

Online game shop

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Revision History

Name	Date	Reason For Changes	Version
Pawel	08.10.17	Implementation of use cases: 1, 4, 5, 6, 7, 8, 9, 13, 14, 15, 19, 20, 21	1.0
Annette	08.10.17	Implementation of use cases: 2, 3, 10, 11, 12	1.0
César	08.10.17	Implementation of use cases 16,17, 18	1.0
Annette	15.10.17	<ul style="list-style-type: none">- revision of use case 2- split of UC3 into UC3 and UC25- introducing new actor "e-mail server"- Introducing new use case 'Customer renews rental of a game' (UC26)	1.1
Pawel	16.10.17	<ul style="list-style-type: none">- revision of UC1, split into UC1 and UC22- UC4 split into 3 use cases (UC4 as a prerequisite for UC23 and UC24)- UC8 is removed from the specifications- UC7 is changed to action of adding an item to the cart- UC15 is expanded to 'Checking out' encapsulating payment process	1.1

		<ul style="list-style-type: none"> - UC21 is shorter to eliminate duplications - Use case list is reworked to reflect the changes 	
Annette	18.10.17	<ul style="list-style-type: none"> - creating a glossary - table of non-functional requirements 	1.1
Pawel	18.10.17	Creation of the Use Case Diagram showing relations and flow of information	1.1
Esther	19.10.17	Wrote the story	1.1
Pawel	19.10.17	Interface prototypes for: <ul style="list-style-type: none"> - Customer Home Page (logged in) - Admin Home Page (logged in) - Stock Management Main Page - Product Info Page (opened by clicking on listed searched product on Stock Management Screen) - Sample Footer 	1.1
Annette	19.10.	Interface prototype for: - Sales Reports page	
Esther and Luca	19.10	<ul style="list-style-type: none"> • Luca just joined the team • Logo ideas 	

Guzmán and César	19.10	Interface prototypes for: <ul style="list-style-type: none"> - Customer search page - Customer log in - Customer register - Customer game expanded 	1.1
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1. Description:

The Online Game Shop is a web application that allows for a company to sell and rent games to customers. The application stores all the information about the company's stock and administrators can modify this data. In order to buy or rent games, customers need to register their details in the system and upon successful login they are able to carry out purchases or rentals. The application is not a streaming-based system, neither provides digital copies of the products, therefore all products are delivered to clients via post.

2. Actors:

- Customer
- Administrator
- System/ database
- external E-mail server
- Bank
- Finance team

3. Story:

The first time the application is started the administrator needs to register (UC12) and log in (UC14). After this, he needs to add the stock (UC1) and the application will be ready to start using it.

Every day, the application automatically notifies customers about due rentings(UC2) and downloads default sales/rents reports(UC3), and administrators display pending customer orders(UC4) and process returns(UC5).

Administrators are able to delete stock(UC6), add stock (UC1), update the number of copies of a product in stock(UC22) and download the stock report(UC20) whenever is needed.

As well, they can accept a customer order(UC23), delete a customer order(UC24), downloads customized sales/rents reports(UC25) and update its account details(UC17).

Users can browse the catalog (UC11) or search for a product (UC10). If they find a product they want to buy/rent, they will have to register(UC13), if they are not already, and log in(UC14); then, add it to the cart(UC7) and check out(UC15). If they have already rented a product before and they want to buy it, they can access a list of the products they have rented before(UC18) and add it to the cart (UC21); then, just check out (UC15). If they are renting a product and the due date is close, they can renew the rental(UC26).

Also, they can change their information(UC16), accesses to a list of the products they have already bought and rented(UC18) and review and rate products(UC9) so other users can see them.

4. Use cases:

- Initially
 - Administrator adds new stock item (**UC1**)
- Daily
 - Application automatically notifies customers about due rentings by e-mail (**UC2**)
 - Administrator downloads default sales/rents reports for finance purposes (**UC3**)
 - Administrator displays pending customer order (**UC4**)
 - Administrator processes returns (**UC5**)
- On demand
 - Administrator deletes scrapped stock (**UC6**)
 - Administrator uploads new stock (**UC1**)
 - Customer adds an item to the cart (**UC7**)
 - Customer buys a game (**UC8**) - NO LONGER VALID
 - Customer reviews and rates a product (**UC9**)
 - Customer searches for a specific product (**UC10**)

- Customer browses the catalogue of products (**UC11**)
- Administrator registers to the system (**UC12**)
- Customer registers to the system (**UC13**)
- Customer or Administrator logs into the system (**UC14**)
- Customer checks out (**UC15**)
- Customer updates its account details (**UC16**)
- Administrator updates its account details (**UC17**)
- Customer accesses history of items bought/rented (and returned) (**UC18**)
- Customer accesses a list of currently rented items (**UC19**)
- Administrator downloads stock report (**UC20**)
- Customer adds to cart an item already rented (**UC21**)
- Administrator updates the number of copies of an item in stock (**UC22**)
- Administrator accepts a customer order (**UC23**)
- Administrator cancels a customer order (**UC24**)
- Administrator downloads customized sales/rents reports for finance purposes (**UC25**)
- Customer renews rental of a game (**UC26**)

5. Detailed Use Cases:

Initiation use case :

Use case 1	Administrator adds new stock item
Description	The administrator inputs all new stock and related information onto the system so that they are available in the online store for buying/renting by the customers.
Input	Stock information (Games).
Preconditions	Admin needs to be registered (UC12) and logged in (UC14).
Output	Updated database.
Postconditions if success	Customers can buy/rent products using the system.

