Software Requirements Specification (SRS) Project

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1. Project Description

This Project is about a Real Estate website, which takes offers from partner agencies and combines them into a visually pleasing and friendly user interface. The idea is to make it easier for customers to find real estate they are interested in buying or renting. On the website all offers from partner agencies will be shown, and users have the ability to filter offers according to their wishes. All communication is directed to partner Agencies for further inquiries. Users can register to the website to gain access to notifications and the ability to ask questions in the Q&A.

2. Project Proposal

Project Title: Real estate	
Start Date: 28.10.2021	**End Date:** 28.4.2022
Project Manager: Aldin Kovačević	
Project Sponsor: Association of real estate participants in Bosnia and Herzegovina	
Purpose and business need: The problem that this project strives to solve is to simplify the process of searching/buying/renting and selling real estate, by creating a centralized database of all real estate agencies and their offers.	
Customers/Users: The target demographics of this project are all people in Bosnia and Herzegovina interested in all options related to property.	
Goals and objectives: Tangible business values include: increased market share by 10%, increased website traffic of individual agencies by 15% and advertisement revenue which will cover hosting and maintenance of the website. Intangible business values are as follows: increased customers satisfaction, increased user experience and the promotion of small and big agencies.	
Business requirements: Listing of all offers that agencies currently have. Provide users with online access to information, enable users with tailored search results in line with their wishes through filters. User help portal that enables sending help tickets and contacting the help desk by phone.	

Constraints and special issues: Fussing data from different agencies into a unified format may delay the deadline and introduce a risk which should be handled appropriately. Incoming holidays (New Year's Eve, Eastern and Christmas) should be taken in consideration to avoid delays. Any new entries in the system should be approved by the appropriate agency.
Risks and obstacles to success: Possible risk that the project may face are the unwillingness for agencies to participate in sharing their offers in a centralized database. Users may be too faithful to their initial agencies, which might omit them from discovering offers that are better suited for them from different agencies.
<u>Technical Leads:</u> **Muhamed Hamzić and Amila Čaušević**

3. Functional and nonfunctional requirements

1. Feature name: Registration

Role(s): All users who are not registered

Feature description/steps:

1. Upon clicking the registration button the user will be prompted with a registration form.

2. The user is required to enter all presented fields (name, surname, email address, password).

3. The user needs to verify that he is not a bot by correctly solving a captcha.

4. After the user filled everything correctly and solved the captcha, he should finish the registration process by pressing the "Register" button

5. Through email with the confirmation link, user is able to confirm his registration

Dependencies/constraints: If all form fields are not filled the user will be notified to enter empty fields, or if the captcha was not solved correctly he will need to redo it. If the user did not receive mail in one minute he will be able to request another mail confirmation. The password should be at least 8 characters long, include at least one upper case letter, and at least one special character.

2. Feature name: Login

Role(s): All users who are registered

Feature description/steps:

1. Upon clicking the login button the user will be prompted with a login form.

2. The user is required to enter all presented fields (email address, password).

3. The user shall press the “Login” button to finish the login process.

4. If the user entered wrong information a message “Incorrect login information” will be shown, the user shall try again and enter correct information.

5. The user won’t be able to enter the system until he inputs valid information.

Dependencies/constraints: If the user entered the incorrect information three times he will be presented with “Forgot password” and “Not a user? Register here!” messages.

3. Feature name: Agencies offer

Role(s): All visitors who are visiting site (registered users and guests)

Feature description/steps:

1. After login or registration users will be redirected to this site. Guests will first see this page.

2. In the top right corner of the website there will be a logout for registered users or login/registration button for guests.

3. In the top left corner there will be a Q & A button.

4. On this site, all real estate offers from all partner agencies will be shown as well as filters.

5. Above all offers the user will be presented with a filters section.

Dependencies/constraints:

Only partner agencies and their offers will be shown to the visitors. After log in or registration, users will be redirected to the landing site. If the visitor uses filters, the page will be reloaded and all offers with selected features will be shown. The filters section is extended by the next feature.

4. Feature name: Sophisticated filters

Role(s): All visitors who are visiting site (registered users and guests)

Feature description/steps:

1. After the user specified the wanted information with filters he can choose to apply filters using the “Apply filters” button.

2. Upon the “Apply filters” button is pressed the web page will be refreshed and provide the user with the refined search results.

3. It is also possible for the user to reset the personalized search using the “Reset filters” button.

Dependencies/constraints: All options for filters are stated in the nonfunctional requirements under numbers 5. and 6. Filters can also sort the offers by: prices lower to higher vice versa. The user can filter offers by a particular partner agency or agencies.

5. Feature name: Particular offer

Role(s): All visitors who are visiting site (registered users and guests)

Feature description/steps:

1. When this page is loaded the user will be presented with media about the offer and all its characteristics that the agency provided.

2. The user will be able to see the location on a Google Map.

3. After all information about real estate the user can find information about the agent that is responsible for the offer as well as the agency he works for.

4. In the top right corner of the website there will be a logout for registered users or login/registration button for guests.

5. In the top left corner a Q&A button will be placed.

6. All users will be able to return to the main page by pressing the home icon which will be placed on the top left corner.

7. A “Receive notification” button will be shown only to registered users (note: see Feature 7.)

Dependencies/constraints:

Only registered users can choose to follow a particular offer and receive notifications about the changes.

6. Feature name: Q&A

Role(s): Registered users and database administrators

Feature description/steps:

1. On this page all previously asked and answered questions will be shown.

2. Users can ask questions about all concerns about the system on the bottom of the page.

3. Users can return to the main page using the home icon.

4. Database administrator provides the answers of the most frequently asked questions about the website. If needed, the database administrator can edit or delete questions.

Dependencies/constraints:

Only registered users can ask questions, but this page and all answers will be shown to all site visitors.

7. Feature name: Notification feature

Role(s): Registered users

Feature description/steps:

1. If a user has asked a question he will get notification that his question is answered (note: see Q&A feature).

2. If the user chose to get notification about a particular offer he will receive notification. (note: see dependency feature 5.)

3. If the offer is deleted the user will be notified (note: see feature 10)

Dependencies/constraints:

Information about how long it takes to send a notification can be found in nonfunctional requirements.

8. Feature name: Request for offer addition to the web page

Role(s): Agencies

Feature description/steps:

1. Partner agencies will send their offers to the database administrator via email.

2. If the request is incomplete the database administrator will notify the agency about the missing steps that will that fulfil the requirements.

3. If the requirement is done properly the database administrator will add that offer on the website. (note: see Adding offers feature 9.)

4. The agency can recommend some frequently asked questions and answers to them to the database administrator via email. (note: see Adding Q&A)

Dependencies/constraints: no special dependencies

9. Feature name: Adding offers

Role(s): Database administrator

Feature description/steps:

1. The database administrators receive a request email from agencies.

2. After receiving a request, the database administrator checks if requests are filled properly.

3. If a request is not filled properly, the database administrator notifies the agency.

4. If a request is correctly filled it is added to the website.

Dependencies/constraints:

Database administrators are employees of our company. Only database administrators can access the system.

10. Feature name: Removing offers

Role(s): Database administrator and agency

Feature description/steps:

1. The agency sends a request email for deletion of the real estate.

2. The database administrators receive a request for deletion email from agencies.

3.If the request correctly specifies which offer is wanted to be deleted, the database administrator will delete the offer from the website

4. However, if the request does not correctly specify the offer that is needed to be deleted the database administrator will send a follow up email to the agency.

Dependencies/constraints:

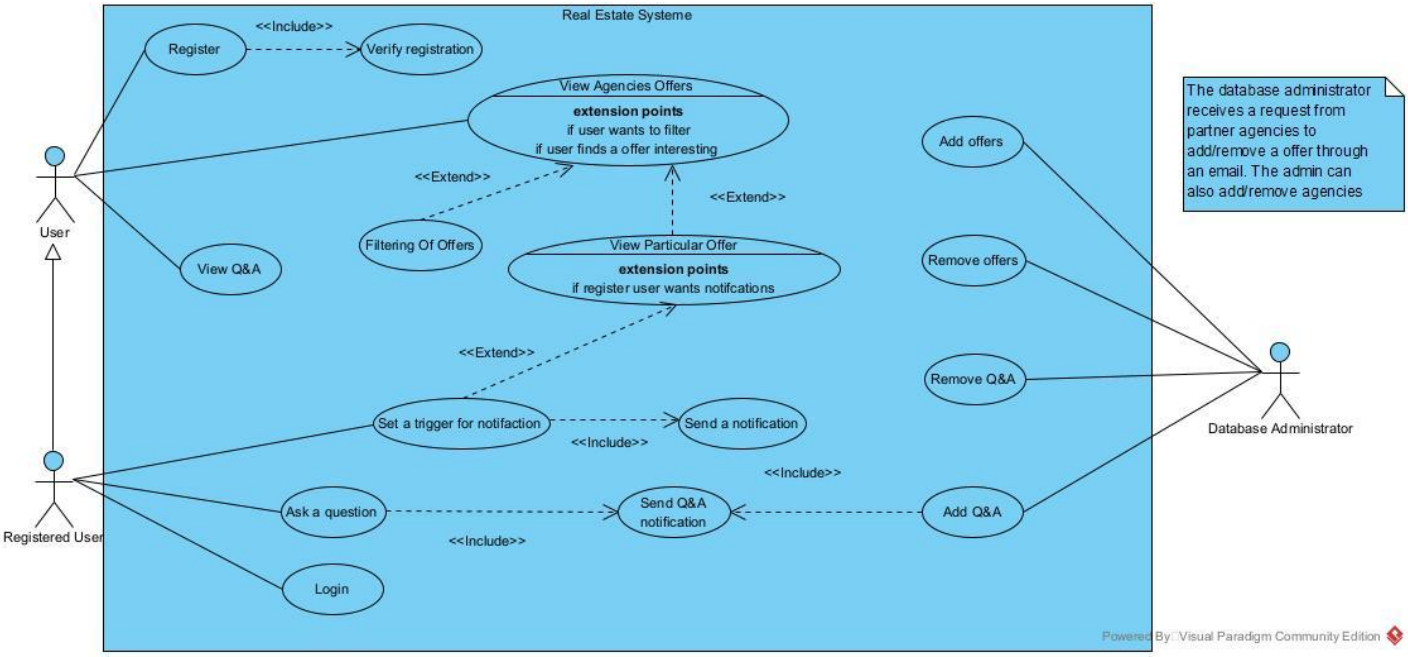
Database administrators are employees of our company. Only database administrators can access this feature. If a registered user chose to follow the offer he will be notified (note: see Feature 7. Notification feature)

Nonfunctional Requirements

1. Initial loading of all offers (the landing page) should be done under 4s.
2. Page should be loaded within 2s, after a user refines his search using filters.
3. When a user opens a particular offer it is loaded sub 1.5s.
4. The password shall be at least 8 characters long with at least one uppercase letter and at least one special character.
5. An agency offer MUST include following:
    - type of the offer: rent or selling (furnished or not, price per month)
    - agent information responsible for the particular offer
    - photos of the real estate
    - price
    - parking information (is it included in the price or not)
    - area
    - number of rooms/bathrooms
    - location address, city and municipality
    - floor (elevator yes or no)
    - year of building (new or old if old is it renovated or not)
6. An offer can have optional information :
    - terrace (yes/no)
    - AC (yes/no)
    - deposit (yes(how much) or no)
    - proximity to schools, parks, bus/trolleybus/trams

