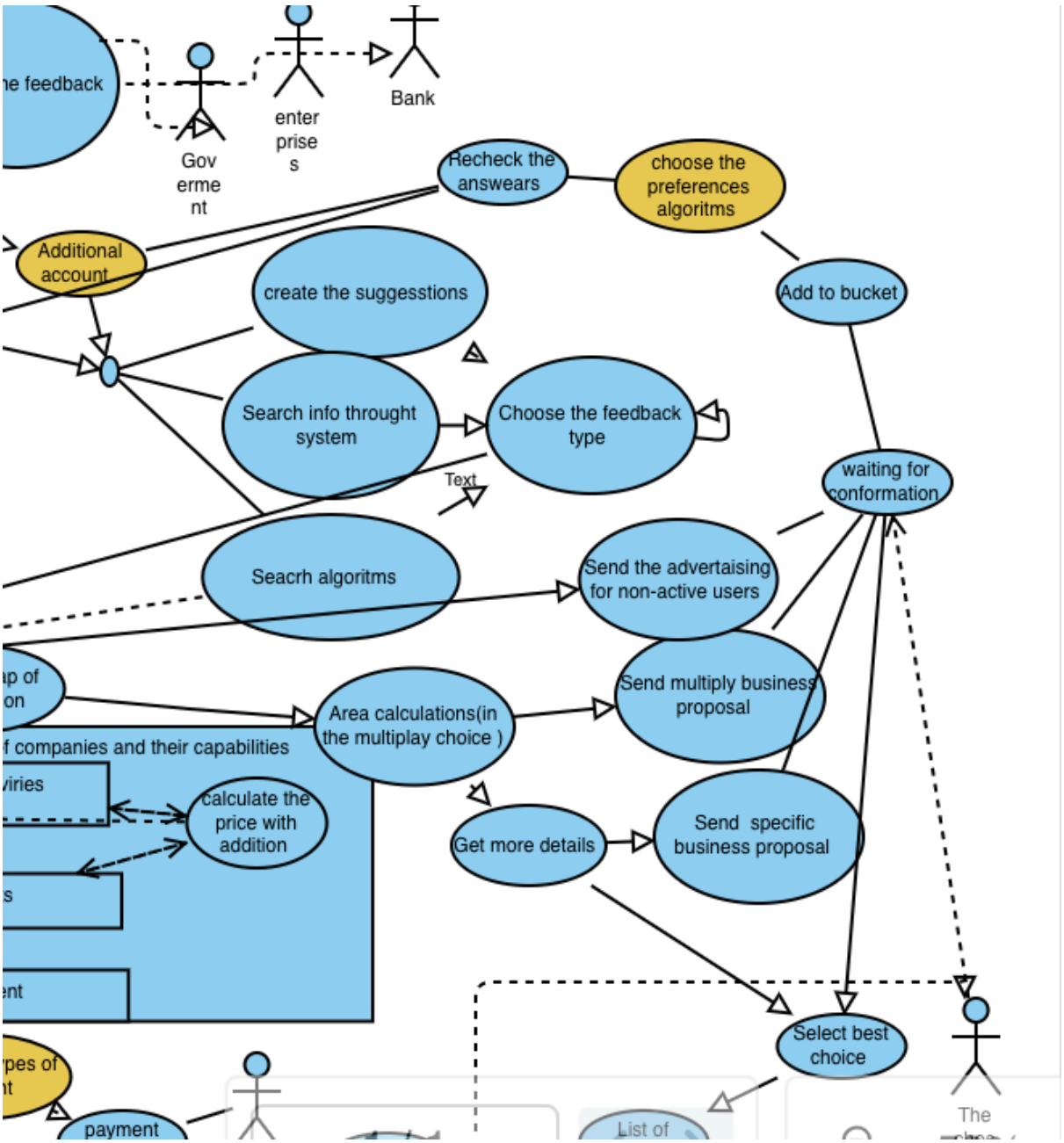
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choose the
preferences
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Additional
account
create the suggesstions
Add to bucket
Search info throught
system
Choose the feedback
type
Text
waiting for
conformation
Seacrh algoritms
Send the advertaising
for non-active users
Area calculations(in
the multiplay choice)
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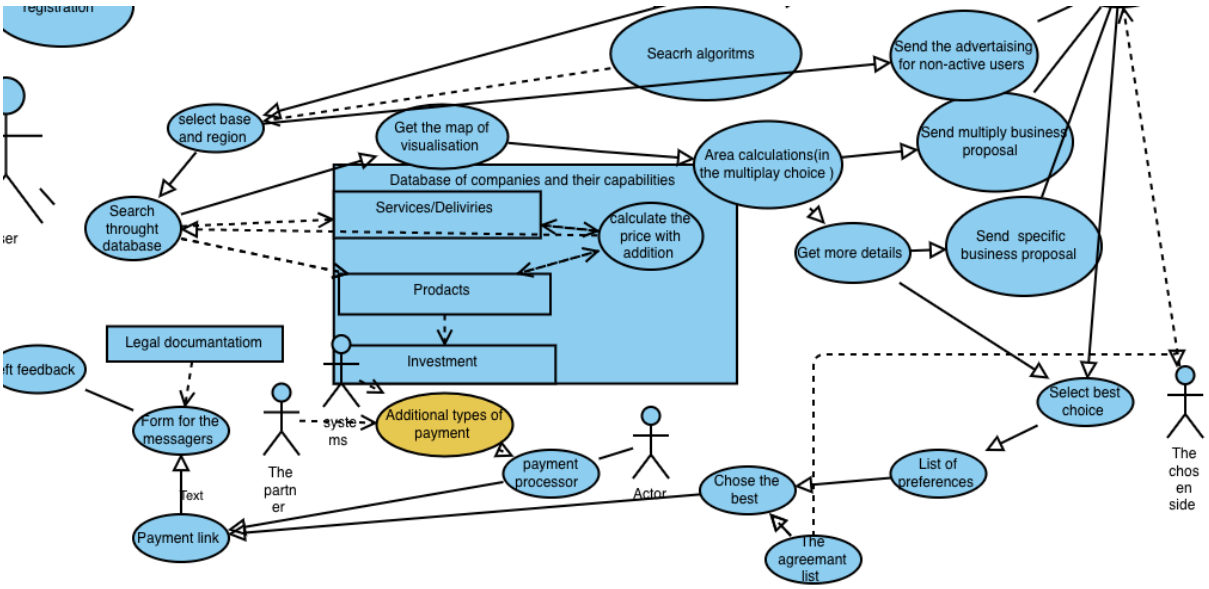


Priority list		
use case (For buyers, investor and guest users)	*priority*	*rational*
bucket	*No Errors at the bucket (1)*	- *buyer's already paid money and want to receive and keep their waitings at the system*
payment	*Security payment (2)*	- *Confidentiality and security as the basic of interaction*
Choice of the market	*As much variance as possible(3)* *Good visualization (4)*	- *All instruments that helps to rightly decide and easy decide what is the best option*
Price		
use case 2 (projects editors or issuers)	*priority*	*rational*
bucket	*No Errors at the bucket (1)*	- *issuers as s buyer's already involved and want to receive and keep their waitings at the system*
Communication	*Clear and Fast response (2)*	- *Opportunity to involve as much as more possible investors and buyers*
Access to database of	*As much as possible free information (3)*	- *Opportunity to involve as much as more possible investors and buyers*

enterprises		

Use Case Specifications

Use case descriptions

Use Case; Registration	
Related.	
Steps *0. access* *1 Settings of personal space* *2 Log in* *3 Credential Verification*	*Actions* *1 Give a confirm for registration or choose against mode* *2 Login or registration* *3 Get a confirm for personal data and provide information for administrations* *4 Check the settings of personal space*

Use Case;Seacrch	
Related	
Steps *1, access to market* *2. Parameters of search* *3. Using the algorithm and get visualization* *4 Get specific details*	*Actions* User chooses an area for detailed search. 1. User clicks "Search for all areas" to see results across all regions. 2. Choose or add the parameters of search 3. User clicks on a specific Enterprise to view details. 4. User clicks a button to return to search parameters. 5. User can return to their personal space at any time.