Postconditions if failure	No products in database or inconsistent information stored	
Actors	Administrator	
Normal sequence	1	Register as admin (UC12)
	2	Log in (UC14)
	3	Admin home page is displayed
	4	Go to Stock Management option
	5	'Stock Management' screen is displayed
	6	Select 'input new item'
	7	Form to input new items is displayed
	8	<p>Fill the details:</p> <ul style="list-style-type: none"> - Unique Copy Code (for each copy of same product - this is represented as a list with all - Unique Product Code (same for all copies of the product) - Cover Image - Name - Platform (multivalues allowed) - Developer - Publisher - Release Date - Genre (multivalues allowed) - Age Limit - Description - Screenshots (not obligatory) - Purchase Price - Renting Price <p>and submit them (option to 'cancel' - got to step (5))</p>
	9	System goes back to Stock Management screen and informs administrator that the action is completed with success
	10	To add more items got to step (6)

	11	To add more copies of same item - go to (UC22)
	12	Administrator logs out to complete the process
Alternative sequence	A1	(From 8) Missing data or incorrect format - inform user - go to step (7)

Daily use cases :

Use case 2	Application automatically notifies customers about due rentings by e-mail
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Description	The rental period of games is 90 days. During the regular overnight-update the database detects due dates of 5 days for rentings within the specific user accounts and sends out a first reminder via an e-mail server to the customer. In case of a due date for the next day the system sends out a second reminder accordingly. Every customer receives only one e-mail at a time containing all relevant due dates.	
Input	Due dates for rentings within the specific user accounts - Database updates the due dates every night; process does not require active input once a user has rented an item (UC7, UC15) and it has been accepted by the administrator (UC23).	
Preconditions	Customer has an account with valid data, especially a correct e-mail address (UC13) approved by the system. The information about rents and their due dates must be accurate so the email contains correct and consistent information.	
Output	First respectively second e-mail reminder to customer	
Postconditions if success	Customer is notified about due items and can renew the rental (UC26) if possible, or return item(s) without facing a fine.	
Postconditions if failure	Customer receives email with inconsistent information or email is sent out too late. So customer may not be aware of due date(s).	
Actors	System/ application/ database, e-mail server	
Normal sequence	1	The database checks all user accounts one by one for items due for return within 5 days and in a specific account comes across such an item.
	2	The database examines all other items within the account of this specific user and filters out the rentings with a due date less or equal to 5 days.
	3	The system creates a document with all these items and there due dates and a corresponding text informing the customer. This document is passed to an external e-mail server with the e-mail address of this specific account.
	4	E-mail server sends out this e-mail as a first reminder to the customer

Alternative sequence	<table border="1"> <tr> <td>A1</td><td>From 3) The e-mail arrives too late, the information and due dates are incorrect, user receives multiple e-mails for first and second reminders - this needs to be investigated further by contacting the administrators.</td></tr> </table>	A1	From 3) The e-mail arrives too late, the information and due dates are incorrect, user receives multiple e-mails for first and second reminders - this needs to be investigated further by contacting the administrators.
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Use case 3	Administrator downloads sales/rents reports for finance purposes
Description	Admin personnel is able to extract financial reports that can be passed to finance team for accounting purposes
Input	Daily report requested by administrator: no additional data need to be entered
Preconditions	Admin needs to be registered (UC12) and logged in (UC14), information in database must be consistent
Output	sales/rents reports for the last day (past 24 hours until 8 am of the current day) showing all sold and rented items, product names, product codes, customers and a summation of the sales.
Postconditions if success	Administrator has a correct overview of total sales/rents and sales volume for the past day.
Postconditions if failure	Report contains no data, inconsistent or incorrect data and sales figures.
Actors	Administrator, Finance

Normal sequence	1	Register as admin (UC12)
	2	Log in (UC14)
	3	Admin home page is displayed
	4	Go to 'Reports'-option is displayed
	5	Reports screen is displayed, click on 'Sales report' for the default report.
	6	System informs administrator that the action is completed with success and displays the report; report can be downloaded as a pdf-file or (optional) administrator can go on 'Print'-button to print the report.
	7	For creating more reports admin can go to step (6) or return to admin-homepage
Alternative sequence	A1	If no sales or rents occurred on the past day, an error message is displayed informing the administrator. Go back to step (5) or to admin-homepage
	B1	Database is only fully updated over night. Rents/ Sales of current day may not be included in the report, repeat the next morning

Use case 4	Administrator displays pending customer order
Description	The administrator checks if any orders have been made each day and displays their details so they can be processed using (UC23) or (UC24)
Input	Customer orders (buying / renting)
Preconditions	Admin needs to be registered (UC12) and logged in (UC14).
Output	Information for admin staff of any pending orders

Postconditions if success	Orders can be accepted (UC23) or cancelled (UC24)															
Postconditions if failure	Customer does not receive his order.															
Actors	Administrator															
Normal sequence	<table><tr><td>1</td><td>(only if required) Register as admin (UC12)</td></tr><tr><td>2</td><td>Log in (UC14)</td></tr><tr><td>3</td><td>Admin home page is displayed</td></tr><tr><td>4</td><td>Go to 'Customer Orders' option</td></tr><tr><td>5</td><td>Customer Orders screen is displayed with the list of all the orders made by Customers waiting to be processed as well as options to view previously accepted/cancelled orders. Orders only appear if the payment is confirmed by the bank (UC15)</td></tr><tr><td>6</td><td>Administrator clicks on 'View Order Details' on one of the orders listed</td></tr><tr><td>7</td><td>The information about the order is displayed on the screen with information about the customer (account details including name and address), product as well as type of the order (purchase, rent or purchase of an already rented product) and payment information. There are also three buttons 'Accept', 'Cancel' (with a text field to input cancellation reason) and 'Back' (go to B1 for 'Back' option).</td></tr></table>		1	(only if required) Register as admin (UC12)	2	Log in (UC14)	3	Admin home page is displayed	4	Go to 'Customer Orders' option	5	Customer Orders screen is displayed with the list of all the orders made by Customers waiting to be processed as well as options to view previously accepted/cancelled orders. Orders only appear if the payment is confirmed by the bank (UC15)	6	Administrator clicks on 'View Order Details' on one of the orders listed	7	The information about the order is displayed on the screen with information about the customer (account details including name and address), product as well as type of the order (purchase, rent or purchase of an already rented product) and payment information. There are also three buttons 'Accept', 'Cancel' (with a text field to input cancellation reason) and 'Back' (go to B1 for 'Back' option).
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Alternative sequence	<table><tr><td>A1</td><td>(From 5) No orders are displayed - no customer made</td></tr></table>		A1	(From 5) No orders are displayed - no customer made												
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	<table><tr><td></td><td>any purchase or failure of (UC15)</td></tr><tr><td>B1</td><td>Administrator can click 'Back' to return to the list of orders (step 5)</td></tr></table>			any purchase or failure of (UC15)	B1	Administrator can click 'Back' to return to the list of orders (step 5)										
	any purchase or failure of (UC15)															
B1	Administrator can click 'Back' to return to the list of orders (step 5)															