7. The page will serve ads to users using Google AdSense.
8. The page will send the user a notification about his interest in under 1 minute.
9. The user registration mail should be sent around 1 and 2 minutes.
10. The user needs to authenticate that he is not a robot through CAPTCHA V3

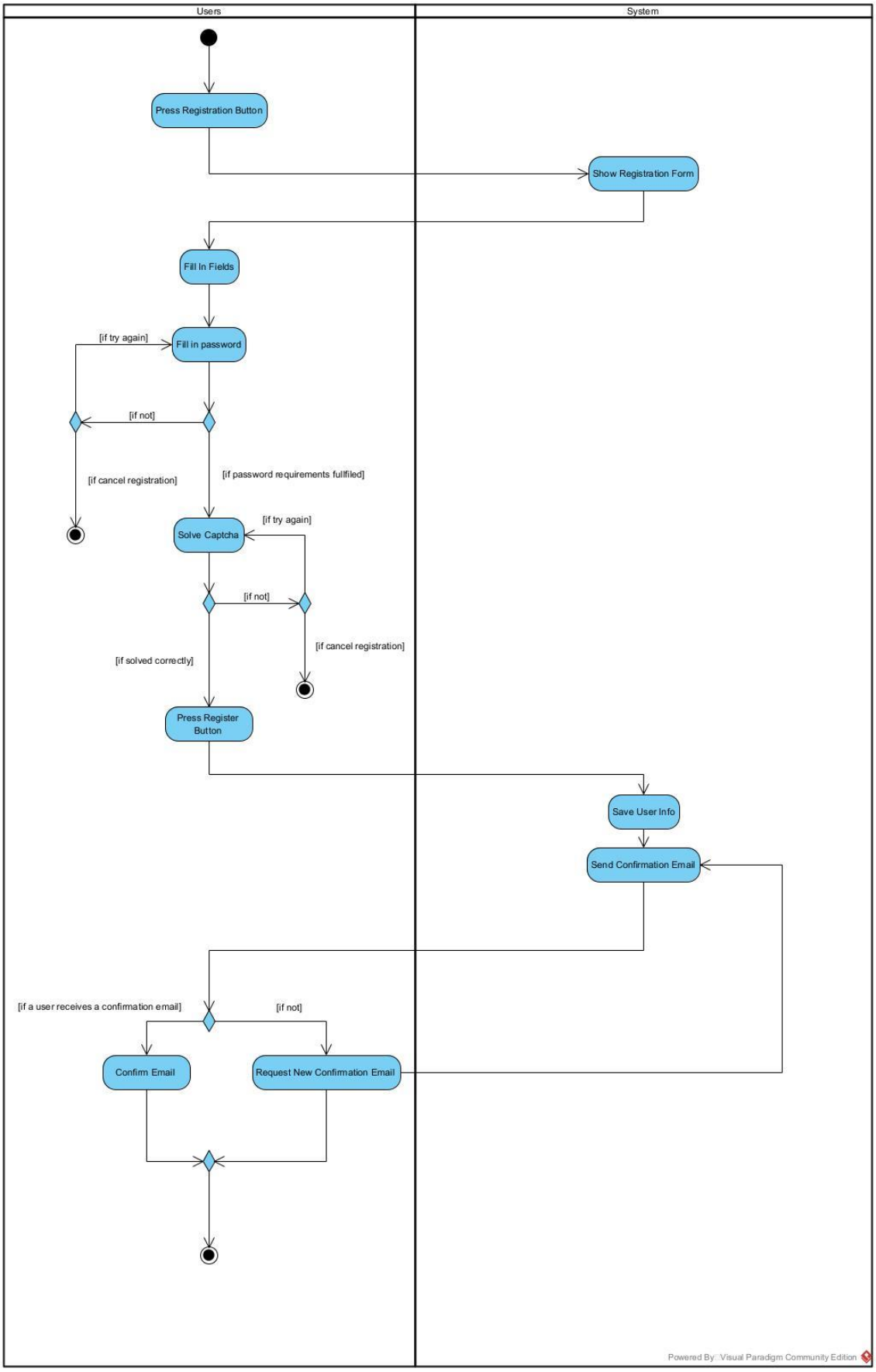
3. Use Case Diagram



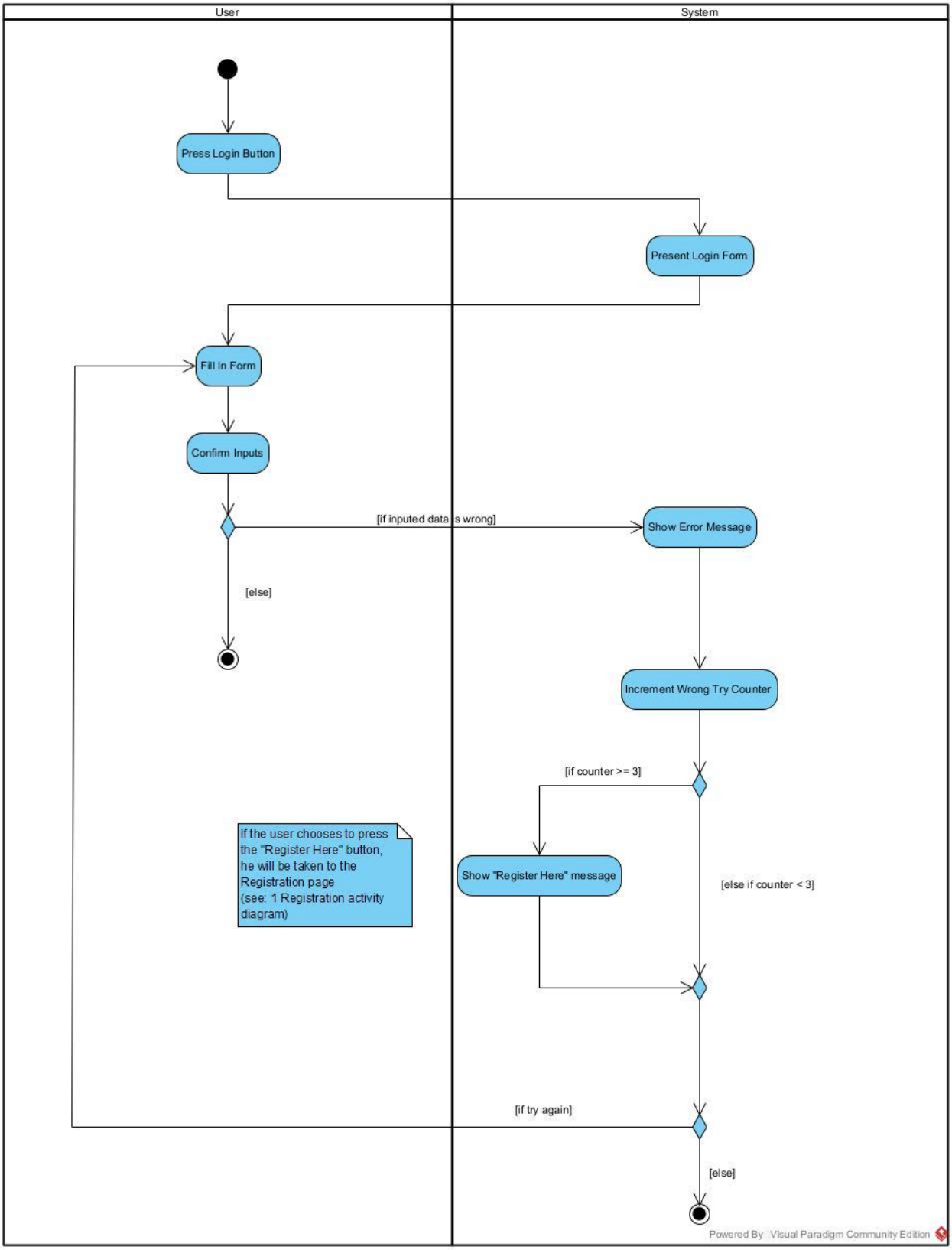
4. Activity Diagrams

4.1 Registration - This activity diagram describes the process of user registration to the website. By registering the user enables additional options provided by the system.
4.2 Log in - If a user already registered this diagram shows steps of logging in. With fall back technique for redirecting to the registration form.
4.3 Agencies offers and Filters - This diagram presents a page where all offers are listed with optional ability of user defined filters.
4.4 Particular Offer - This extends the previous diagram and shows more details about the offer. Here only registered users can add a trigger for the notifications.
4.5 Q&A - This diagram shows a Q & A page where all previously asked and answered questions are presented. From here registered users can ask questions regarding the website.
4.6 Request for adding offers - This diagram shows an interaction between agencies and database administrator for adding offers to the website.
4.7 Removing offers - Similar to the previous diagram, this diagram shows the process for removing the offers.