Use Case; Request	
Related.	
Steps 0.	Actions 1. User clicks on "More details" for a specific Enterprise. 2. User selects "Request information" from the options. 3. User can send a message or upload a document. 4. User chooses recipients individually or through filters (by area or area and price).

	5. User sends the message. 6. User can always go back to their personal space.

Use Case; Payment	
Related	
Steps 1 Get the link 2 Go to the platform 3 The platform give a confirm 4 The options to choose 5 The system provide documentation	*Actions* User enters the payment source. 1. If payment is not confirmed, the system saves the results and informs the user. 2. User can return to the payment source or go back to their personal space. 3. User can access help options if needed

2 Non Functional requirements in Volere template

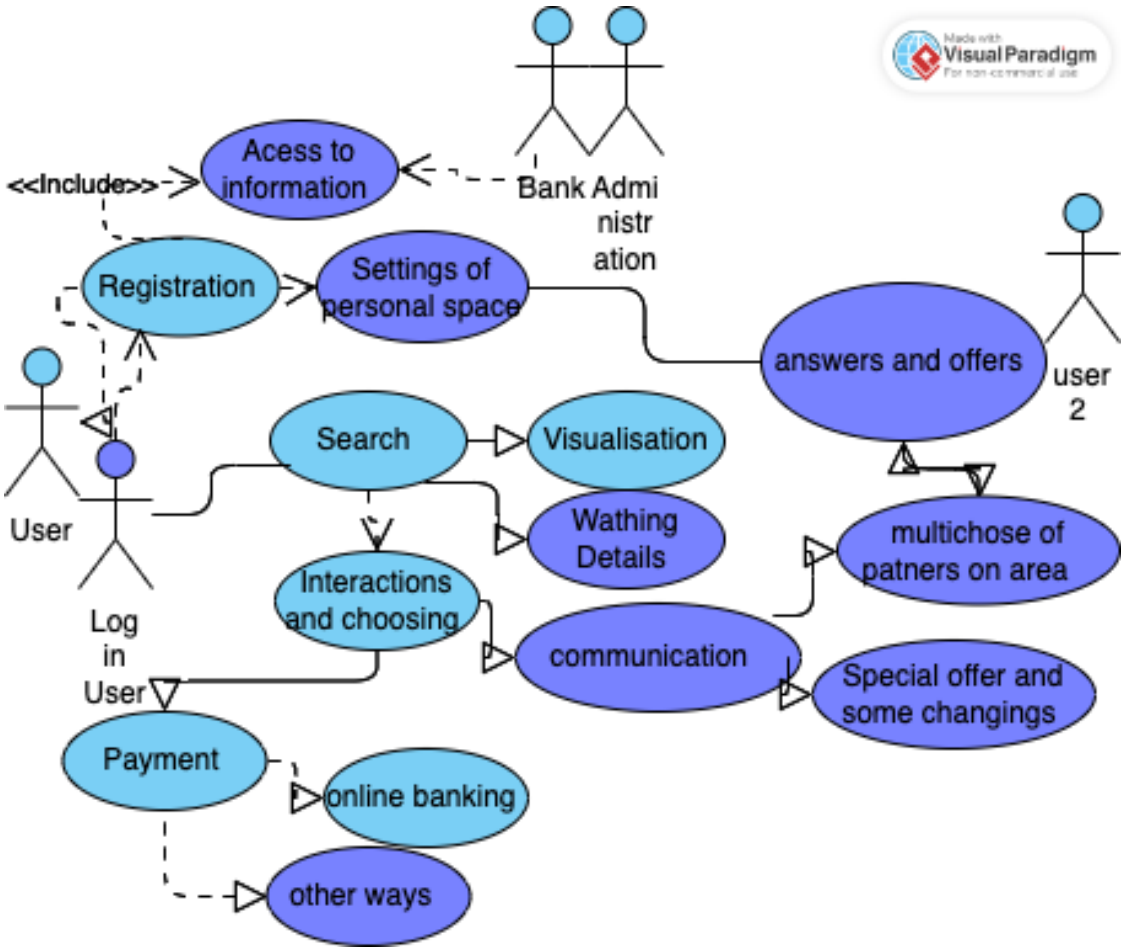
Requirements	Unique ID 1	Requirement type	Event use case
Description	The platform must be available 99.5% of the time during business hours (8 AM - 5 PM PST), and 99% outside business hours.		
Rationale	Ensure reliable access for critical communication and transactions.		
Source	The customer experience because failing platform can give a lot of negative experience		
Fit criteria	Availability . Through Time testify as a platform three times every hour during business hours		
Customer satisfaction 6		Customer dissatisfaction 6	
History		Supporting materials	

Requirements	Unique ID 2	Requirement type: Security	Event: Each use case
Description	All user data, including personal information, business details, and transaction data, must be encrypted at rest and in transit using industry-standard protocols.		

	a) Each step that goes through system process must be change with n4 code b) physical excess to servers must be available c) all data located in ‘main’ database must be unpersonalaized
Rationale	Protect sensitive data from unauthorized access or breaches Nobody gives to the platform access to their payment accounts and business history with no insurance that it protected
Source	government policy
Fit criteria	- app that helps to testify security (testify.ai) - after location to the server it is secured by coding extanchion