Use case 5	Administrator processes returns	
Description	The administrator receives products that were previously rented by customers and informs the system that they are back in stock.	
Input	Customer sending back rented product.	
Preconditions	Admin needs to be registered (UC12), logged in (UC14) and have returns to process.	
Output	Rented product is removed from customer account as 'currently rented'.	
Postconditions if success	Customer successfully returned the product.	
Postconditions if failure	Customer may get information about due renting even though one sent back the product - fees can also apply	
Actors	Administrator, Customer	
Normal sequence	1	(only if required) Register as admin (UC12)
	2	Log in (UC14)
	3	Admin home page is displayed
	4	Go to 'Currently Rented' option
	5	'Currently Rented' screen is displayed with the list of all the currently rented products. Each rented product has customer ID, copy code and links to customer account info, product info and order info. It also has an option called 'returned' that takes the product of the 'currently rented products' section.
	6	Administrator uses 'search field" to find rentals of the particular customer (by Cust ID and copy code)
	7	Administrator clicks 'returned' on the specified rental
	8	The product is marked in database as returned and the change is reflected in the system - it disappears from the

	<table border="1"> <tr> <td></td><td>'currently rented' section and is available again to be rented/purchased</td></tr> </table>		'currently rented' section and is available again to be rented/purchased
	'currently rented' section and is available again to be rented/purchased		
Alternative sequence	<table border="1"> <tr> <td>A1</td><td>(From 6) Nothing is found - further investigation needs to be carried out.</td></tr> </table>	A1	(From 6) Nothing is found - further investigation needs to be carried out.
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On demand Use cases :

Use case 6	Administrator deletes scrapped stock
Description	The administrator deletes from the system items that are no longer available for purchase/rental
Input	List of products to delete (with their unique copy codes)
Preconditions	Admin needs to be registered (UC12) and logged in (UC14).
Output	Updated database.
Postconditions if success	Products are no longer available in the online shop
Postconditions if failure	Products are still available in the online shop even though they are not present in the actual store
Actors	Administrator

Normal sequence	1	(only if required) Register as admin (UC12)
	2	Log in (UC14)
	3	Admin home page is displayed
	4	Go to Stock Management option
	5	'Stock Management' screen is displayed
	6	Administrator searches product by its product code (given on the list that the administrator has) and the product is displayed - administrator clicks on product
	7	The product info is displayed with the list of 'copy codes' and button 'Edit' (for editing information about the product type) 'Add' (to add new 'copy code') and 'Delete'
		button located next to each 'copy code' - if product is rented, this information is also displayed next to each copy.
	8	Administrator clicks on 'Delete' next to appropriate copy number according to the information provided to administrator - system displays message to confirm
	9	Administrator confirms
	10	System checks if the product is currently rented and process further if not - otherwise go to (A1)
	11	Product is successfully deleted from database
Alternative sequence	A1	(From 10) The product is rented and system informs the administrator
	A2	Administrator can cancel or proceed - if cancelled go to step (7), if confirmed, product is deleted and customer account has information that the customer never returned the product which can lead to blocking the customer

Use case 7	Customer adds an item to the cart
Description	Customer logs into the website and adds items to the cart for either buying or renting
Input	Customer choice of product to rent or buy
Preconditions	Product has to be available in the store, user has to be registered (UC13) and logged in (UC14), customer has to search for product (UC10) or browse catalogue to find product one is interested in (UC11)
Output	Cart containing chosen product for order
Postconditions if success	Customer can check out (UC15) and pay for the order
Postconditions if failure	Customer can not pay for products that are not in the cart
Actors	Customer

Normal sequence	1	(only if required) Register as customer (UC13)
	2	(at this stage it is optional) Log in (UC14)
	3	Home page is displayed
	4	Customer searches for the already known product (UC10) or browse the catalogue to find product one likes (UC11)
	5	Result of (UC10) or (UC11) is displayed
	6	Customer clicks on 'rent' or 'buy' button or clicks on the product image/title (if so, on the product information page one clicks 'rent' or 'buy') - if product is out of stock, these options are greyed out and information is stated 'OUT OF STOCK' (i.e. all rented out)
	7	System checks if user is logged in - if not go to (A1)
	8	Product is added to the cart - for more rentals/purchases go to step (4)
Alternative sequence		
	A1	(From 7) If user is not logged in - go to use case (UC14) and after successful completion go back to step (5)

Use case 8	Customer buys a game - USE CASE NO LONGER VALID
Description	Customer logs into the website and buys a product
Input	Customer choice of product to buy
Preconditions	Product has to be available in the store, user has to be registered (UC13) and logged in (UC14), customer has to search for product (UC10) or browse catalogue to find product one is interested in (UC11)

