

Information Management and Systems Engineering Milestone 1

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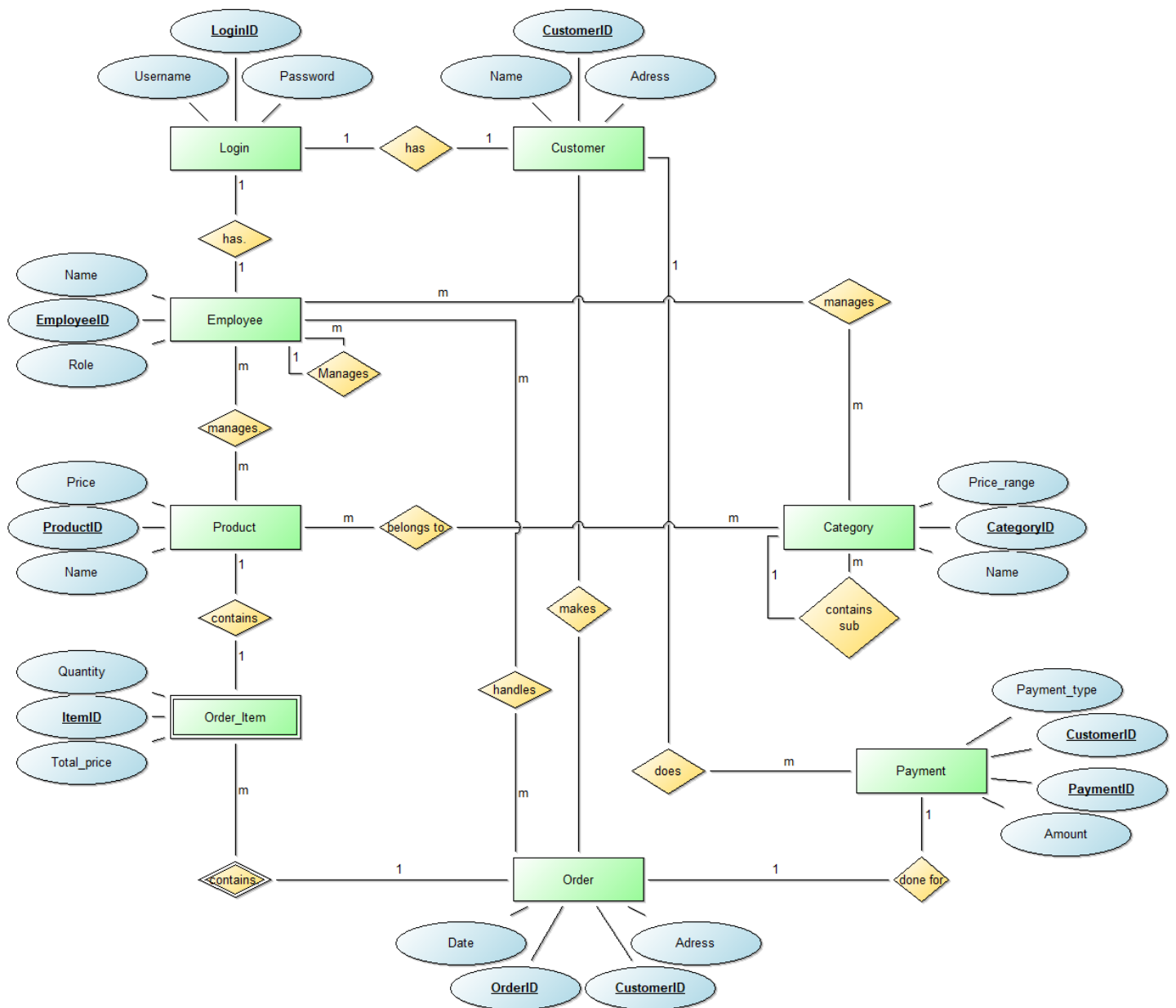
1 Conceptual Modelling