Customer satisfaction 8	Customer dissatisfaction 10
History	Supporting materials

3. Domain model in uml class diagram


Acess to information
<<Include>>
Bank Administration
Registration
Settings of personal space
answers and offers
user 2
User
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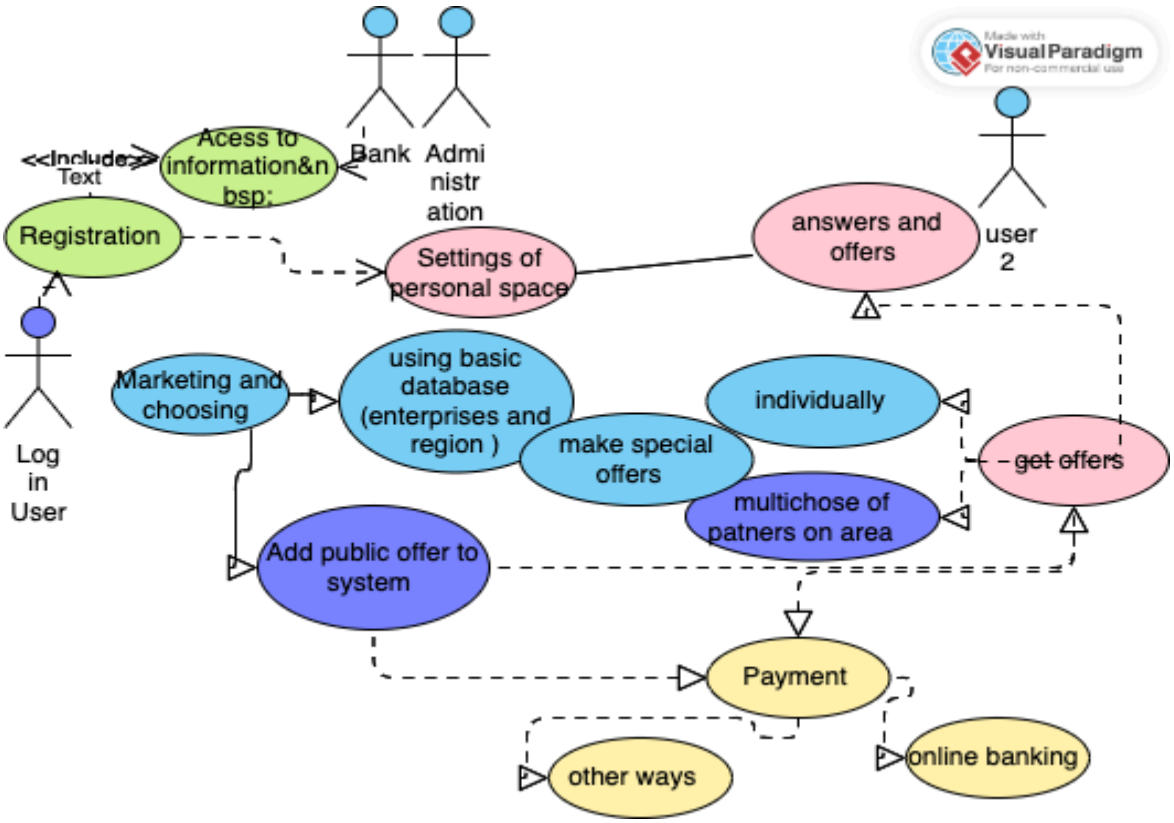
communication
Special offer and some changings
Log in User
Payment
online banking
other ways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Registration
Settings of
personal space
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Log
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User
Marketing and
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using basic
database
(enterprises and
region)
make special
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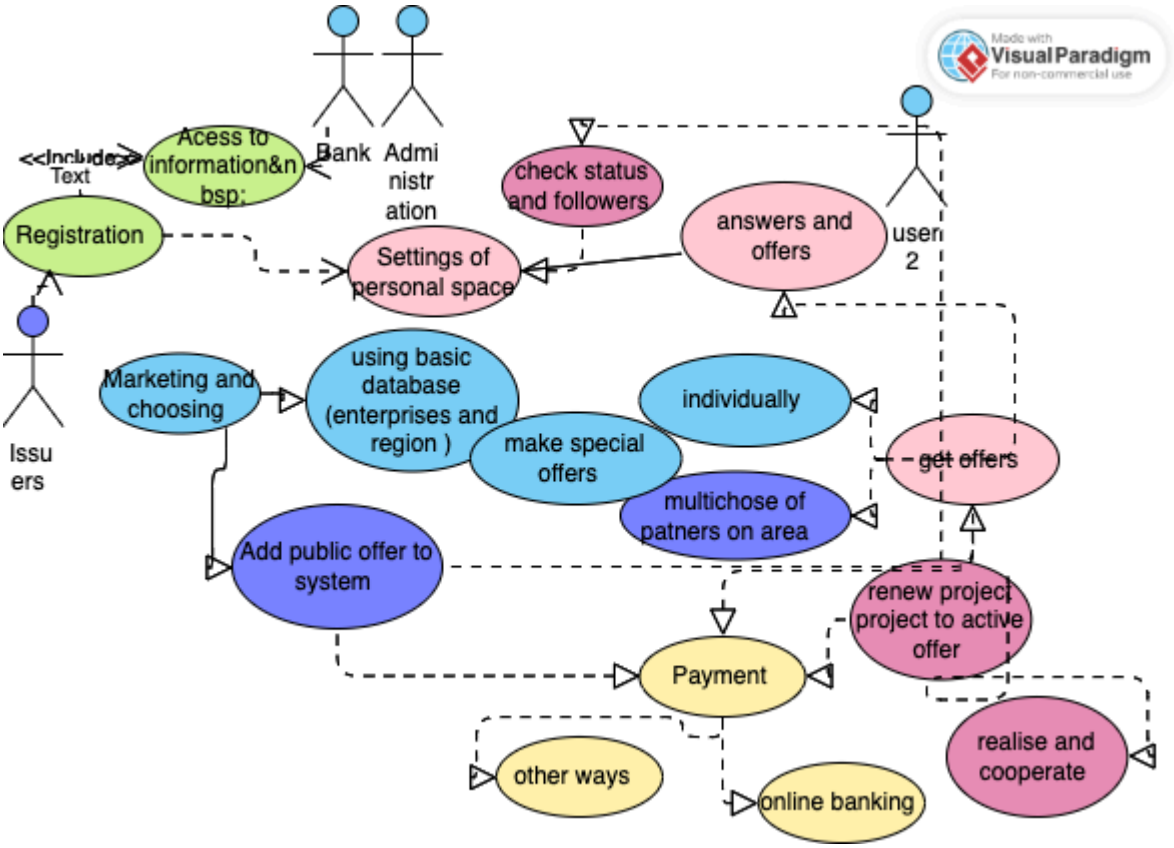
get offers
Add public offer to
system
Payment
other ways
online banking


Bank
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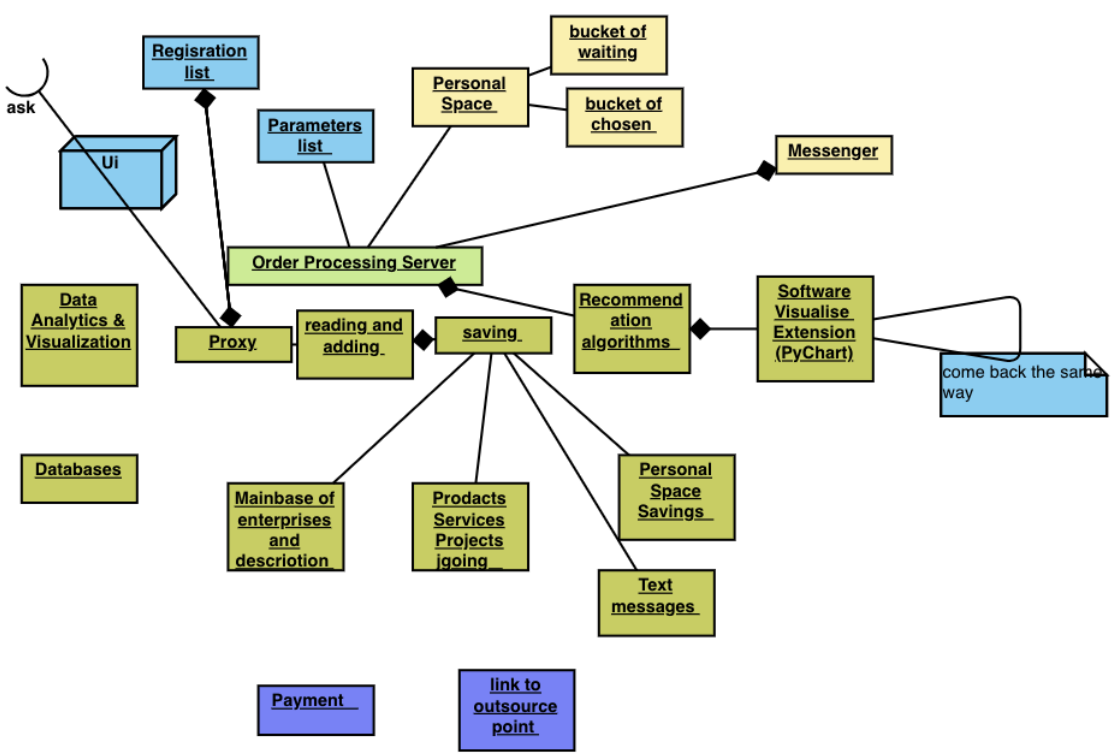
ation
<<Include>>
Text
Acess to
information&n
bsp;
Registration
check status
and followers
Settings of
personal space
answers and
offers
user
2
Issu
ers
Marketing and
choosing
using basic
database
(enterprises and
region)
make special
offers
individually
multichose of
patners on area
get offers
Add public offer to
system
renew project
project to active
offer
Payment
other ways
online banking
realise and
cooperate