Output	Purchase order released
Postconditions if success	Purchase order is ready to be processed by administrator (UC4)
Postconditions if failure	Product is not sold
Actors	Customer, Bank

Normal sequence	1	(only if required) Register as customer (UC13)
	2	(at this stage it is optional) Log in (UC14)
	3	Home page is displayed
	4	Customer searches for the already known product (UC10) or browse the catalogue to find product one likes (UC11)
	5	Result of (UC10) or (UC11) is displayed
	6	Customer clicks on 'buy' button or clicks on the product image/title (if so, on the product information page one clicks 'buy' - if product is out of stock, this option is greyed out and information is stated 'OUT OF STOCK' (i.e. all rented out)
	7	System checks if user is logged in - if not go to (A1)
	8	Product is added to the cart - for more purchases go to step (4) or rentals go to (UC7)
	9	Customer clicks on cart located at the top right part of the page
	10	Cart is displayed (option to 'continue shopping' and 'checkout' are available. Each item can be deleted from cart using 'delete' button located next to each item on the list.
	10	Customer reviews the chosen products and clicks 'Check out'
	11	Form for payment information is displayed
	12	Customer fills the details and clicks confirm - go to (UC15)
	13	Confirmation screen appears with order and payment information, order is placed for processing (UC4), auto e-mail sent to customer with order information - if failure go to (B1)

Alternative sequence		
	A1	(From 7) If user is not logged in - go to use case (UC14)
	B1	(From 12) payment is rejected (failure of UC15) and user is informed, order is not processed - go to step (10)

Use case 9	Customer reviews and rates a product
Description	Customer can leave comments about products and rate it using star scale from 1 to maximum of 5 stars (1 being the worst and 5 being the best)
Input	Customer experience
Preconditions	User has to be registered (UC13) and logged in (UC14), product has to be bought or rented (UC7, UC21) and accepted (UC23) and needs to access purchase/rental history (UC18) and currently rented products (UC19)
Output	Product with appropriate product code has associated rating and review in the database
Postconditions if success	Product has a star rating and review displayed when users view information about the product
Postconditions if failure	Product is not reviewed/rated
Actors	Customer

Normal sequence	1	Customer accesses its rental/purchase history (UC18) or currently rented products (UC19)
	2	List of products is displayed with 'review' button next to each item in the list
	3	Customer can search for specific product or scroll
	4	Customer clicks on 'review'
	5	Screen with text field for review is displayed and 5 empty stars. Button 'Submit' is also displayed
	6	Customer types a review and clicks on one of the stars - whichever star is selected, it is highlighted and all remaining stars on the left as well, giving rating equal to number of highlighted stars (from 1 to 5)
	7	Customer clicks on 'Submit'
	8	The review and rating is added to the product information and the user is informed about successful operation - if failure go to (A1)
Alternative sequence	A1	(From 8) In case of failure of the review submission the customer is informed and redirected to step (2)

Use case 10	Customer searches for a specific product
Description	Customer uses the 'search'-field to find a specific product
Input	Customer enters a keyword related to his product, i.e. the whole title or part of the title
Preconditions	none, a search can always be conducted

Output	<p>If product can be definitely identified and is available, system displays it as available with picture, title, purchase and renting offer with prices; if the choice is not clear and more options are found in the database matching the keywords (it's a whole series of games and costumer does not specify the part), system displays all options; if product is not available (rented by someone else or sold out), system displays 'OUT OF STOCK' (greyed out); alternatively, if only available for sale, the system only displays the 'purchase'-option.</p> <p>If the product is not available at all, system displays 'We're sorry, product is not available, but you may like: ' and system shows the customer some options that are related to his search (same genre), if possible, or system just shows the top ten of the most bought/ rented games.</p>						
Postconditions if success	System finds and displays the product the customer is searching for. To proceed to adding to cart (UC7) the customer must be logged in to the system (UC14) or has to register to the system (UC13);						
Postconditions if failure	Nothing is found in the database matching customer's search, product is not available						
Actors	Customer						
Normal sequence	<table border="1"> <tr> <td>1</td><td>Customer enters his search into the 'search'-field</td></tr> <tr> <td>2</td><td>corresponding result is displayed</td></tr> <tr> <td>3</td><td>Customer can go back to A1 for new search of proceed with current search results</td></tr> </table>	1	Customer enters his search into the 'search'-field	2	corresponding result is displayed	3	Customer can go back to A1 for new search of proceed with current search results
1	Customer enters his search into the 'search'-field						
2	corresponding result is displayed						
3	Customer can go back to A1 for new search of proceed with current search results						
Alternative sequence	<table border="1"> <tr> <td>A1</td><td>(From 2) If keyword was typed and nothing is displayed, a message is shown informing the user that no matches were found - go to step (1)</td></tr> </table>	A1	(From 2) If keyword was typed and nothing is displayed, a message is shown informing the user that no matches were found - go to step (1)				
A1	(From 2) If keyword was typed and nothing is displayed, a message is shown informing the user that no matches were found - go to step (1)						