1.1 Business Model Outline

The project represents the basics of an online shop and its connections. The central entity of the online shop is the customer who is distinguished from other customers by his unique identification number as well as his name and address. The customer can only access the system and its features after he has logged in (authenticated). In the ER diagram, this action represents the logging entity which contains a unique identification number (with which the user credentials of different users are differentiated) as well as the username and password of the user. The customer places orders for products which are differentiated from one another by a combination of the identification number of the customer and a unique identification number of the order but also contains an order date and the address where the order is sent. The order is composed of order items that have a unique identification number and of course can be ordered in larger numbers, which is why they also have a quantity and total price field, which is formed from the number of items ordered and the individual price. Each order item is linked to a product that is ordered. The products are distinguished by a unique identification number as well as the price and name. In addition, products are divided into categories (and sub-categories) which are differentiated from one another by a unique identification number and which the user can distinguish by name and price. After the user has placed an order for a product, he must make a payment for this order. The payments are differentiated by a combination of the identification number of the user and a unique identification number of the payment. Furthermore, the payments are also differentiated by the payment type and amount. Another very important entity in this project is the employee. The employee is distinguished from other employees by his unique identification number as well as his name and role. Depending on their role one or multiple employees can manage one or multiple products, orders and categories. Employees have supervisors which amongst other things manage their work.