5 Design

1 System structure

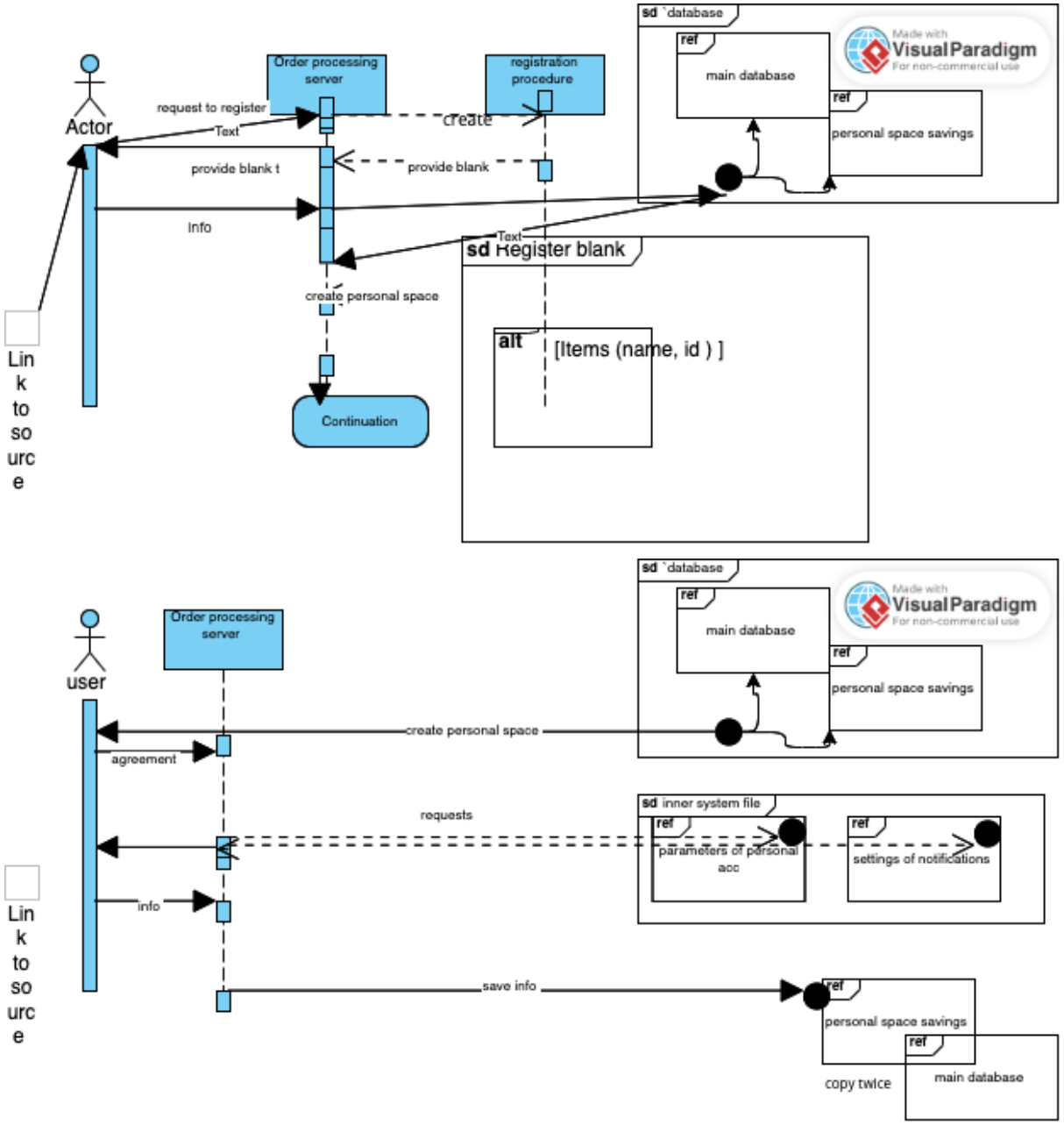
System architecture in UML component Diagram

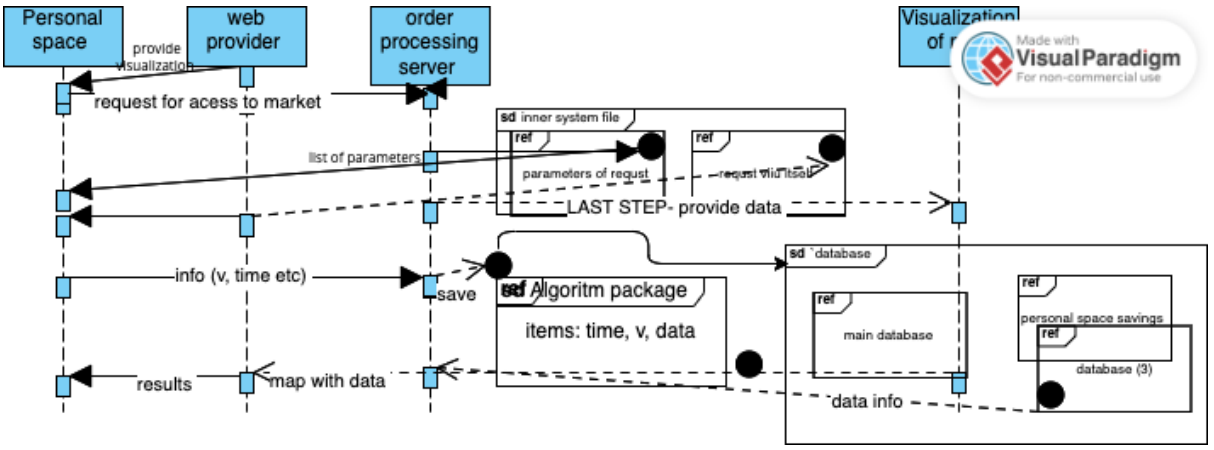


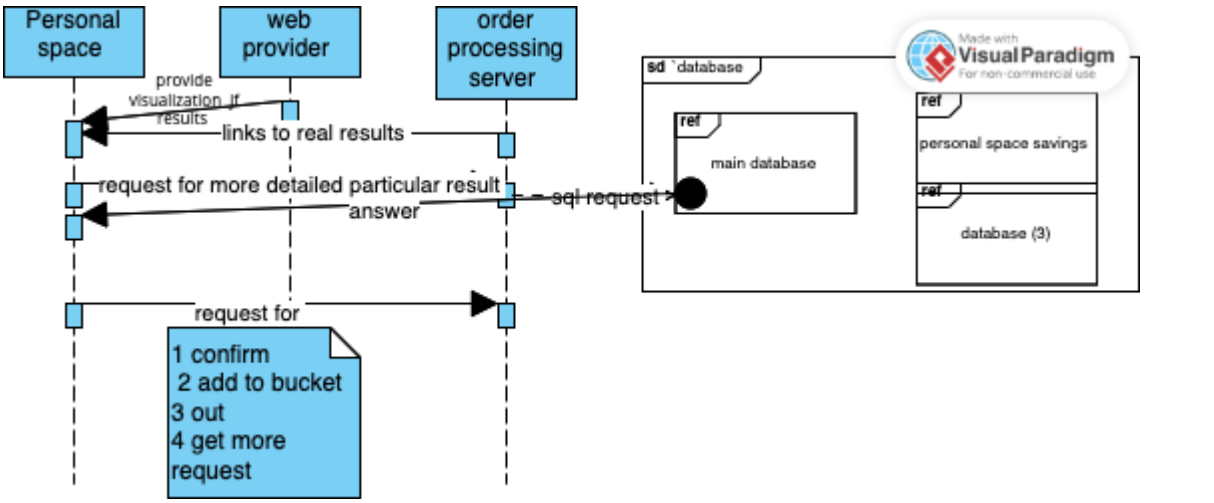
1) Traceability between requirements and System components