Use case 11	Customer browses the catalogue of products
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Description	Customer						
Input	None, customer just clicks on specific categories or the 'display more'-button to browse the catalogue randomly.						
Preconditions	none, the catalogue can always be browsed						
Output	Specific categories of the catalogue, listing games depending on special factors like consoletype, popularity, genre, keyword or in the category of new-arrivals are displayed.						
Postconditions if success	Over this 'random'-search the customer finds product/s he wants to rent or buy and adds it to the cart (UC7), previously registering as a new user (UC13) and/or logging in first (UC14)						
Postconditions if failure	nothing is displayed as available or in stock, categories and lists are not created and linked in a reasonable way so the customer loses interest and his expectations are not met;						
Actors	Customer						
Normal sequence	<table border="1"> <tr> <td>1</td><td>Customer accesses homepage</td></tr> <tr> <td>2</td><td>Customer sees special categories that list games depending on their popularity (rating, number of purchases, rents), type of console or genre (recently released, action, sports, kids,..). For every category there is a 'Show more'-option that displays more items belonging to a specific category. Whenever the customer clicks on a game, other games that are related to this game by a keyword are also shown below as a 'You also may like'-option</td></tr> <tr> <td>3</td><td>Customer can add to cart (UC7) a game of choice, but must login (UC14) or register (UC 13).</td></tr> </table>	1	Customer accesses homepage	2	Customer sees special categories that list games depending on their popularity (rating, number of purchases, rents), type of console or genre (recently released, action, sports, kids,..). For every category there is a 'Show more'-option that displays more items belonging to a specific category. Whenever the customer clicks on a game, other games that are related to this game by a keyword are also shown below as a 'You also may like'-option	3	Customer can add to cart (UC7) a game of choice, but must login (UC14) or register (UC 13).
1	Customer accesses homepage						
2	Customer sees special categories that list games depending on their popularity (rating, number of purchases, rents), type of console or genre (recently released, action, sports, kids,..). For every category there is a 'Show more'-option that displays more items belonging to a specific category. Whenever the customer clicks on a game, other games that are related to this game by a keyword are also shown below as a 'You also may like'-option						
3	Customer can add to cart (UC7) a game of choice, but must login (UC14) or register (UC 13).						
Alternative sequence							

Use case 12	Administrator registers to the system
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Description	An new account for another administrator is created from the account of an existing administrator.						
Input	details for the new admin-account, employee number, name, position, email and phone of the new administrator						
Preconditions	An existing administrator with a valid account has to be logged into the system (UC14) to register a new administrator.						
Output	A message for successful creation of new admin account is displayed and an email to the new administrator is sent with the link to activate this new account; after activation the new account is accessible with username (email of new administrator) and the new password (UC14).						
Postconditions if success	the new administrator can now log into the system as an admin (UC14) with special admin rights and carry out corresponding tasks of administrator (UC1, UC3-UC6).						
Postconditions if failure	No activation-email is sent to the new administrator, activation link in the email does not work, account is not accessible after activation, account is accessible and admin can log into the system but does not dispose of the special admin-rights to carry out admin-tasks (UC1, UC3-UC6).						
Actors	Administrator (existing), administrator (new)						
Normal sequence	<table border="1"> <tr> <td>1</td><td>Admin homepage is displayed</td></tr> <tr> <td>2</td><td>existing administrator with corresponding rights logs into the system (UC14), goes to 'register as admin'-button</td></tr> <tr> <td>3</td><td> <p>A form is displayed where all the information for the new administrator account - including his email - have to be filled in:</p> <ul style="list-style-type: none"> - employee number - name - position - email (will be the username) - phone <p>and submit them (option to 'cancel' - got to step (2))</p> </td></tr> </table>	1	Admin homepage is displayed	2	existing administrator with corresponding rights logs into the system (UC14), goes to 'register as admin'-button	3	<p>A form is displayed where all the information for the new administrator account - including his email - have to be filled in:</p> <ul style="list-style-type: none"> - employee number - name - position - email (will be the username) - phone <p>and submit them (option to 'cancel' - got to step (2))</p>
1	Admin homepage is displayed						
2	existing administrator with corresponding rights logs into the system (UC14), goes to 'register as admin'-button						
3	<p>A form is displayed where all the information for the new administrator account - including his email - have to be filled in:</p> <ul style="list-style-type: none"> - employee number - name - position - email (will be the username) - phone <p>and submit them (option to 'cancel' - got to step (2))</p>						

	<table border="1"> <tr> <td data-bbox="485 170 571 360">4</td><td data-bbox="571 170 1347 360">to finish this process a 'create account'-button has to be clicked and an activation-email to the new administrator is automatically sent out (success-message is displayed upon completing this step).</td></tr> </table>	4	to finish this process a 'create account'-button has to be clicked and an activation-email to the new administrator is automatically sent out (success-message is displayed upon completing this step).				
4	to finish this process a 'create account'-button has to be clicked and an activation-email to the new administrator is automatically sent out (success-message is displayed upon completing this step).						
	<table border="1"> <tr> <td data-bbox="485 987 571 1106">5</td><td data-bbox="571 987 1347 1106">New admin-person opens this email and is asked to click on a link to activate the account.</td></tr> <tr> <td data-bbox="485 1106 571 1225">6</td><td data-bbox="571 1106 1347 1225">Upon clicking on this link the new account is activated and the person is asked to enter a new password.</td></tr> <tr> <td data-bbox="485 1225 571 1384">7</td><td data-bbox="571 1225 1347 1384">the new administrator can now log into the system with his username (email) (UC14) and his password and carry out admin-tasks (UC1, UC3-6).</td></tr> </table>	5	New admin-person opens this email and is asked to click on a link to activate the account.	6	Upon clicking on this link the new account is activated and the person is asked to enter a new password.	7	the new administrator can now log into the system with his username (email) (UC14) and his password and carry out admin-tasks (UC1, UC3-6).
5	New admin-person opens this email and is asked to click on a link to activate the account.						
6	Upon clicking on this link the new account is activated and the person is asked to enter a new password.						
7	the new administrator can now log into the system with his username (email) (UC14) and his password and carry out admin-tasks (UC1, UC3-6).						
Alternative sequence	<table border="1"> <tr> <td data-bbox="485 1503 571 1621">A1</td><td data-bbox="571 1503 1347 1621">(From 4) Invalid employee number, missing data or incorrect format - inform user - go to step (2)</td></tr> <tr> <td data-bbox="485 1621 571 1740">B1</td><td data-bbox="571 1621 1347 1740">(From 5) activation link does not work, account cannot be activated, go to step (2)</td></tr> <tr> <td data-bbox="485 1740 571 1899">C1</td><td data-bbox="571 1740 1347 1899">(From 7) account cannot be accessed or new admin person has no rights to carry out admin tasks, go to step (2) and make sure the data are entered accurately.</td></tr> </table>	A1	(From 4) Invalid employee number, missing data or incorrect format - inform user - go to step (2)	B1	(From 5) activation link does not work, account cannot be activated, go to step (2)	C1	(From 7) account cannot be accessed or new admin person has no rights to carry out admin tasks, go to step (2) and make sure the data are entered accurately.
A1	(From 4) Invalid employee number, missing data or incorrect format - inform user - go to step (2)						
B1	(From 5) activation link does not work, account cannot be activated, go to step (2)						
C1	(From 7) account cannot be accessed or new admin person has no rights to carry out admin tasks, go to step (2) and make sure the data are entered accurately.						