1.2 Entity Relationship Diagram

Online-Shop

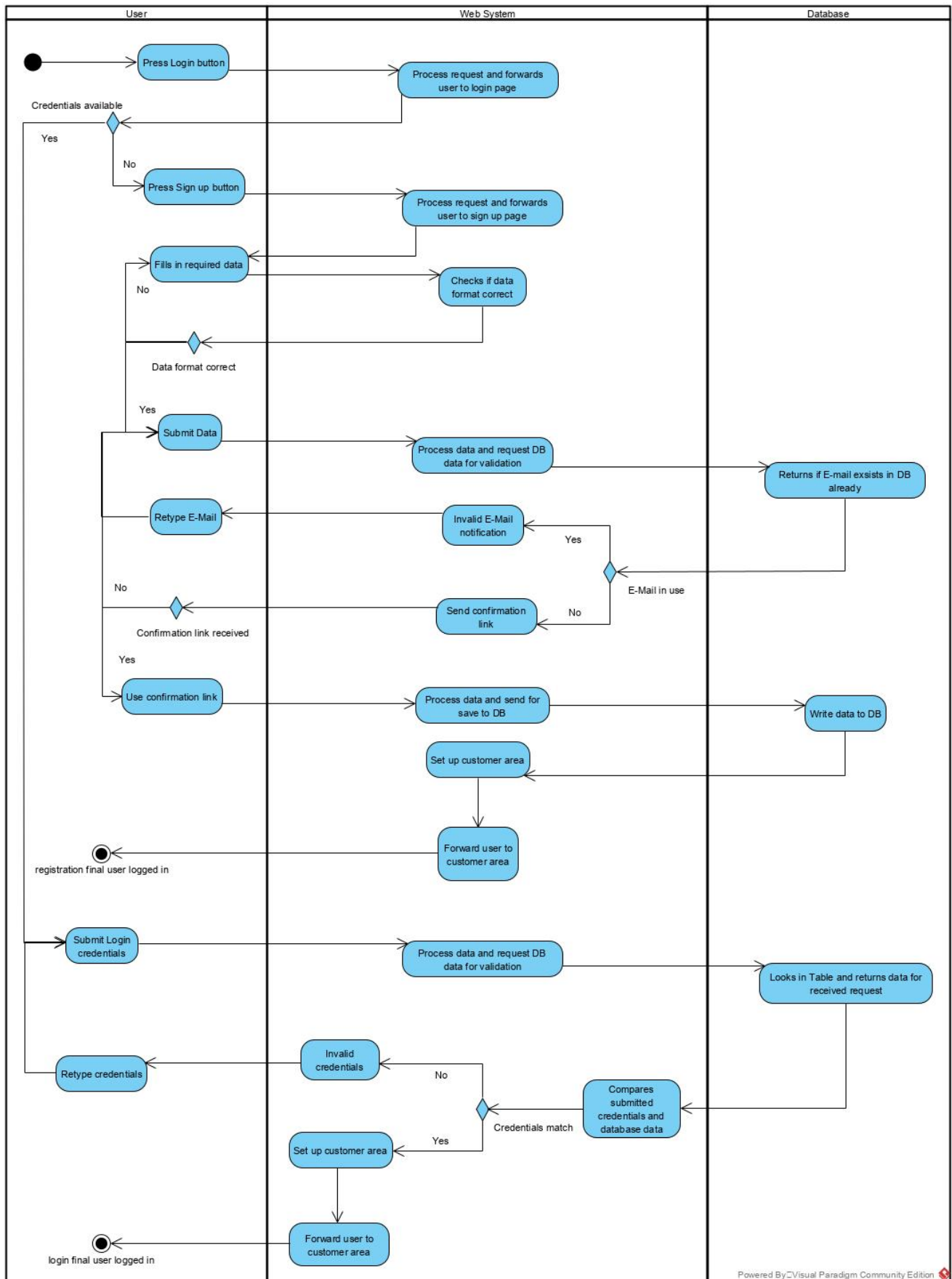


2 Use-Case Design

2.1 Login

Title	Login
Objective	The customer enters his personal customer area, where he can track his orders, payments etc.
Description(s)	In order to join his customer area, the user has to log in with his username and password. If a person doesn't yet have his login credentials, he must register, whereby if everything fits, he will be directly logged into the customer area. For every other login the customer has to use his login credentials.
Precondition(s)	The customer should already be registered and should know his login credentials, or should register if he doesn't have an account.
Expected execution	<p>1. Customer is on the website of the online shop.</p> <p>2. Press the login button and will be forwarded to the login page.</p> <p>3. Credentials available:</p> <ul style="list-style-type: none"> -Enters customer number -Enters password - System checks credentials in Database -System loads customer data, and sets up his customer area -Customer is forwarded to his customer area page. <p>3. Credentials not available:</p> <ul style="list-style-type: none"> -User presses the sign up button. -User is forwarded to the sign up Page -User fills in the required info (password, email...) - DB checks email and password. System sends confirmation link, which user uses. -System writes data in DB -System loads customer data, sets up customer area -Customer is forwarded to his customer area page.
Postcondition(s)	<p>Login credentials available:</p> <p>Success: Customer logged into the customer area.</p> <p>Error: Credentials don't match to database entries, try again.</p> <p>Login credentials not available (registration required):</p> <p>Success: Customer logged into the customer area.</p> <p>Error: Credentials don't match requirements, try again.</p>