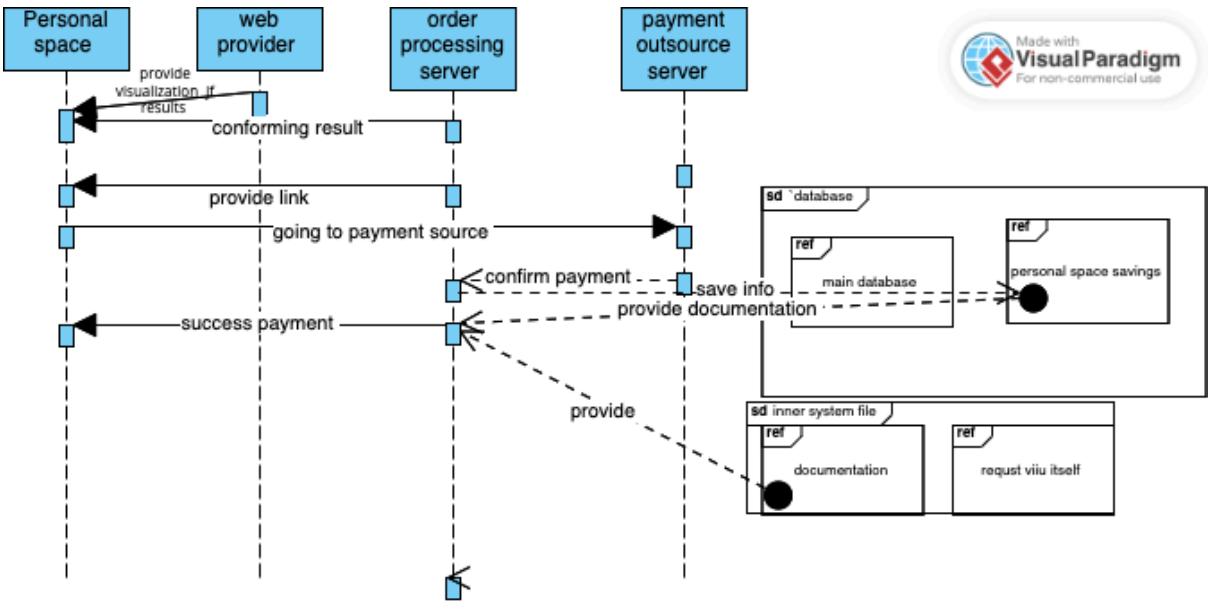
2 System interaction and behavior

Sequence diagrams in UML

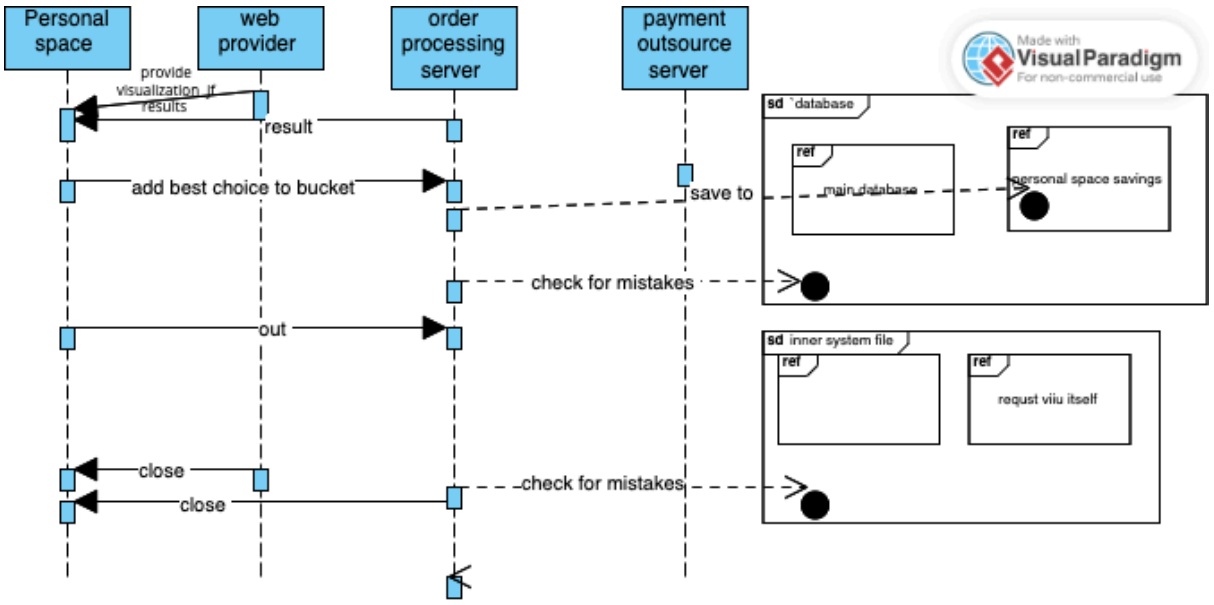



Personal space
web provider
order processing server
provide visualization
request for acess to market
list of parameters
sd inner system file
ref
parameters of requst
requst viu itself
LAST STEP- provide data
info (v, time etc)
save
sd Algoritm package
items: time, v, data
sd `database
main database
personal space savings
database (3)
results
map with data
data info
Made with VisualParadigm
For non-commercial use

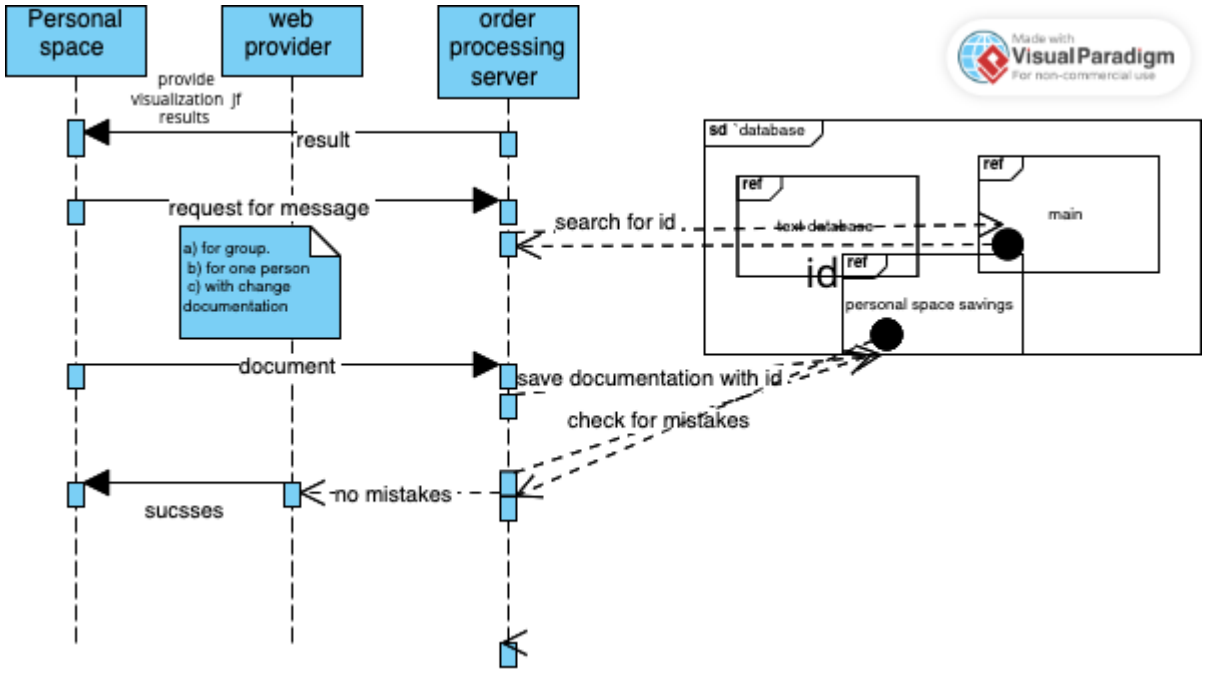

Personal space
web provider
order processing server
provide visualization if results
links to real results
request for more detailed particular result
answer
sql request
sd `database
main database
personal space savings
database (3)
request for
1 confirm
2 add to bucket
3 out
4 get more request
Made with VisualParadigm
For non-commercial use