4.1 Registration



4.2 Log in


User
System
Press Login Button
Present Login Form
Fill In Form
Confirm Inputs
[if inputed data is wrong]
Show Error Message
[else]
Increment Wrong Try Counter
[if counter >= 3]
If the user chooses to press the "Register Here" button, he will be taken to the Registration page (see: 1 Registration activity diagram)
Show "Register Here" message
[else if counter < 3]
[if try again]
[else]
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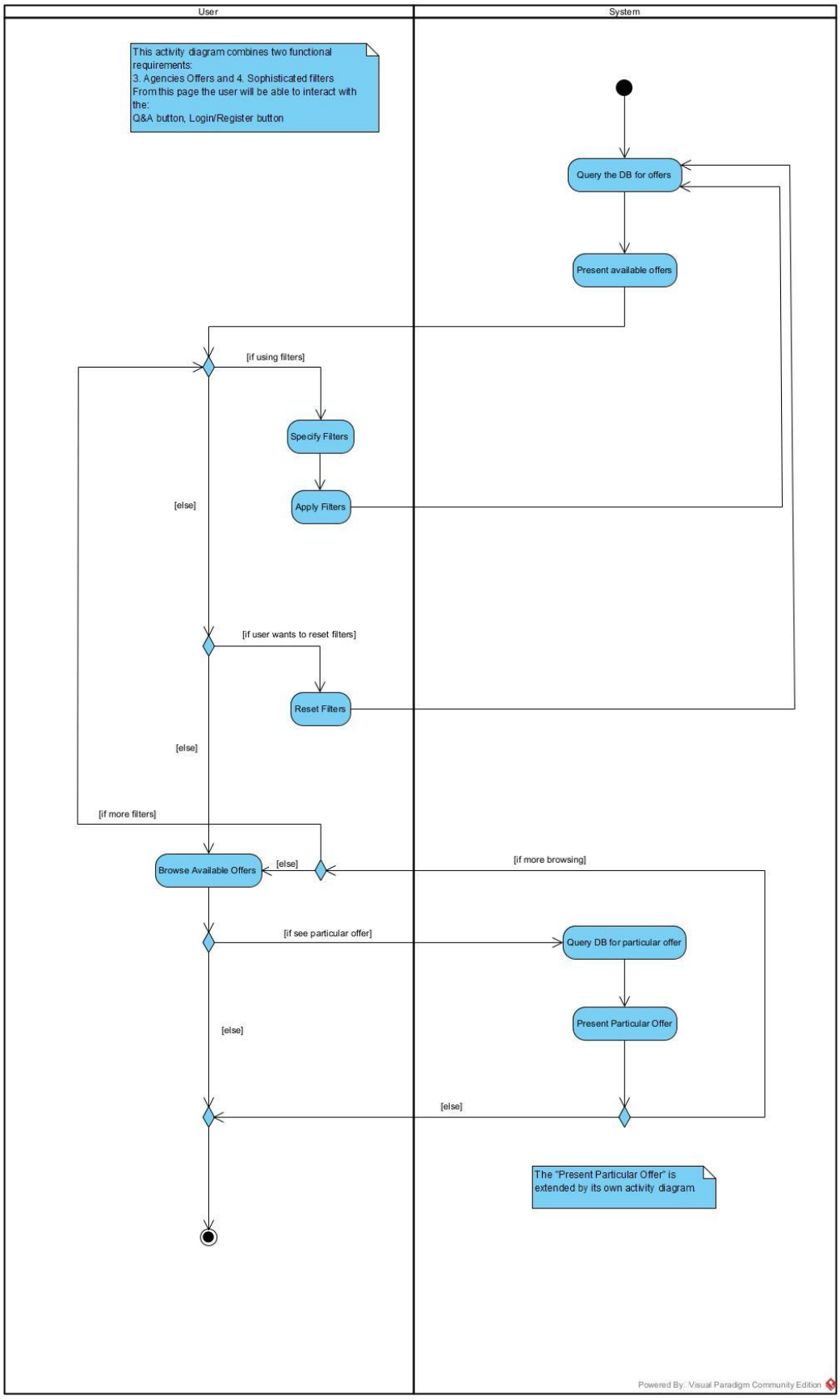
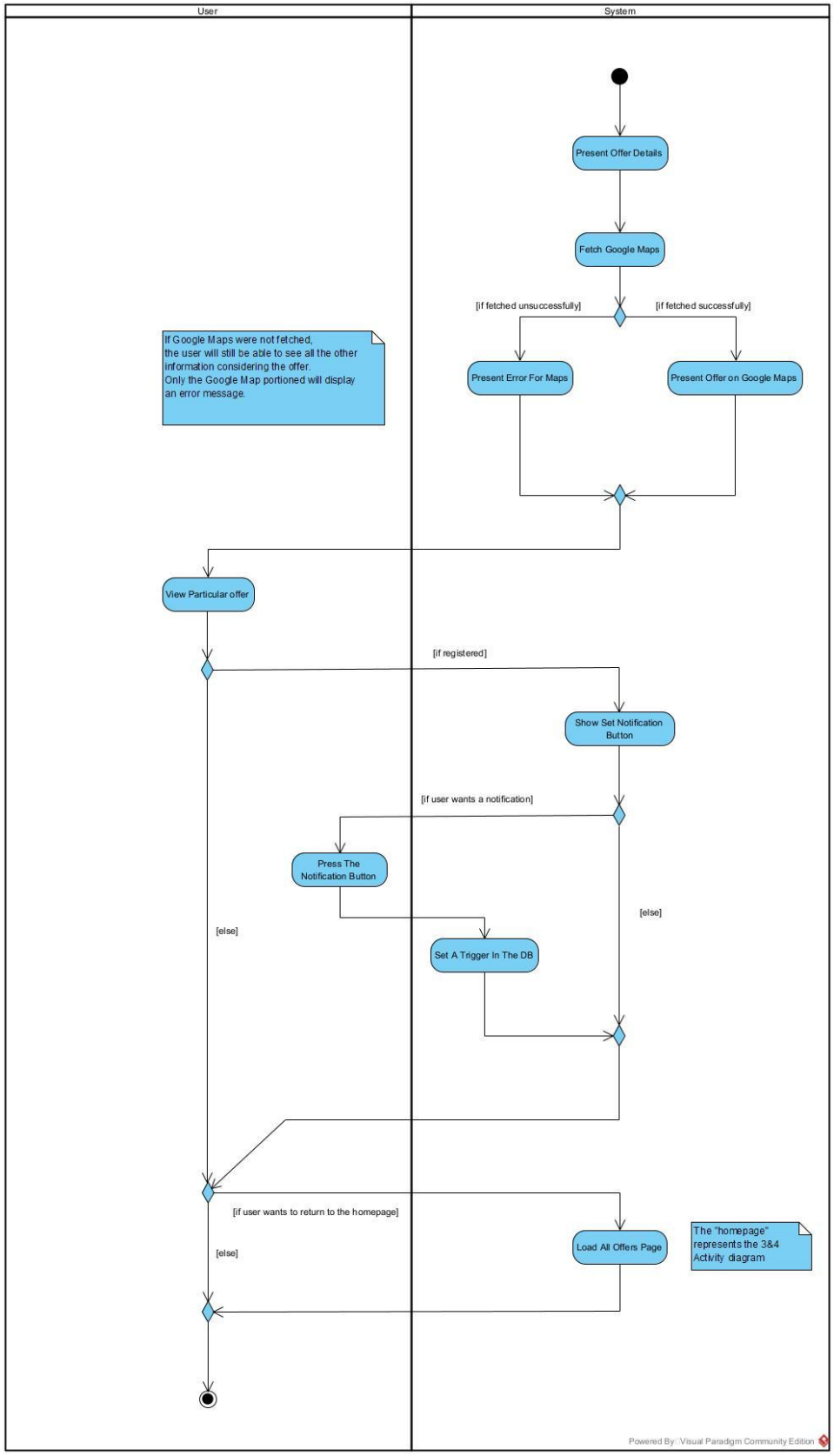
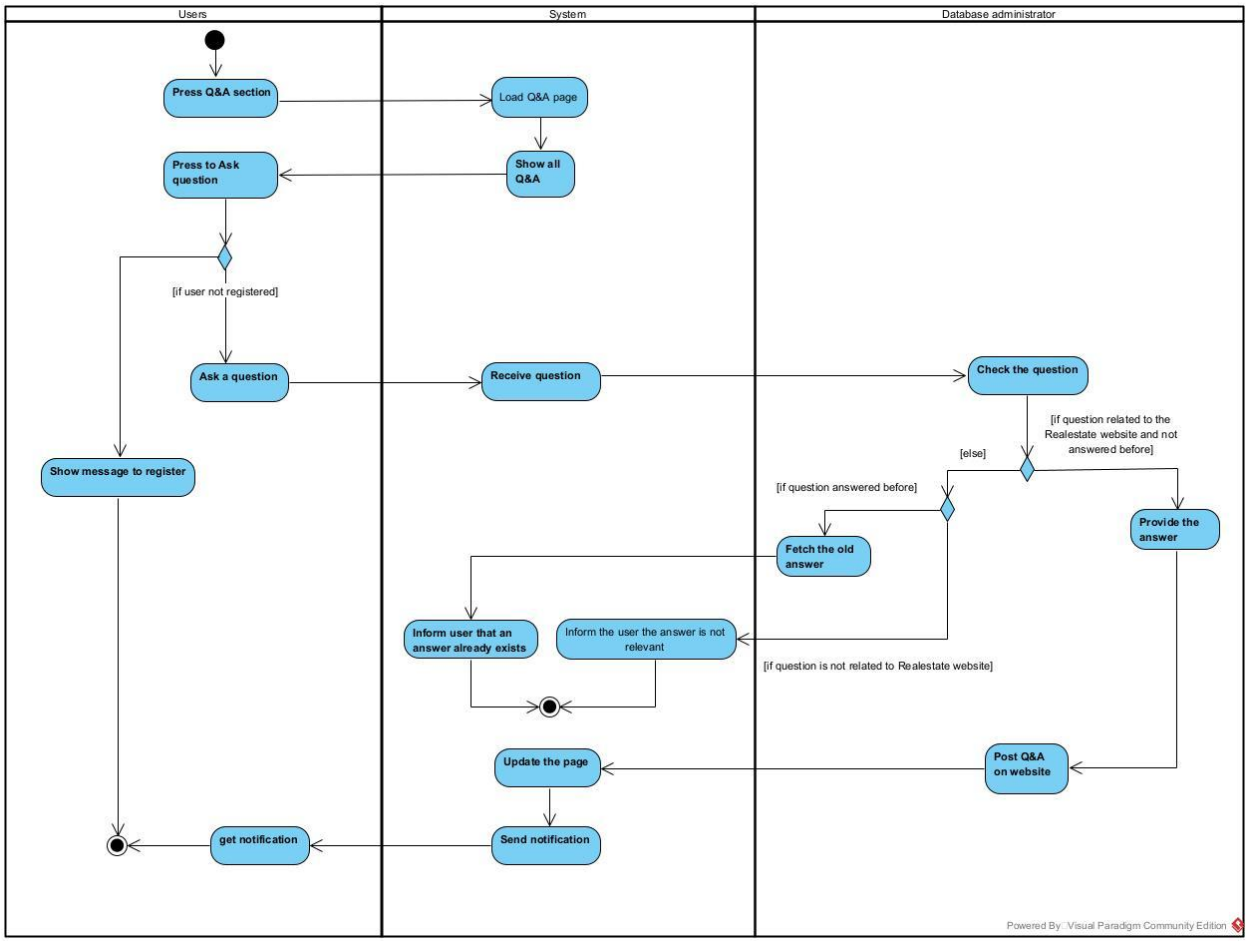
4.3 Agencies Offers and Filters