Use case 13	Customer registers to the system							
Description	An new account for customer is created.							
Input	details for the new customer (name, address, telephone, e-mail, password)							
Preconditions	Access to internet, customer has valid e-mail address							
Output	New customer account is created in the database							
Postconditions if success	The new customer can now log into the system as a customer (UC14).							
Postconditions if failure	Account is not created and user can not use the online shop							
Actors	Customer							
Normal sequence	<table><tr><td>1</td><td>User opens the website</td></tr><tr><td>2</td><td>Home page is displayed</td></tr><tr><td>3</td><td>User clicks on 'Register'</td></tr></table>		1	User opens the website	2	Home page is displayed	3	User clicks on 'Register'
1	User opens the website							
2	Home page is displayed							
3	User clicks on 'Register'							

	<table><tr><td>4</td><td>Form is displayed showing fields to enter the following details:<ul style="list-style-type: none">- name- address- telephone- e-mail address (will be the username)- password</td></tr><tr><td>5</td><td>Customer fills the details and presses 'Submit'</td></tr><tr><td>6</td><td>System sends an automatic e-mail to the customer e-mail address given in the form - on failure go to (A1)</td></tr><tr><td>7</td><td>Screen is displayed informing the customer that an e-mail has been sent that contains an account activation link. Option to 'resend' the e-mail is also displayed.</td></tr><tr><td>8</td><td>Customer accesses one's e-mail account, opens the message and clicks on the activation link (to confirm the e-mail address) - on failure go to (B1)</td></tr><tr><td>9</td><td>Page opens that displays a message about successful account creation</td></tr><tr><td>10</td><td>Customer can now log in (UC14)</td></tr></table>	4	Form is displayed showing fields to enter the following details: <ul style="list-style-type: none">- name- address- telephone- e-mail address (will be the username)- password	5	Customer fills the details and presses 'Submit'	6	System sends an automatic e-mail to the customer e-mail address given in the form - on failure go to (A1)	7	Screen is displayed informing the customer that an e-mail has been sent that contains an account activation link. Option to 'resend' the e-mail is also displayed.	8	Customer accesses one's e-mail account, opens the message and clicks on the activation link (to confirm the e-mail address) - on failure go to (B1)	9	Page opens that displays a message about successful account creation	10	Customer can now log in (UC14)
4	Form is displayed showing fields to enter the following details: <ul style="list-style-type: none">- name- address- telephone- e-mail address (will be the username)- password														
5	Customer fills the details and presses 'Submit'														
6	System sends an automatic e-mail to the customer e-mail address given in the form - on failure go to (A1)														
7	Screen is displayed informing the customer that an e-mail has been sent that contains an account activation link. Option to 'resend' the e-mail is also displayed.														
8	Customer accesses one's e-mail account, opens the message and clicks on the activation link (to confirm the e-mail address) - on failure go to (B1)														
9	Page opens that displays a message about successful account creation														
10	Customer can now log in (UC14)														
Alternative sequence	<table><tr><td>A1</td><td>(From 6) Message is not sent and customer does not receive activation link. Customer can click on 'resend e-mail' go to step (8). If the problem continues, one has to contact the administrator</td></tr><tr><td>B1</td><td>(From 8) activation link does not work, account cannot be activated, go to step (2) to repeat the process. In case of further problems customer needs to contact the shop directly</td></tr></table>	A1	(From 6) Message is not sent and customer does not receive activation link. Customer can click on 'resend e-mail' go to step (8). If the problem continues, one has to contact the administrator	B1	(From 8) activation link does not work, account cannot be activated, go to step (2) to repeat the process. In case of further problems customer needs to contact the shop directly										
A1	(From 6) Message is not sent and customer does not receive activation link. Customer can click on 'resend e-mail' go to step (8). If the problem continues, one has to contact the administrator														
B1	(From 8) activation link does not work, account cannot be activated, go to step (2) to repeat the process. In case of further problems customer needs to contact the shop directly														

Use case 14	Customer or administrator logs into the system
Description	Any registered user is able to access their account on the webpage