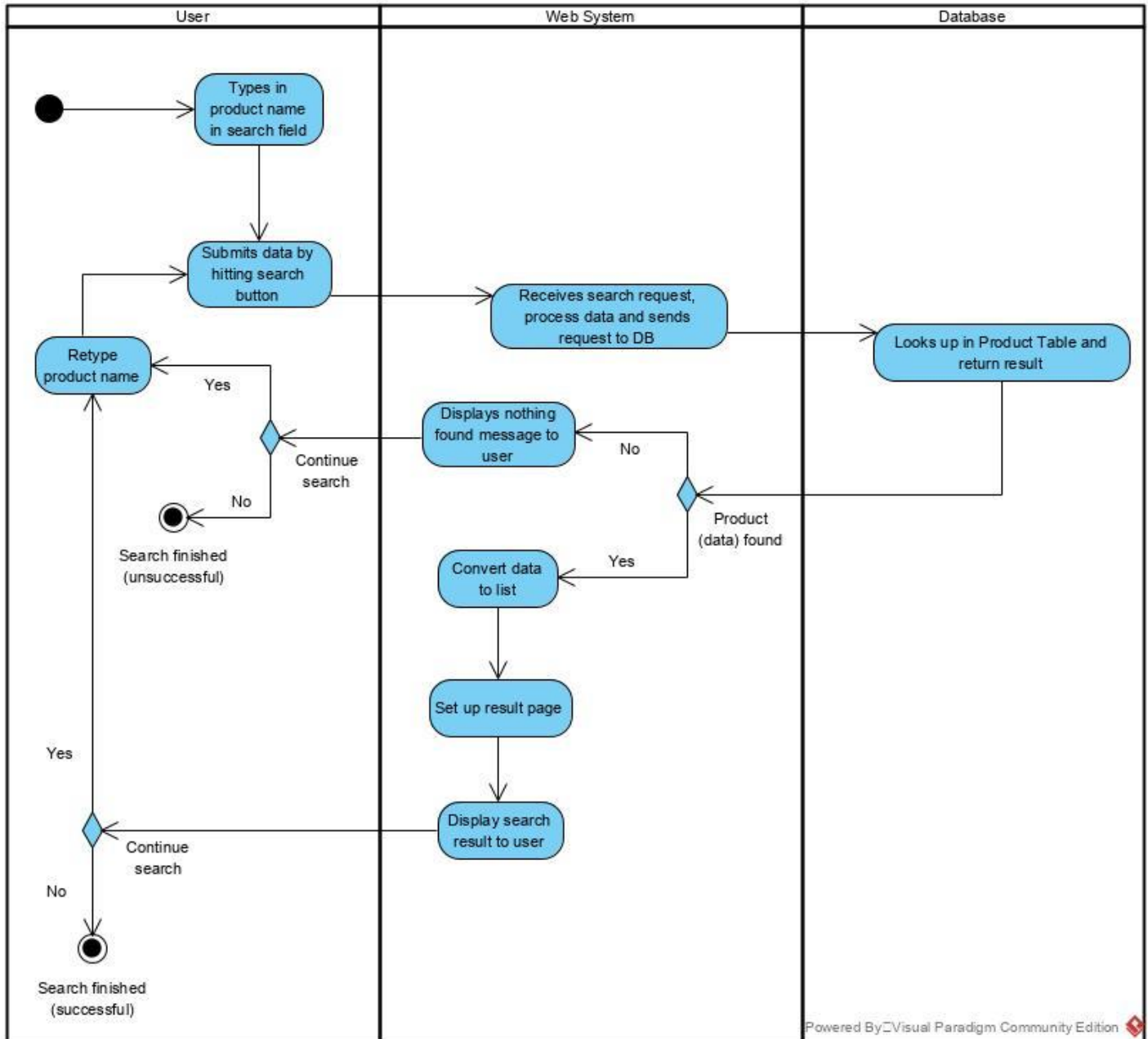
2.1.2 Activity diagram Login (main use case)



2.2 Searching for an item

Title	Searching for an item
Objective	To find the wanted item and retrieve information about it.
Description(s)	The user uses the search field to find an item that he is interested in. He enters the name of the product in the search field, clicks on the search button and receives a search result, which comes in the form of a list with pictures of the found item and further information about the listed items.
Precondition(s)	The user has to enter the name of the product he is looking for correctly and click on the search button.
Expected execution	<ol style="list-style-type: none"> 1. User activates the search field with his cursor 2. Types the product name in the search field 3. Uses the search button to start search 4. System collects the string and sends it to the DB 5. The database checks if item(s) with this name exist <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <ol style="list-style-type: none"> 6. Item(s) exist: <ul style="list-style-type: none"> -DB sends data back -System receives data and sorts them (makes list) -System displays the list to the user </div> <div style="width: 45%;"> <ol style="list-style-type: none"> 6. Item(s) doesn't exist: <ul style="list-style-type: none"> - DB returns that nothing was found - System receives nothing found and displays it to the user </div> </div>
Postcondition(s)	<p>Success:</p> <p>The user gets the information about the item displayed.</p> <p>Error:</p> <p>Item not found please check entered product name.</p>