4.4 Particular Offer



4.5 Q&A


Users
System
Database administrator
Press Q&A section
Load Q&A page
Press to Ask question
Show all Q&A
[if user not registered]
Ask a question
Receive question
Check the question
[if question related to the Realestate website and not answered before]
[else]
Show message to register
[if question answered before]
Provide the answer
Fetch the old answer
Inform user that an answer already exists
Inform the user the answer is not relevant
[if question is not related to Realestate website]
Update the page
Post Q&A on website
get notification
Send notification
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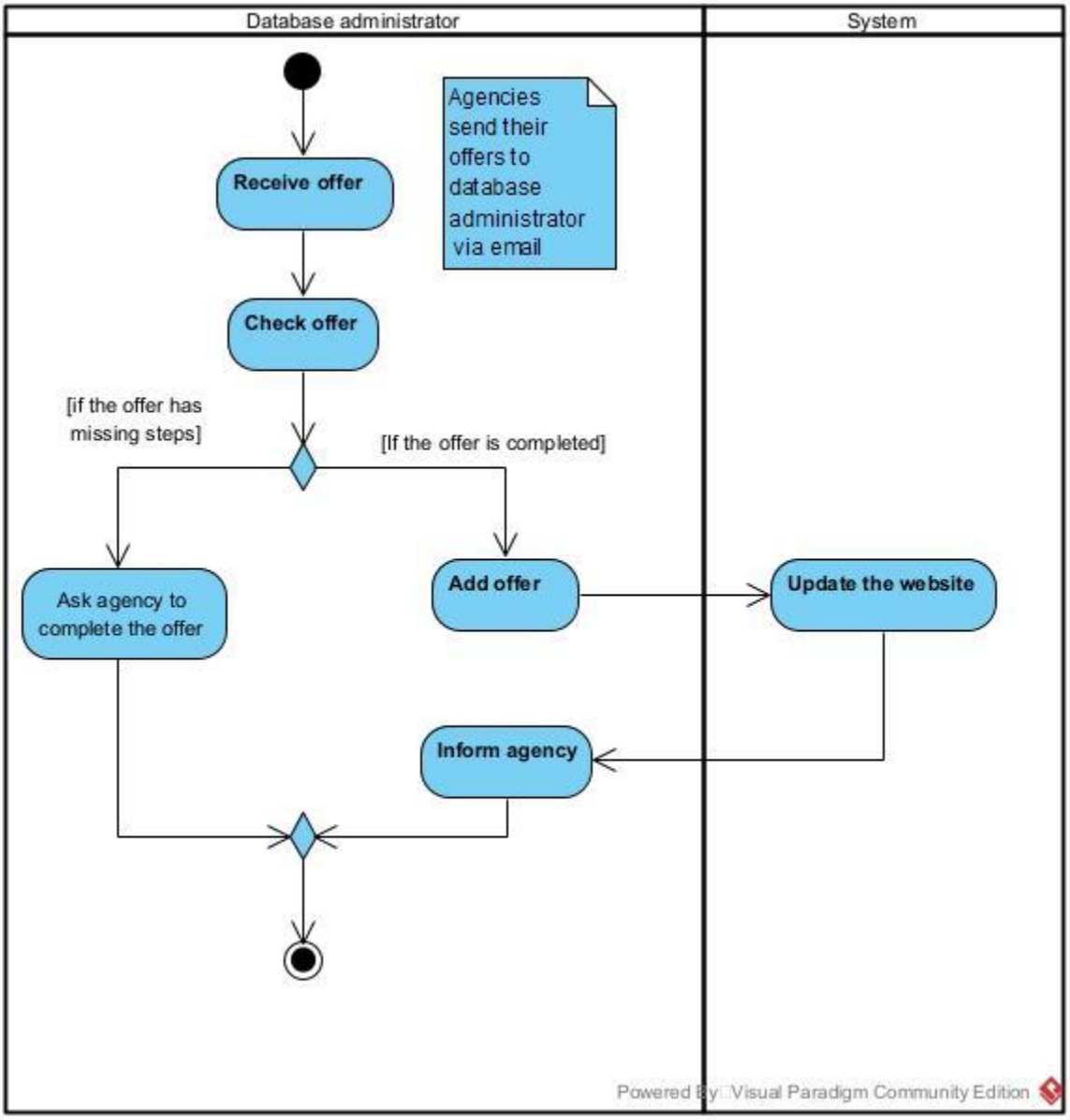
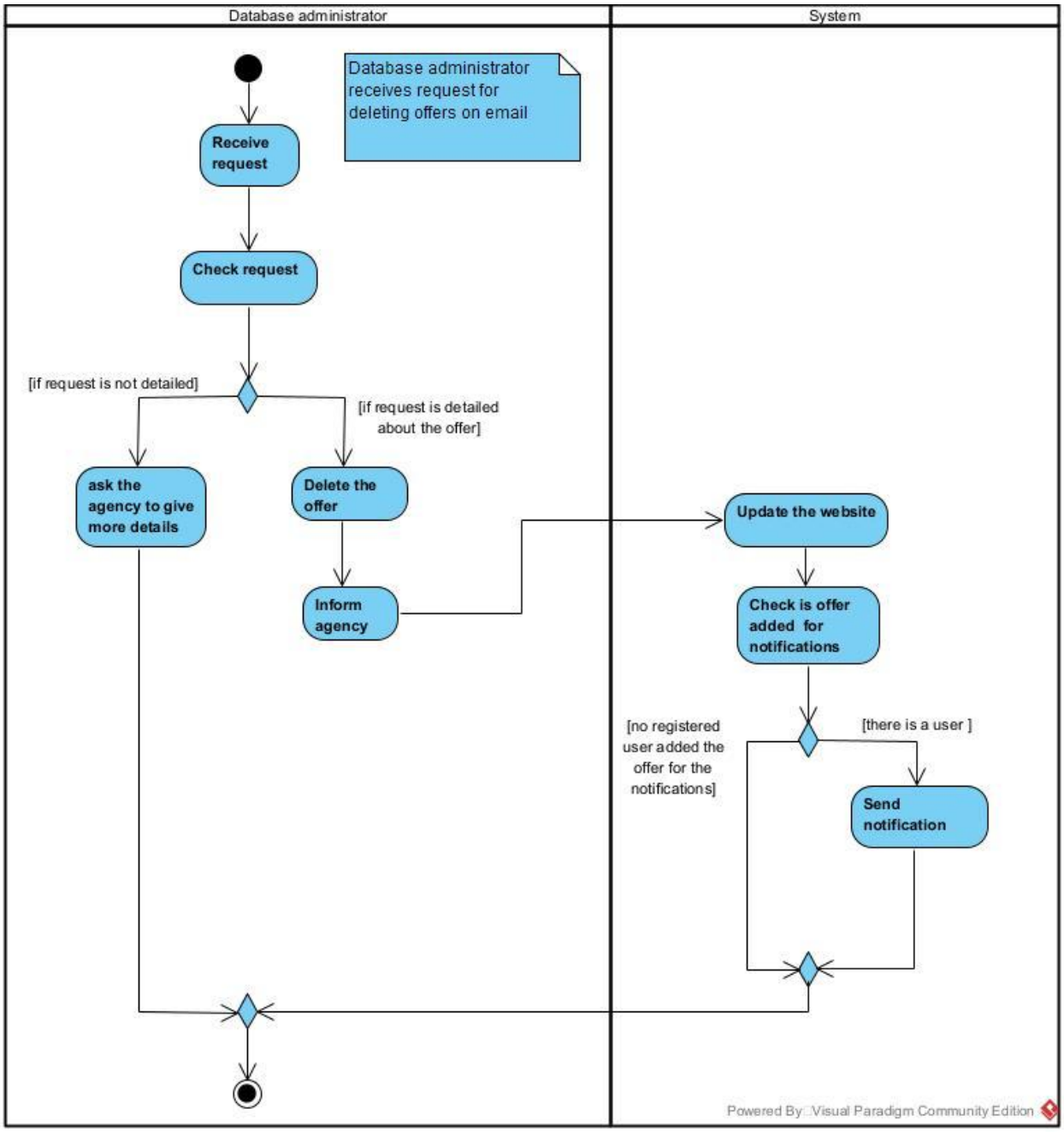
4.6 Adding Offers