Personal space
web provider
order processing server
payment outsource server
provide visualization if results
conforming result
provide link
going to payment source
confirm payment
save info
provide documentation
success payment
provide
sd `database
main database
personal space savings
sd inner system file
documentation
requst viu itself
Made with VisualParadigm
For non-commercial use

end 1



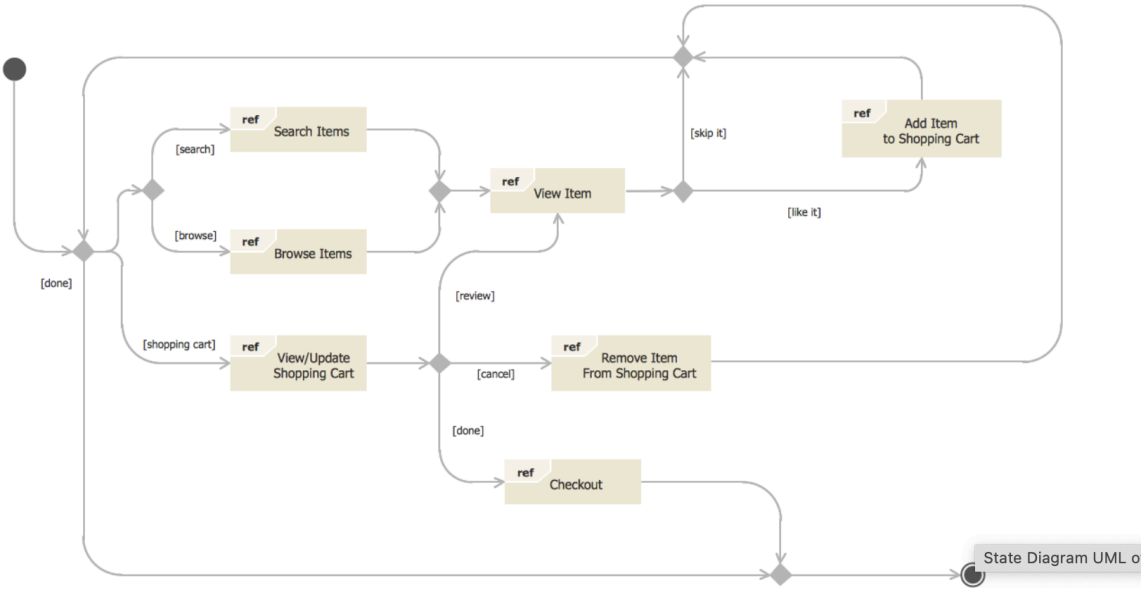
end 2 and 3 (“add to bucket option” and “out”)



end 4 “message”

State diagrams in UML

The state diagram is rather familiar, for every e-commerce platform, so I specify it after by smaller steps, giving more road map.


ref
Search Items
[search]
[browse]
ref
Browse Items
[done]
ref
View Item
[skip it]
ref
Add Item
to Shopping Cart
[like it]
[review]
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View/Update
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[cancel]
ref
Remove Item
From Shopping Cart
[done]
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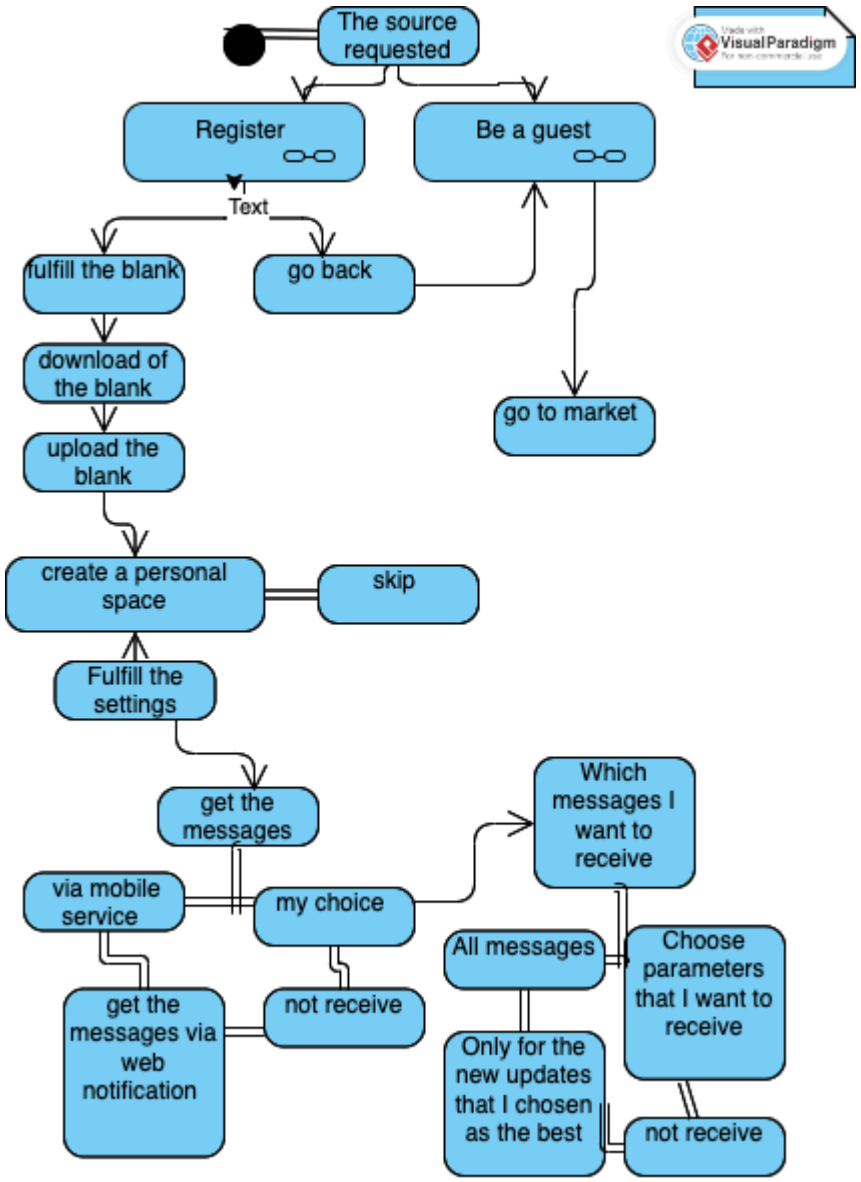
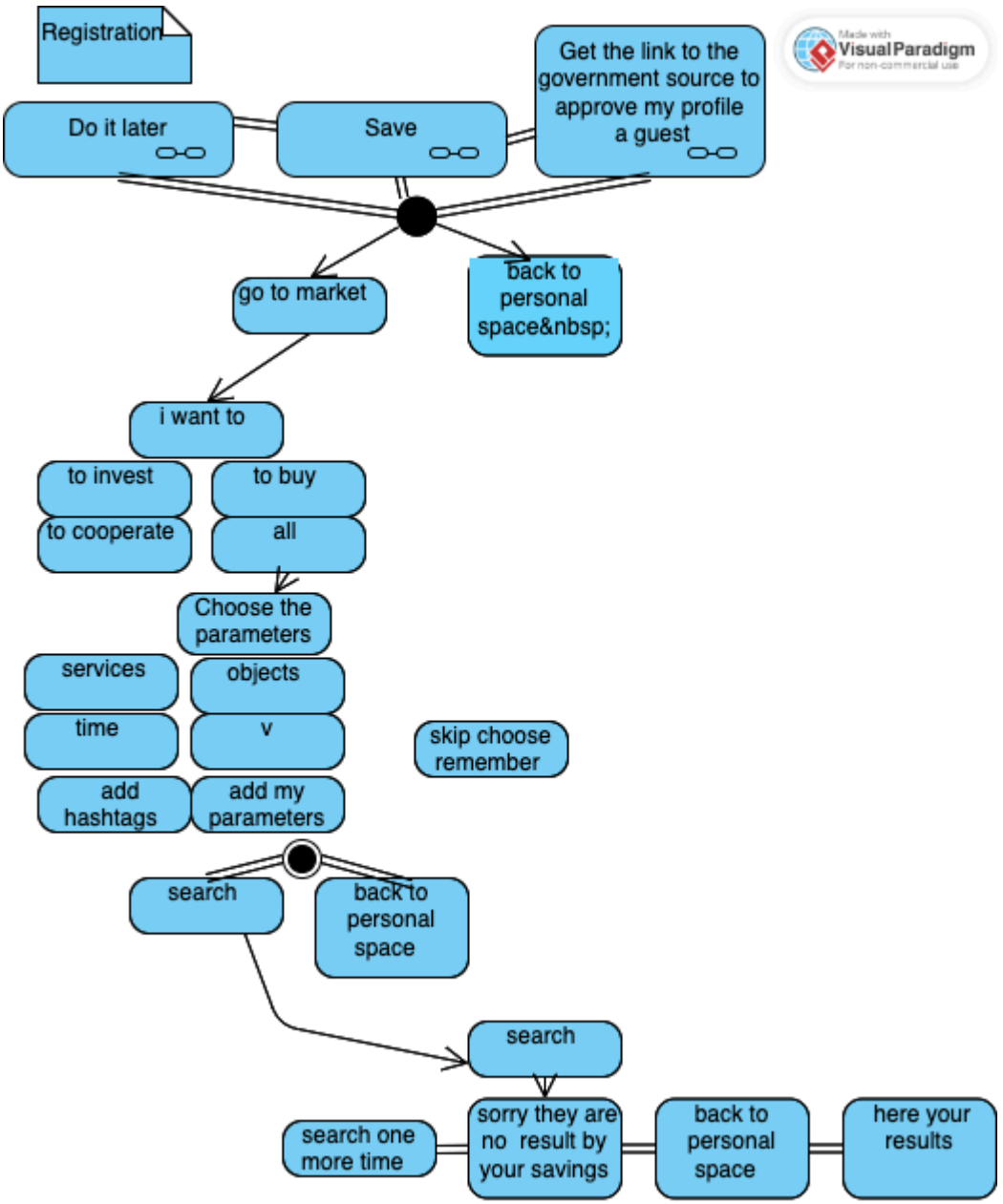
Checkout
State Diagram UML o