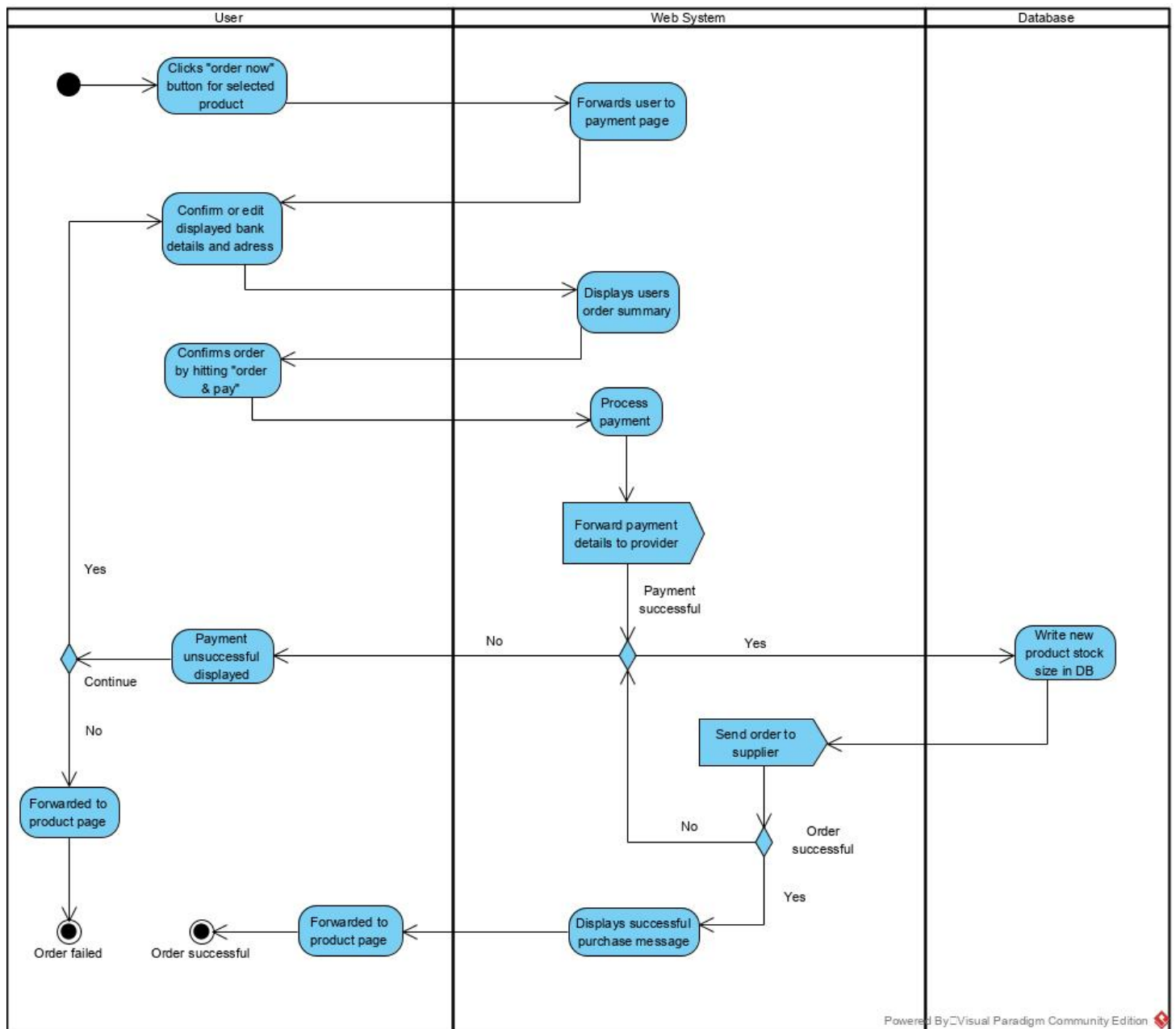
2.2.1 Activity diagram - Searching for an item