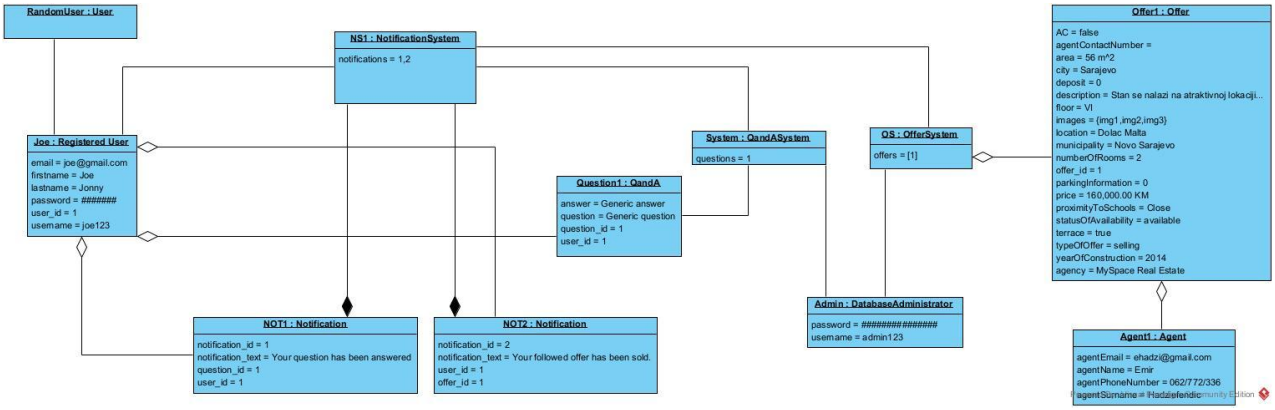


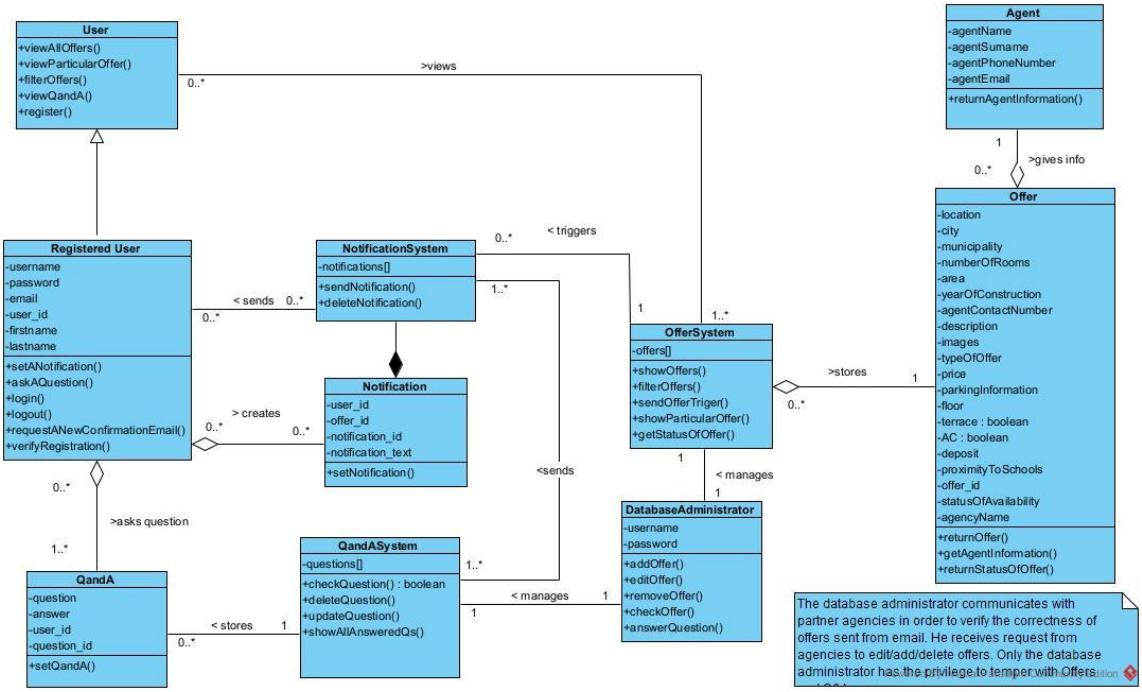
4.7 Removing Offers



5. Class and Object Diagrams

Class Diagram

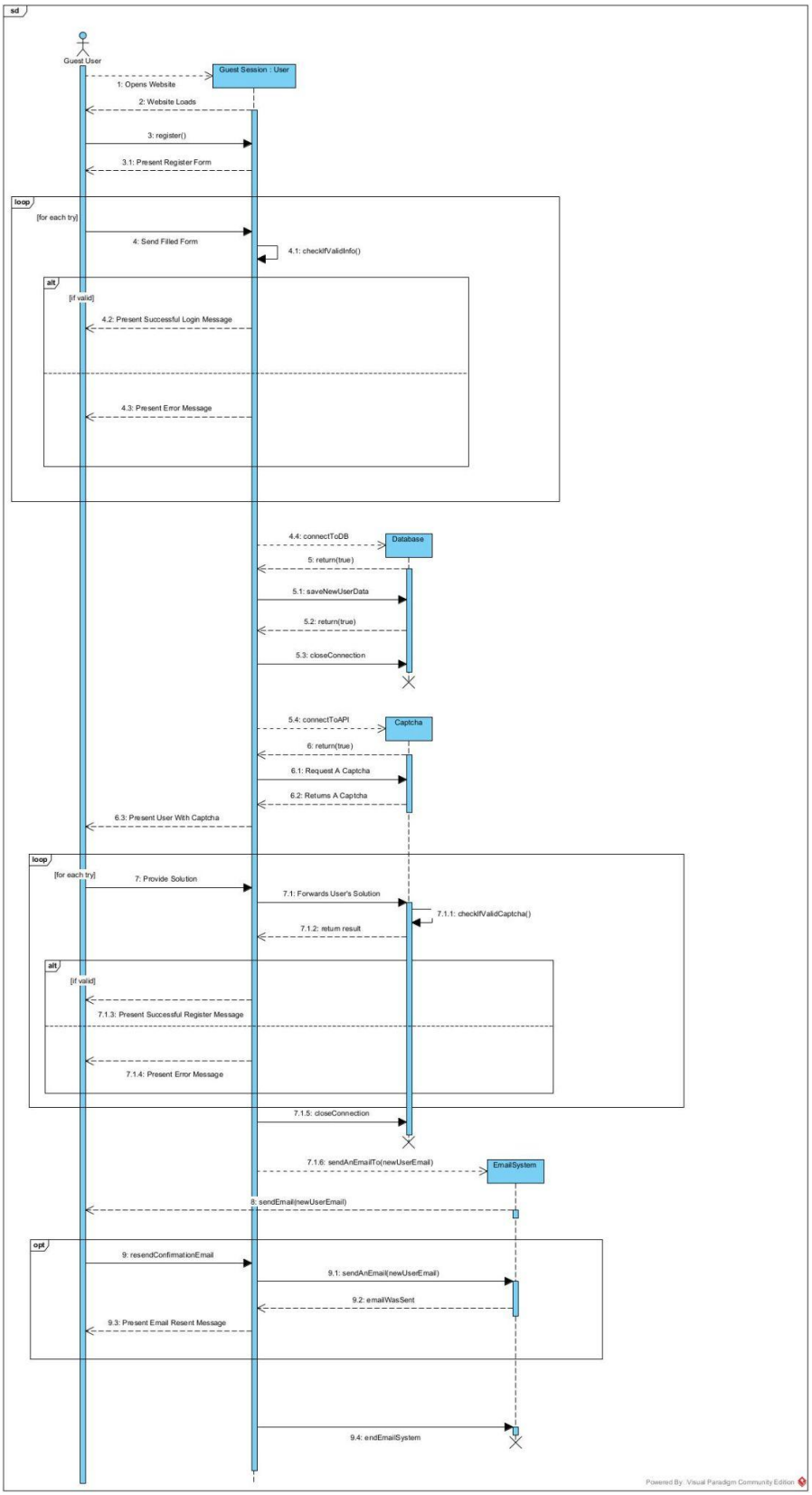




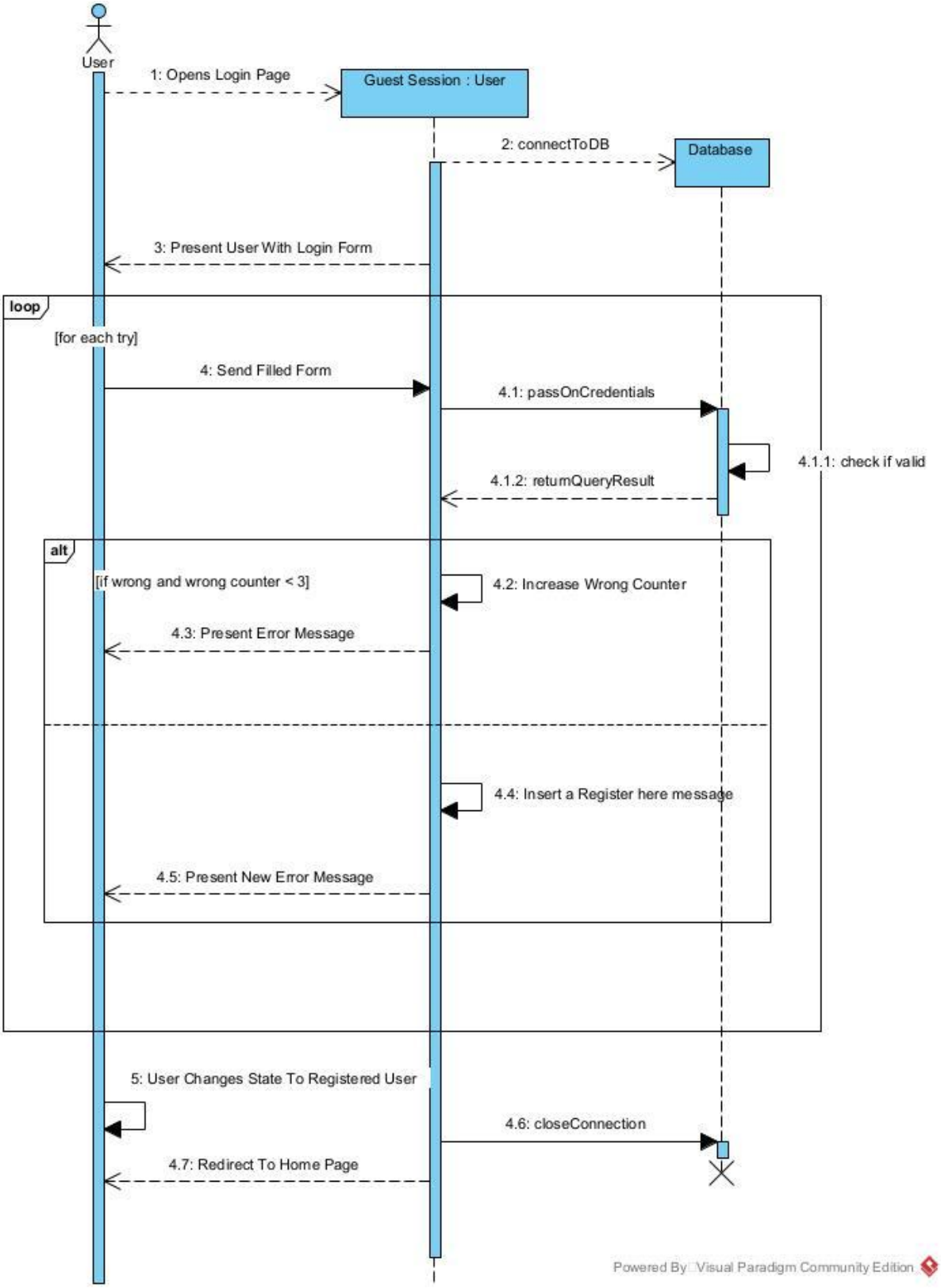
Object diagram

6. Sequence Diagrams

6.1 Registration



6.2 Log in


User
1: Opens Login Page
Guest Session : User
2: connectToDB
Database
3: Present User With Login Form
loop
[for each try]
4: Send Filled Form
4.1: passOnCredentials