The source requested
Register
Be a guest
Text
fulfill the blank
go back
download of the blank
upload the blank
go to market
create a personal space
skip
Fulfill the settings
get the messages
Which messages I want to receive
via mobile service
my choice
All messages
Choose parameters that I want to receive
get the messages via web notification
not receive
Only for the new updates that I chosen as the best
not receive


Registration
Do it later
Save
Get the link to the government source to approve my profile a guest
go to market
back to personal space
i want to
to invest
to buy
to cooperate
all
Choose the parameters
services
objects
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search
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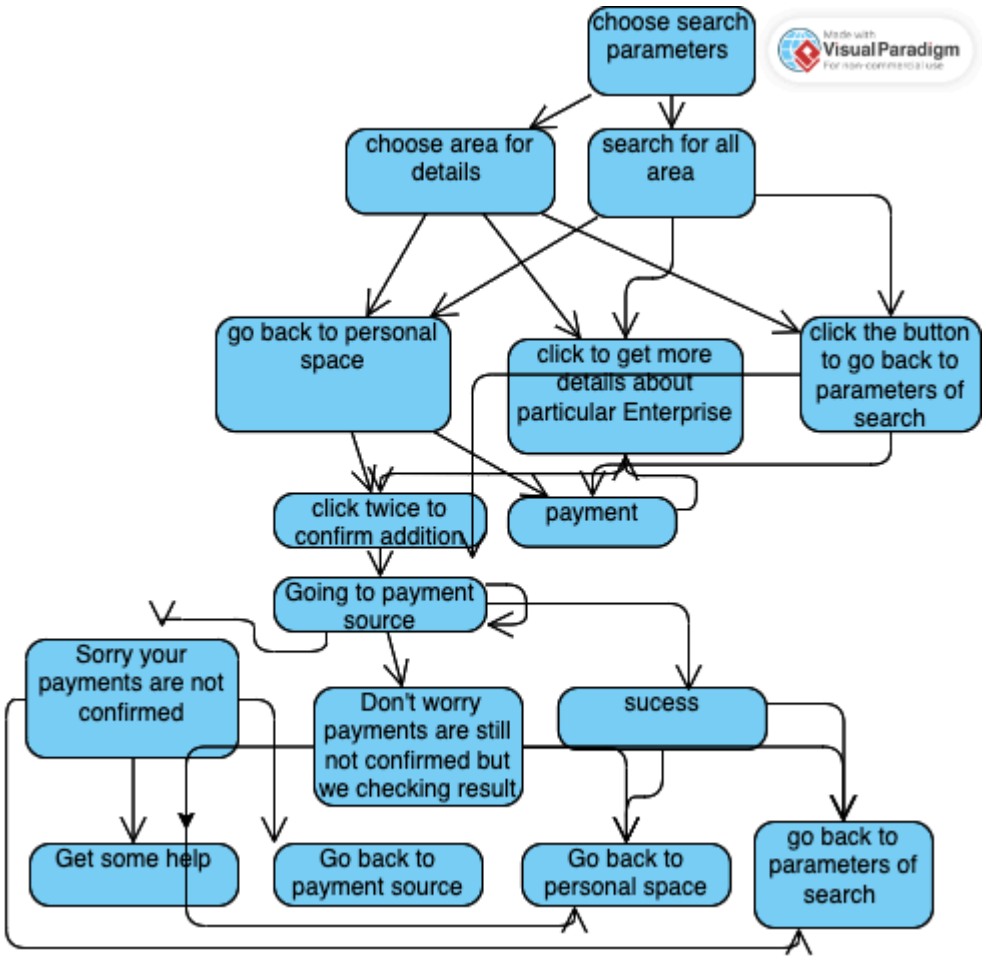
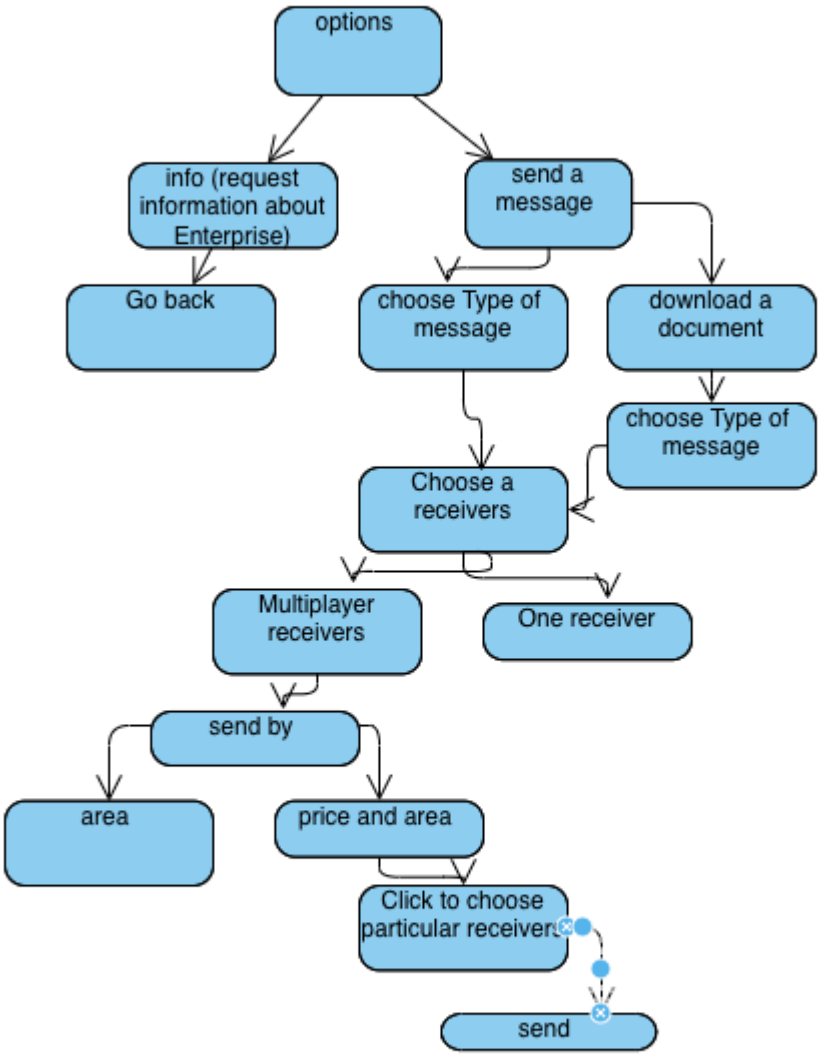
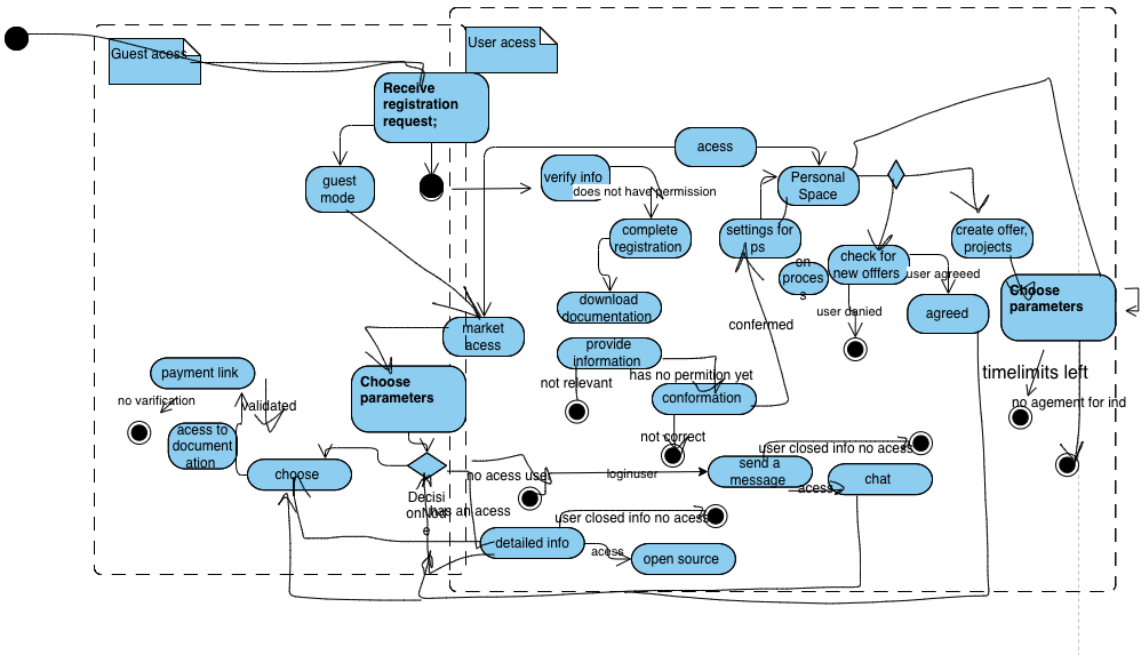
sorry they are no result by your savings
back to personal space
here your results