2.3 Buying a product (main use case)

Title	Buying an item		
Objective	The customer receives the product for which he paid.		
Description(s)	From the list that the customer got by using the search field, he selects a product that meets his expectations. The customer orders this item by pressing the "Order Now" button and making a payment for the item.		
Precondition(s)	The user must be logged in with his login credentials, left his bank account data and address in the customer area and select an item from the list got via the search field.		
Expected execution	<ol style="list-style-type: none"> 1. The customer clicks the "order now" button and is redirected to the "payment" page. 2. Confirms or edit the displayed bank details and his address. 3. Gets a summary of his order and confirms it by pressing the button "Order & Pay". 4. The website system forwards the instruction to the payment system, which carries out the payment. <table border="0"> <tr> <td> 5. Payment successful: -Payment system forwards instruction to DB. -DB reduces the number of items. -The system forwards the order to the supplier - The user gets informed about the successful purchase and is forwarded back to product page </td> <td> 5. Payment unsuccessful: -Customer notified that the payment was unsuccessful. offered "try again" or "cancel" - "Try again" back to step 2 -"Cancel" forwarded back to product page </td> </tr> </table>	5. Payment successful: -Payment system forwards instruction to DB. -DB reduces the number of items. -The system forwards the order to the supplier - The user gets informed about the successful purchase and is forwarded back to product page	5. Payment unsuccessful: -Customer notified that the payment was unsuccessful. offered "try again" or "cancel" - "Try again" back to step 2 -"Cancel" forwarded back to product page
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Postcondition(s)	<p>Success:</p> <ul style="list-style-type: none"> - Customer will receive the ordered item. - Stock for ordered item decreased <p>Error:</p> <ul style="list-style-type: none"> - Customer initialises the payment process again - The ordering process is being cancelled. Customer can contact the support stuff, or try again later. 		