4.1.1: check if valid
4.1.2: returnQueryResult
alt
[if wrong and wrong counter < 3]
4.2: Increase Wrong Counter
4.3: Present Error Message
4.4: Insert a Register here message
4.5: Present New Error Message
5: User Changes State To Registered User
4.6: closeConnection
4.7: Redirect To Home Page
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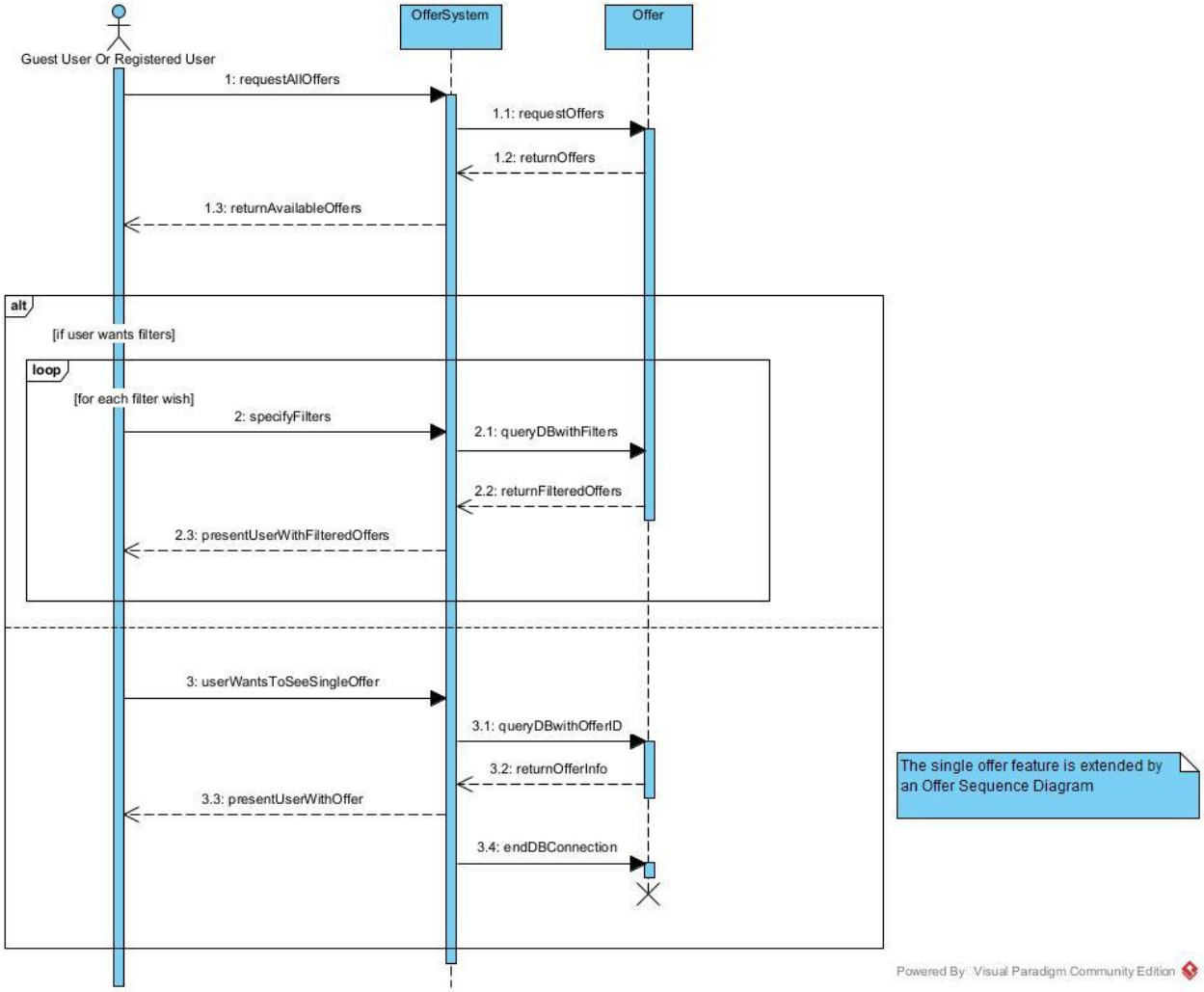
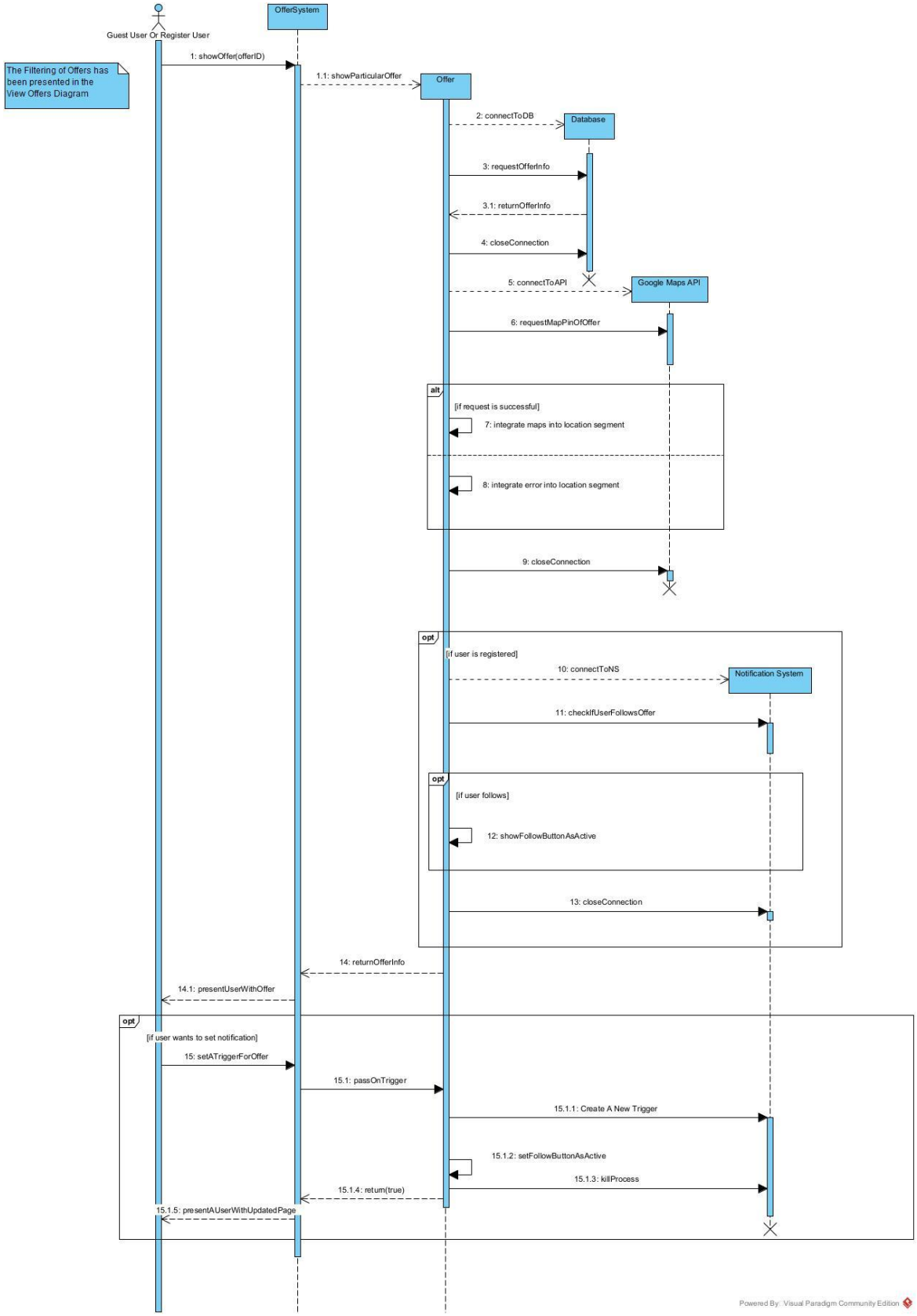
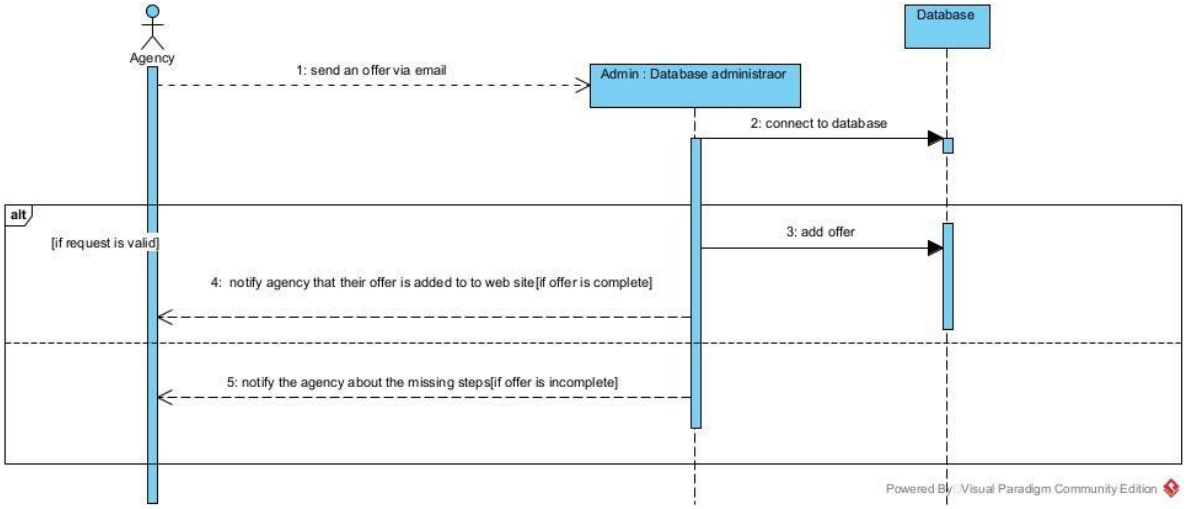
6.3 View Offers