choose search parameters
choose area for details
search for all area
go back to personal space
click to get more details about particular Enterprise
click the button to go back to parameters of search
click twice to confirm addition
payment
Going to payment source
Sorry your payments are not confirmed
Don't worry payments are still not confirmed but we checking result
sucess
Get some help
Go back to payment source
Go back to personal space
go back to parameters of search

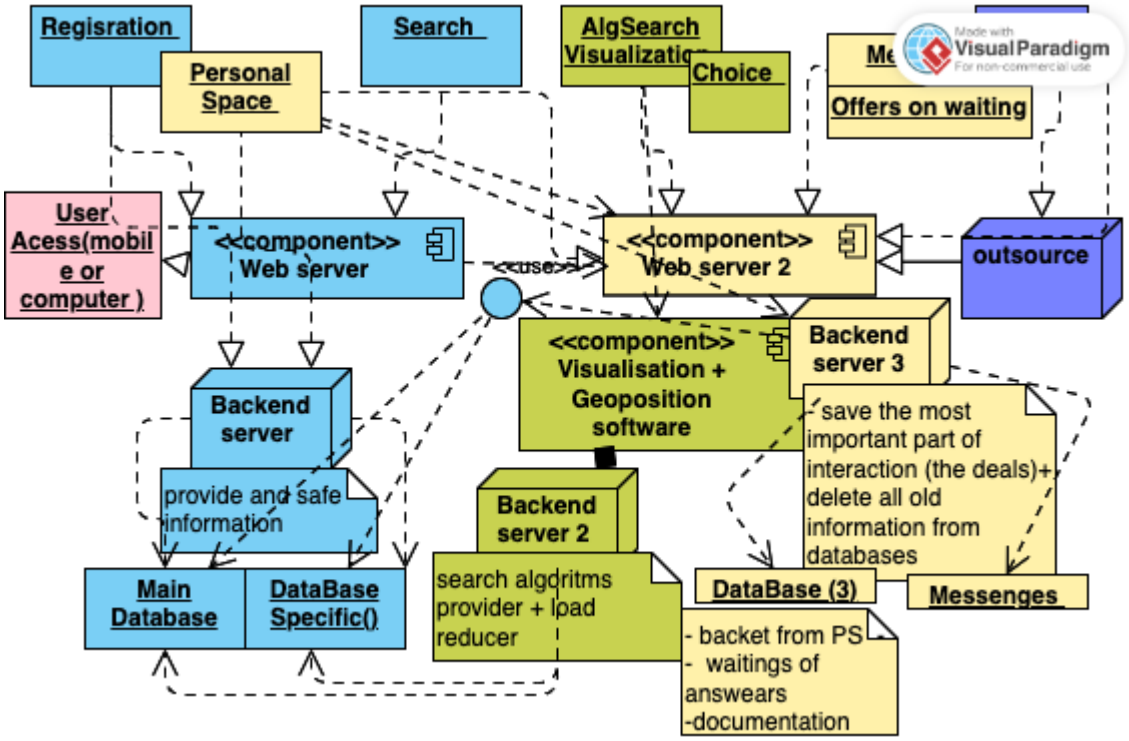


Activity diagrams in uml



3. System Deployment

Deployment Diagram



6 Lesson Learned

Information Retrieval and Ranking: I dive into understanding user intent, designing effective search queries to deliver precise results.

User Interface Design: I learn how to design user-friendly search interfaces that cater to different user needs and search behaviors.

Get closer contact with VisualParadigm and UML language: I dive into the basic building blocks of UML, including classes, objects, relationships, and diagrams. This help me to lay the foundation for visualizing and understanding software systems. Moreover, i get some systems basics:l learn how to use UML diagrams like class diagrams, sequence diagrams, and activity diagrams to model various aspects of a system, including its structure, behavior, and interaction.

7. Conclusion

When I first started doing the project, I was thinking about how to add as much as possible of everything necessary, but already in the process I realized that some requirements require more time and funding than they possibly can benefit and finance.` Although at the stage of creating the principles, we talked about the fact that the Solution should be simple, however, I forgot that it should still be easy to implement.

However, it was an interesting experience and it allowed me to start thinking more structurally when developing a project based not on its business functionality, but on its technical basis.

Thus, I developed the most primitive model that includes the geoposition function, without any complex aggregation algorithms, but combining two systems crowdfunding and a commercial application.