2.3.1 Activity diagram – Buying a product

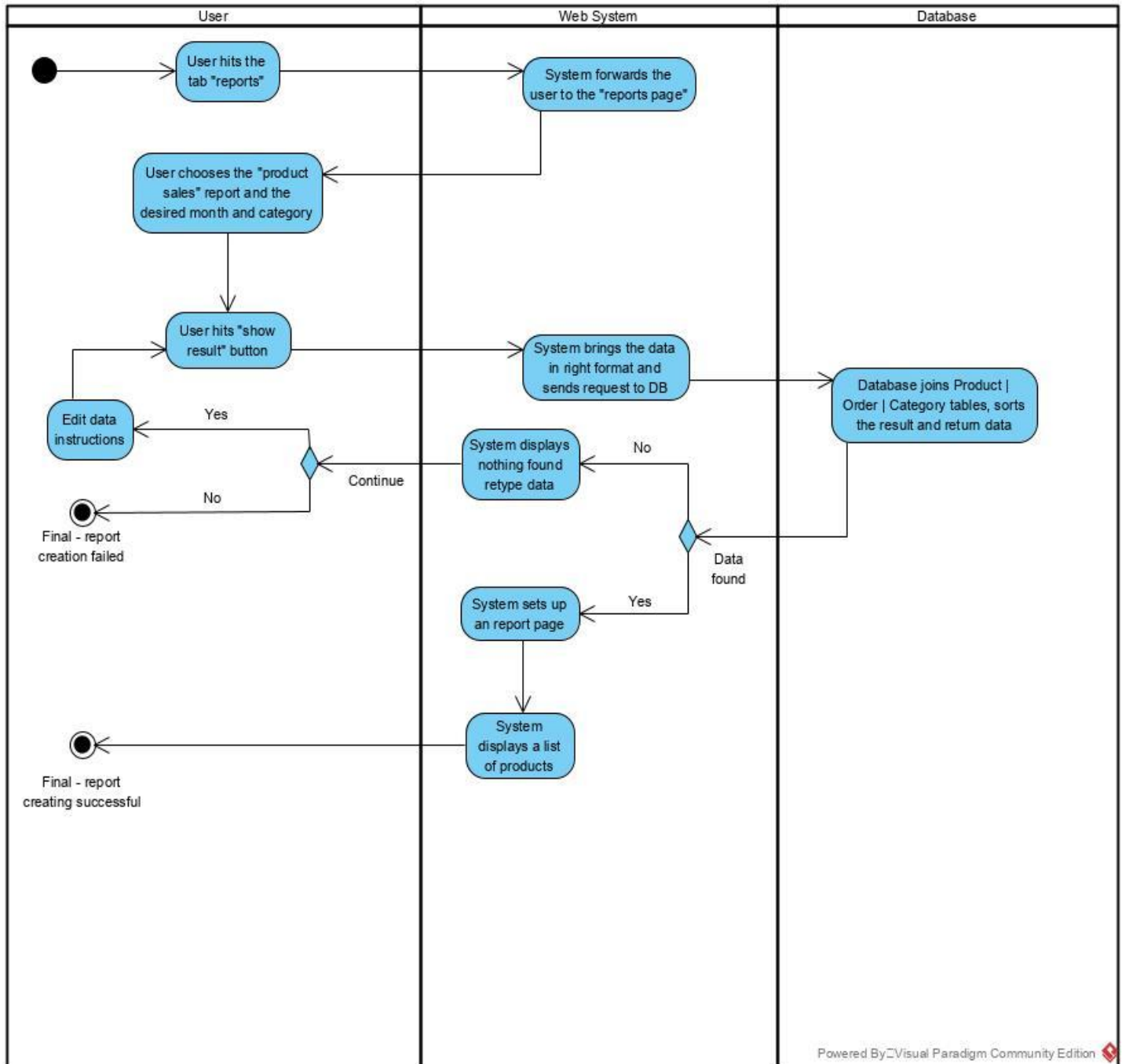


2.4 Product sales report per category (elaborate use case)

Title	Report on product sales per category
Objective	Be able to see the top selling product per month (order date) per category .
Description(s)	Employees can see precise statistic on product sales per category per month.
Precondition(s)	Employees must be logged in the system and have a Manager role.
Expected execution	<ol style="list-style-type: none"> 1. The employee is logged in with his manager credentials and clicks on the tab “reports”, which forwards him to that page. 2. He chooses the desired report (product sales) as well as the timeframe (month) of the report and the category for which he wants the report. 3. By selecting the “show results” button the time frame and category are been send to the Web System and the Database which combines the information, sorts them in descending order and sends them back to the Web System. 4. The Web system sets up the report page and displays the information’s to the employee.
Postcondition(s)	<p>Success:</p> <p>A list of all products in the selected category and for the selected month is displayed.</p> <p>Error:</p> <p>The selected month is in the future or no data found, the user is instructed to start the search again with new instructions.</p>

*Uses data generated by both main use cases (employee login and product buying)

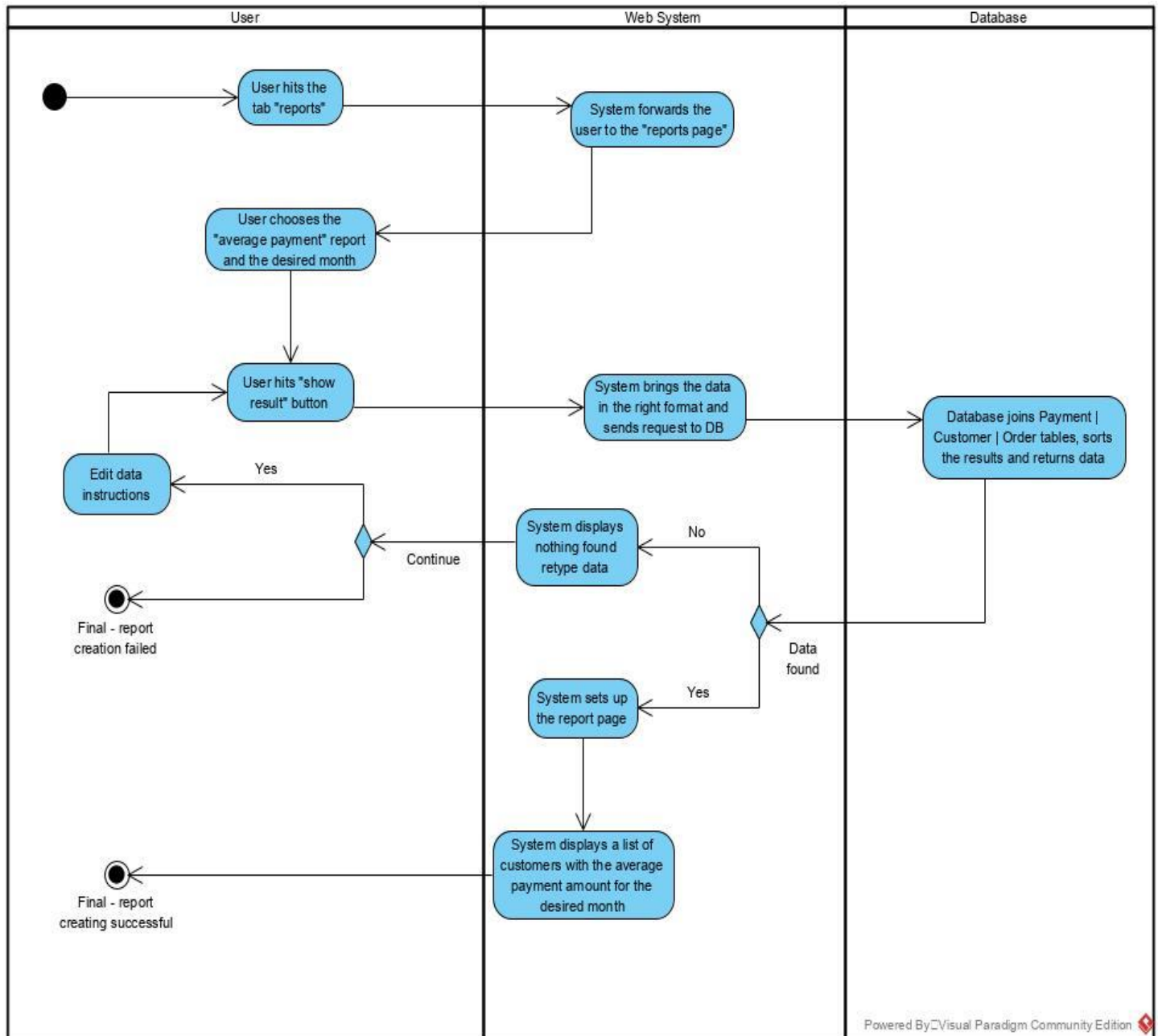
2.4.1 Activity diagram Product sales report per category