Input	Log in details										
Preconditions	User has to be registered (UC12 or UC13)										
Output	Customer/Administrator has access to privileges of the registered user										
Postconditions if success	<p>Customer is able to perform UC7, UC9, UC16, UC18, UC19 and UC21</p> <p>Administrator is able to perform UC1, UC3, UC4, UC5, UC6, UC17, UC20, UC22, UC23, UC24</p>										
Postconditions if failure	Users can not access their account and use the shop with privileges of a registered user										
Actors	Customer, Administrator										
Normal sequence	<table border="1"> <tr> <td>1</td><td>User clicks on 'Log in'</td></tr> <tr> <td>2</td><td>Username and Password fields are displayed.</td></tr> <tr> <td>3</td><td>User enters the log in details (e-mail address as username and associated password) and clicks 'Log in'</td></tr> <tr> <td>4</td><td>Home page is displayed with a username showing on top of the page indicating correct procedure</td></tr> <tr> <td>5</td><td>Customer fills the details and presses 'Submit'</td></tr> </table>	1	User clicks on 'Log in'	2	Username and Password fields are displayed.	3	User enters the log in details (e-mail address as username and associated password) and clicks 'Log in'	4	Home page is displayed with a username showing on top of the page indicating correct procedure	5	Customer fills the details and presses 'Submit'
1	User clicks on 'Log in'										
2	Username and Password fields are displayed.										
3	User enters the log in details (e-mail address as username and associated password) and clicks 'Log in'										
4	Home page is displayed with a username showing on top of the page indicating correct procedure										
5	Customer fills the details and presses 'Submit'										
Alternative sequence	<table border="1"> <tr> <td>A1</td><td>(From 3) Incorrect information or not recognised user - go to step (2)</td></tr> </table>	A1	(From 3) Incorrect information or not recognised user - go to step (2)								
A1	(From 3) Incorrect information or not recognised user - go to step (2)										

Use case 15	Customer checks out
Description	Customer confirms the cart content and system processes customer's payment to the online shop

Input	Cart content, payment details
Preconditions	User has to be logged in (UC14) and have items in the cart (UC7 or UC21)
Output	Payment confirmation
Postconditions if success	Customers complete their buying or renting process (UC7, UC21) and administrator can see pending orders on the admin account (UC4)
Postconditions if failure	Payment is not confirmed and any operations involving this use case can not be successfully completed
Actors	Customer, Bank

Normal sequence	1	Customer clicks on cart located at the top right part of the page
	2	Cart is displayed (option to 'continue shopping' and 'checkout' are available. Each item can be deleted from cart using 'delete' button located next to each item on the list
	3	Customer reviews the chosen products and clicks 'Check out'
	4	Form for payment information is displayed
	5	Customer fills the payment information - if previously used information saved (go to A1)
	6	Customer clicks on 'Submit Order'
	7	System asks customer if the payment details should be saved for future use - customer clicks either Yes or No
	8	The system takes the customer details and payment details entered
	9	The system contacts the bank by sending the payment request
	10	Bank replies by confirming the request - if failure go to (B1)
	11	Confirmation screen appears with order and payment information, order is placed in order pending list on admin account (UC4), auto e-mail sent to customer with order information (but not acceptance yet - see UC23 or UC24 for acceptance/cancellation auto e-mails)

Alternative sequence	A1	(From 5) Beneath the payment form, saved debit/credit cards are displayed (in form of last 4 digit of the card number and expiry date) - with 'delete' option next to each card on the list if one wish to delete it
	A2	Customer clicks on one of them
	A3	The chosen option populates the payment form with
		associated details - go to step (6)
	B1	(From 10) Payment is rejected or bank can not be contacted - system informs the customer about the issue

Use case 16	Customer updates his account details
Description	A customer accesses his account to update any detail.
Input	Customer details, such as: name, address, email or phone.
Preconditions	User has to be registered (UC13), and logged in (UC14)
Output	Details are updated.
Postconditions if success	In the system will be stored the new details of the customer.
Postconditions if failure	Details are not updated.
Actors	Customer

Normal sequence	1	Customer logs into his account (UC14)
	2	Customer clicks in its name to change the details.
	3	Customer can update any detail of the account there.
	4	Customer types all the data it wants to update in the corresponding fields.
	5	Customer clicks on "Save".
	6	The new details are updated in the system.
Alternative sequence		
	A1	(From 5) In case of failure of saving the new details, the customer is informed and redirected to step (3) .

Use case 17	Administrator updates his account details
Description	An administrator accesses to his account to update any detail.
Input	Administrator details, such as: name, position, email and phone.
Preconditions	An existing administrator in the system (UC12), and that the administrator is logged in (UC14).
Output	Administrator details updated.
Postconditions if success	In the system will be stored the new details of the administrator.
Postconditions if failure	New details are not updated
Actors	Administrator

Normal sequence	1	Administrator logs in its account.
	2	Administrator clicks in its name to change the details.
	3	Administrator can update any detail of the account there
	4	Administrator types all the data it wants to update in the corresponding fields.
	5	Administrator clicks on "Save".
	6	The new details are updated in the system.
Alternative sequence		
	A1	(From 5) In case of failure of saving the new details, the administrator is informed and redirected to step (3).

Use case 18	Customer accesses history of items bought/rented (and returned)
Description	Customer uses the "History"-field to see all its items bought/rented/returned.
Input	Customer experience
Preconditions	Customer has to be registered (UC13), and logged in (UC14).
Output	The list of all items bought/rented/returned
Postconditions if success	The list is shown
Postconditions if failure	The list is not shown
Actors	Customer

Normal sequence	1	Customer logs into his account.
	2	Home page is displayed.
	3	Customer clicks on "Past Orders".
	4	The list of the items bought/rented (returned) is displayed. Option to view details is available providing order information (same as the ones that are displayed after a successful purchase/rent - rental products also include return date)
	5	Customer can rate any of the products (UC9).
	6	Customer can return to the home page.
Alternative sequence	A1	(From 4) If the list is not displayed, the customer will continue in the home page and will be notified that an error occurred.