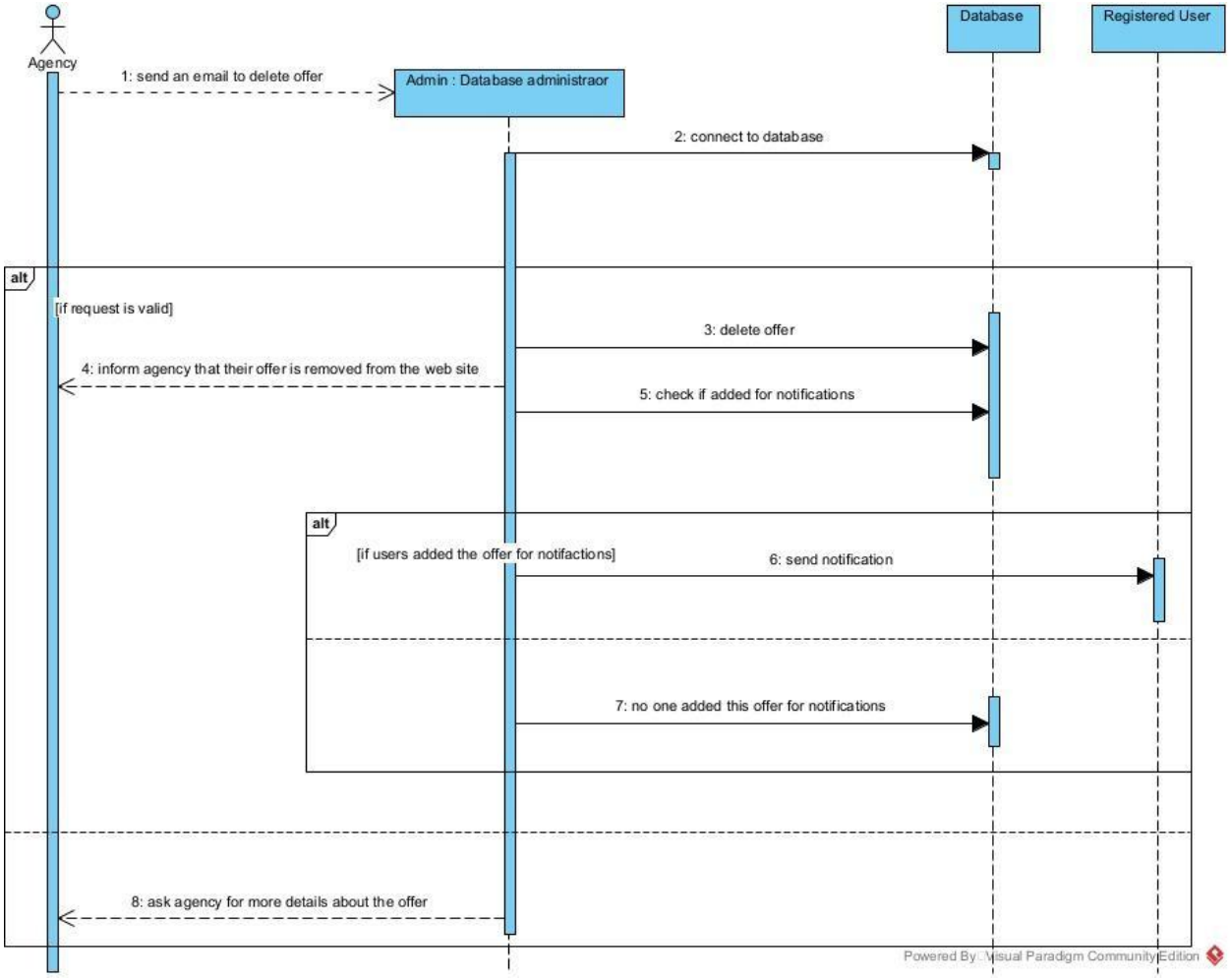
6.4 Particular Offer



6.5 Adding Offer

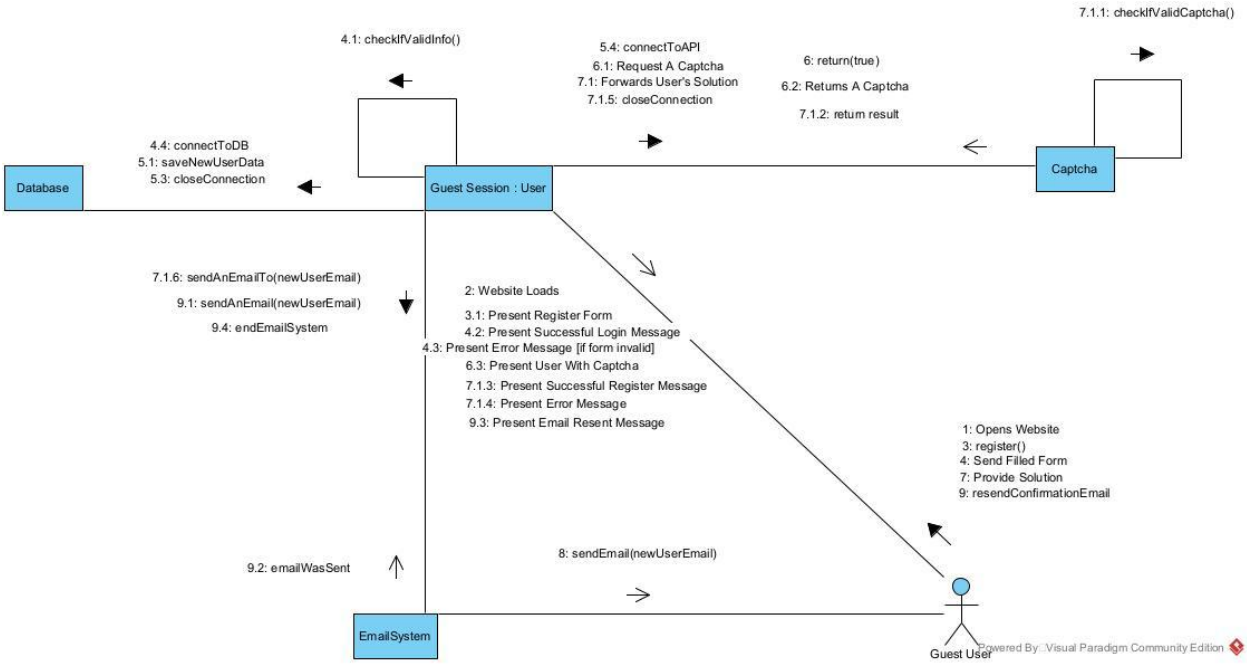


6.6 Remove Offer

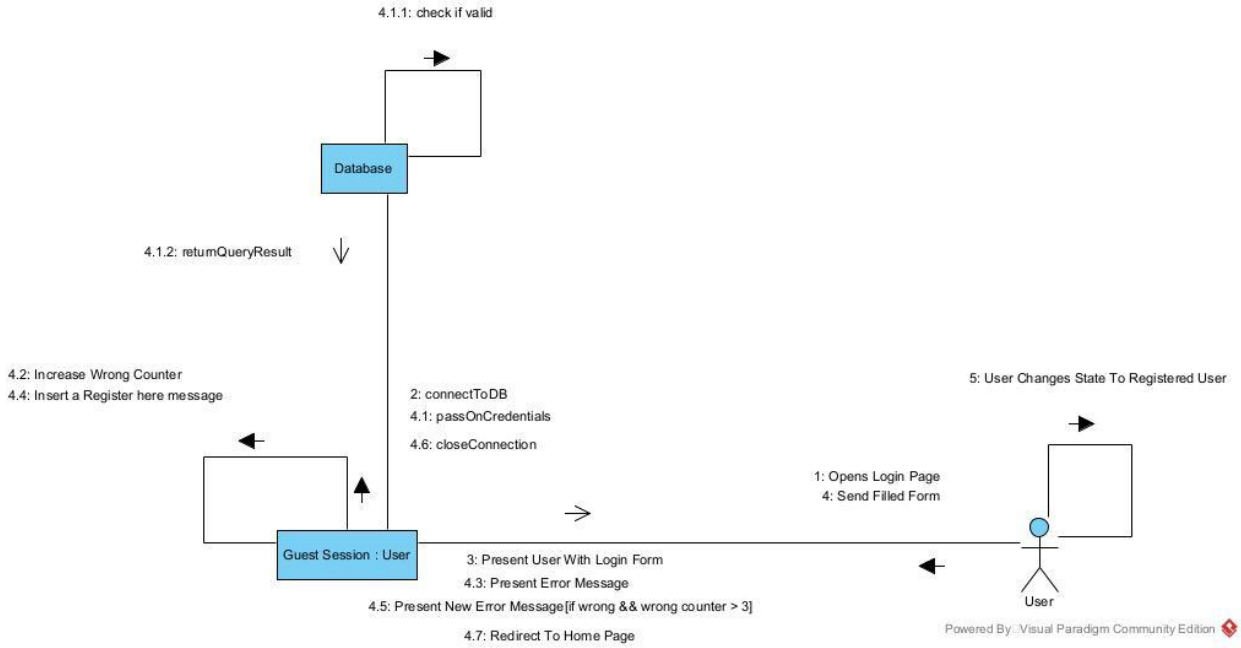


7. Communication Diagrams

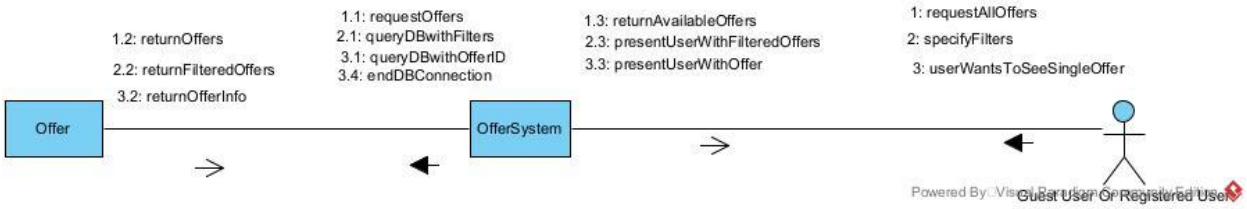
7.1 Registration



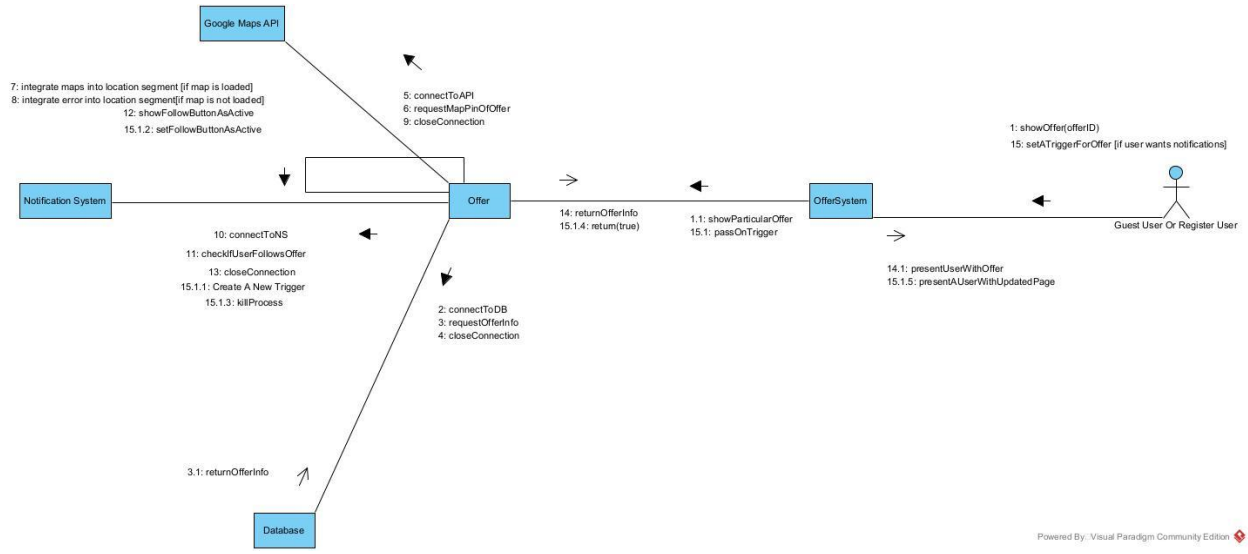
7.2 Log in



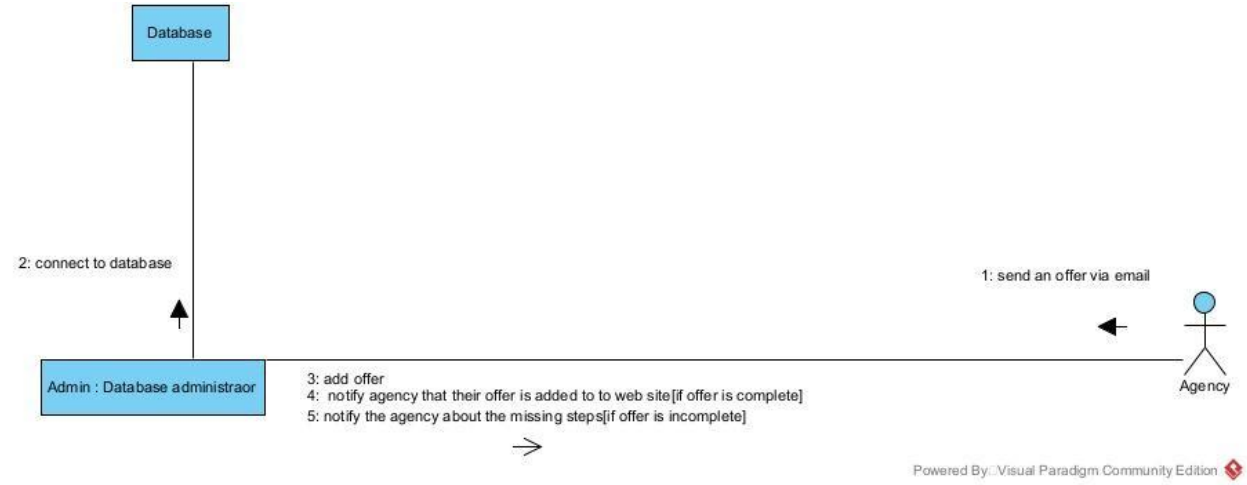
7.3 View Offer