2.5 Average payment amount report (elaborate use case)

Title	Average payment amount report
Objective	Be able to see the average payment amount per customer per month (order date).
Description(s)	Employees can see precise statistic on average payments per customer per month.
Precondition(s)	Employees must be logged in the system and have a Manager role.
Expected execution	<ol style="list-style-type: none"> 1. The employee is logged in with his manager credentials and clicks on the tab “reports”, which forwards him to that page. 2. He chooses the desired report (average payment) as well as the timeframe (month) of the report. 3. By selecting the “show results” button the time frame is been send to the Web System and the Database which combines the information, sorts them in descending order and sends them back to the Web System. 4. The Web system sets up the report page and displays the information’s to the employee.
Postcondition(s)	<p>Success:</p> <p>A list of the average payment amount for every customer for the desired month in descending order is displayed.</p> <p>Error:</p> <ul style="list-style-type: none"> - The selected month is in the future or no data found, the user is instructed to start the search again with new instructions.

2.5.1 Activity diagram Average payment amount report



3 Working protocol

Date, Time	Length in minutes	Task	Result	Responsibility	Remarks
09.11.2020, 10:00	120	Business Model Outline, ER diagram	BMO & ER diagram on pages 3 and 4.	Nemanja Srdanovic	...
09.11.2020 13:00	10	Defining two use cases	Use cases defined: - Login - Searching for an item	Nemanja Srdanovic	...
09.11.2020 13:15	65	Create 1 st use case and activity diagram	Detailed textual description and Graphical representation on pages 5 and 6.	Nemanja Srdanovic	...
09.11.2020 14:25	50	Create 2 nd use case and activity diagram	Detailed textual description and Graphical representation on pages 7 and 8.	Nemanja Srdanovic	...
10.11.2020 11:00	15	Defining 3 use cases including elaborate use cases	Use cases defined: - Buying a product - Product sales report - Average payment amount	Nemanja Srdanovic	...
10.11.2020 11:20	75	Create 3 rd use case and activity diagram	Detailed textual description and Graphical representation on pages 9 and 10.	Nemanja Srdanovic	...
10.11.2020 13:15	85	Create 4 th use case and activity diagram	Detailed textual description and Graphical representation on pages 11 and 12	Nemanja Srdanovic	...
10.11.2020 16:15	75	Create 5 th use case and activity diagram	Detailed textual description and Graphical representation on pages 13 and 14.	Nemanja Srdanovic	...