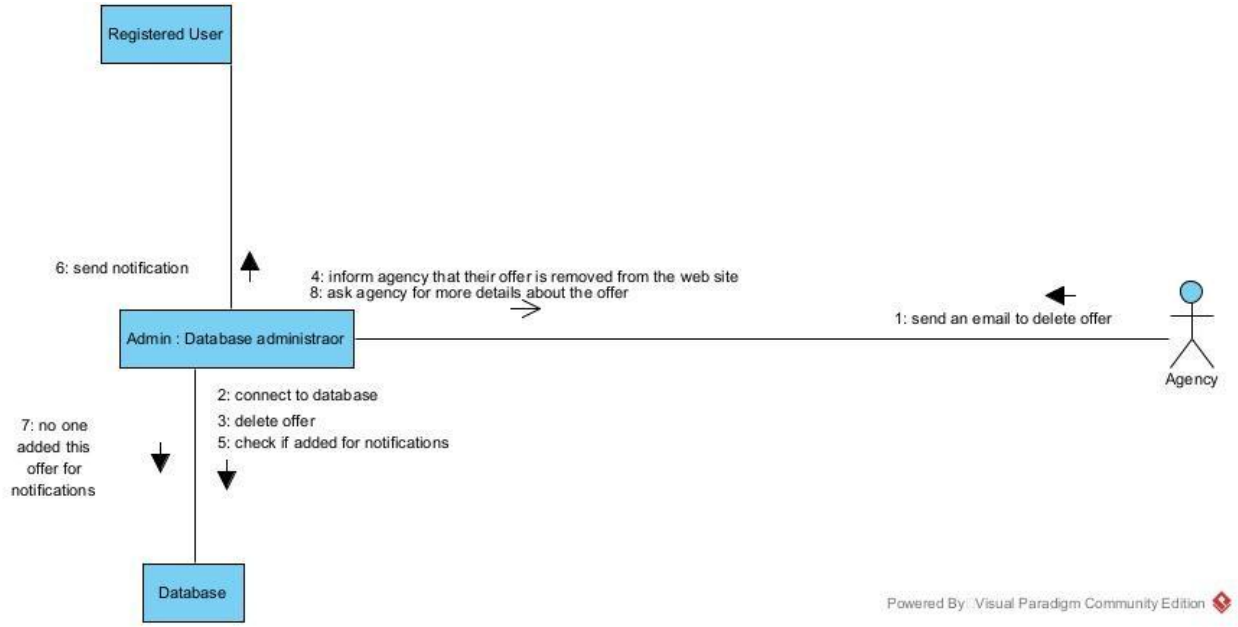
7.4 Particular Offer



7.5 Adding Offer

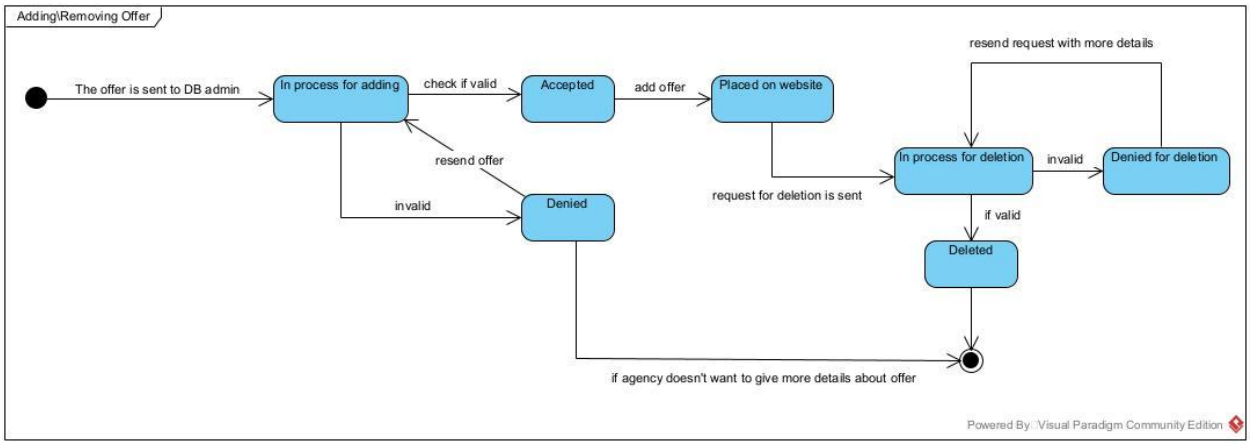


7.6 Removing Offers

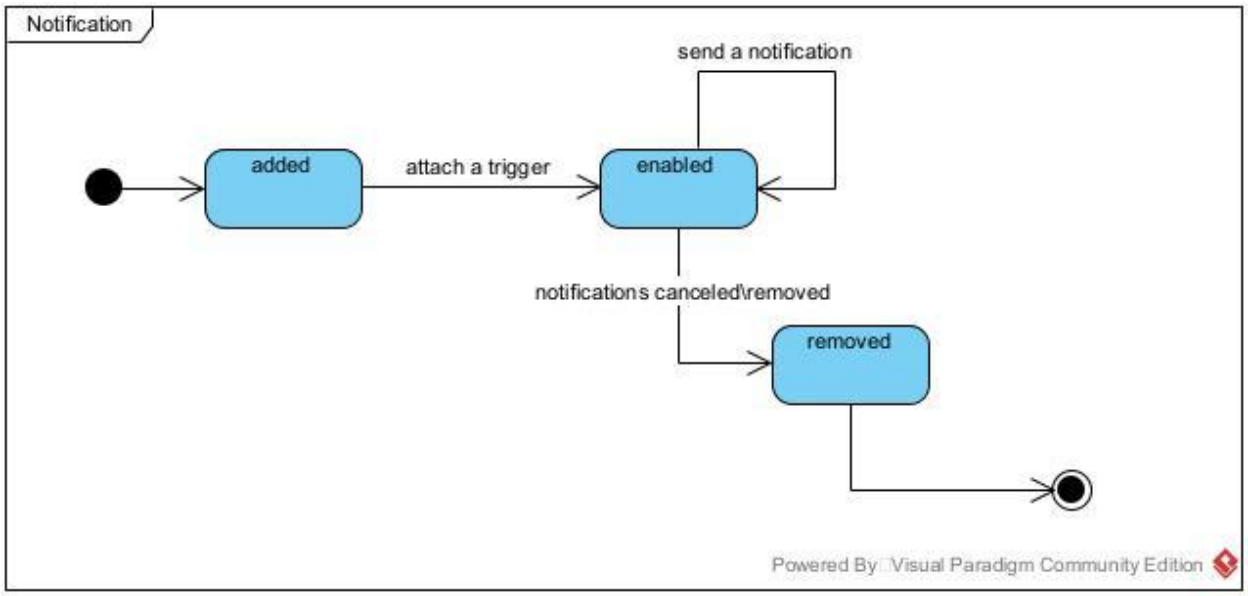


8. Behavioral State Machines Diagram

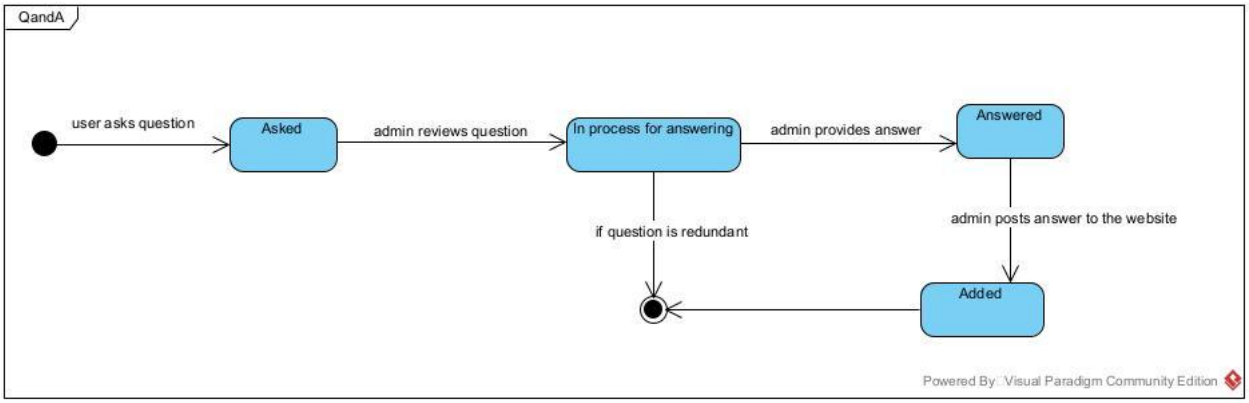
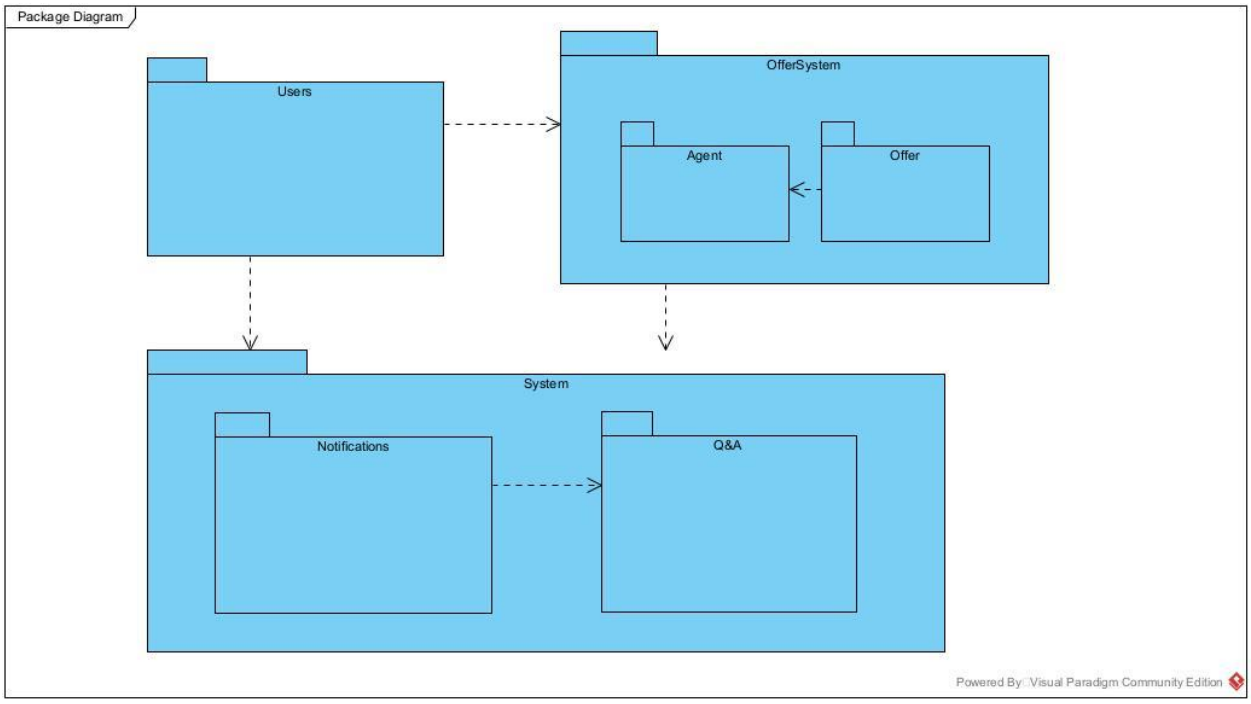
8.1 Adding/Removing Offer



8.2 Notifications



8.3 Q&A



9. Package Diagram