Use case 19	Customer accesses a list of currently rented products
Description	Customer logs into the website and checks which products are currently assigned to one's account as rented
Input	Customer interaction with system interface
Preconditions	User has to be logged in (UC14), database needs to be consistent and accurate
Output	View of the rented products
Postconditions if success	Customer is aware of all rented products and their due dates
Postconditions if failure	Customer does not have access to information about rented products or has inaccurate information

Actors	Customer								
Normal sequence									
	<table> <tr> <td>1</td><td>Log in (UC14)</td></tr> <tr> <td>2</td><td>Home page is displayed</td></tr> <tr> <td>3</td><td>Customer clicks on option 'View Rented Items'</td></tr> <tr> <td>4</td><td>A page is displayed with a list of all items that are currently rented by the customer (unless no products are rented). Each item has a date rented, due date as well as a button with option 'Buy' next to it. Option to review is also available (UC9)</td></tr> </table>	1	Log in (UC14)	2	Home page is displayed	3	Customer clicks on option 'View Rented Items'	4	A page is displayed with a list of all items that are currently rented by the customer (unless no products are rented). Each item has a date rented, due date as well as a button with option 'Buy' next to it. Option to review is also available (UC9)
1	Log in (UC14)								
2	Home page is displayed								
3	Customer clicks on option 'View Rented Items'								
4	A page is displayed with a list of all items that are currently rented by the customer (unless no products are rented). Each item has a date rented, due date as well as a button with option 'Buy' next to it. Option to review is also available (UC9)								
Alternative sequence	<table> <tr> <td>A1</td><td>(From 3) A page is displayed with no products even though the customer has some products rented, or the information is incorrect - this needs to be investigated further by contacting the administrators</td></tr> </table>	A1	(From 3) A page is displayed with no products even though the customer has some products rented, or the information is incorrect - this needs to be investigated further by contacting the administrators						
A1	(From 3) A page is displayed with no products even though the customer has some products rented, or the information is incorrect - this needs to be investigated further by contacting the administrators								

Use case 20	Administrator downloads stock report
Description	Administrator can extract stock reports for stock management purposes
Input	Report requested by Administrator
Preconditions	Admin needs to be registered (UC12) and logged in (UC14), information in database must be consistent
Output	Stock report for containing all products in database (including products that are rented if chosen so)
Postconditions if success	Administrator has a correct overview of the stock information
Postconditions if failure	Report contains no data, inconsistent or incorrect data about stock information

Actors	Administrator														
Normal sequence	<table> <tr> <td>1</td><td>(only if required) Register as admin (UC12)</td></tr> <tr> <td>2</td><td>Log in (UC14)</td></tr> <tr> <td>3</td><td>Admin home page is displayed</td></tr> </table>	1	(only if required) Register as admin (UC12)	2	Log in (UC14)	3	Admin home page is displayed								
1	(only if required) Register as admin (UC12)														
2	Log in (UC14)														
3	Admin home page is displayed														
	<table> <tr> <td>4</td><td>Go to 'Stock Management' option</td></tr> <tr> <td>5</td><td>Stock management screen is displayed</td></tr> <tr> <td>6</td><td>Administrator clicks on 'Stock Report' option</td></tr> <tr> <td>7</td><td>The system displays options to choose if rented products should be included ('Show rented'), as well as field to input specific product number for report on that particular products only</td></tr> <tr> <td>8</td><td>Administrator clicks on 'run'</td></tr> <tr> <td>9</td><td>The report is displayed showing all product codes, copy codes and information if the product is rented (if option 'show rented' was ticked), otherwise only items that are available for purchase/rental are shown.</td></tr> <tr> <td>10</td><td>(Optional) Administrator can click on 'Print' to print the report</td></tr> </table>	4	Go to 'Stock Management' option	5	Stock management screen is displayed	6	Administrator clicks on 'Stock Report' option	7	The system displays options to choose if rented products should be included ('Show rented'), as well as field to input specific product number for report on that particular products only	8	Administrator clicks on 'run'	9	The report is displayed showing all product codes, copy codes and information if the product is rented (if option 'show rented' was ticked), otherwise only items that are available for purchase/rental are shown.	10	(Optional) Administrator can click on 'Print' to print the report
4	Go to 'Stock Management' option														
5	Stock management screen is displayed														
6	Administrator clicks on 'Stock Report' option														
7	The system displays options to choose if rented products should be included ('Show rented'), as well as field to input specific product number for report on that particular products only														
8	Administrator clicks on 'run'														
9	The report is displayed showing all product codes, copy codes and information if the product is rented (if option 'show rented' was ticked), otherwise only items that are available for purchase/rental are shown.														
10	(Optional) Administrator can click on 'Print' to print the report														
Alternative sequence	<table> <tr> <td>A1</td><td>(From 8) If product code was typed and nothing is displayed, a message is shown informing the user that no matches were found - go to step (7)</td></tr> </table>	A1	(From 8) If product code was typed and nothing is displayed, a message is shown informing the user that no matches were found - go to step (7)												
A1	(From 8) If product code was typed and nothing is displayed, a message is shown informing the user that no matches were found - go to step (7)														

Use case 21	Customer adds to cart an item already rented
Description	Customer that had rented a game wants to buy it and keep the copy.

Input	Customer requests a purchase of already rented game										
Preconditions	Product has to be rented by the customer (UC7, UC15) and accepted (UC23), user has to be logged in (UC14), customer needs to access screen that displays currently rented products (UC19)										
Output	Item added to cart										
Postconditions if success	Customer can check out (UC15) and pay for the purchase										
Postconditions if failure	Product is not sold and customer still needs to return the product before the due date										
Actors	Customer										
Normal sequence	<table border="1"> <tr> <td>1</td><td>Log in (UC14)</td></tr> <tr> <td>2</td><td>Home page is displayed</td></tr> <tr> <td>3</td><td>Customer accesses information about currently rented products (UC19)</td></tr> <tr> <td>4</td><td>Customer clicks on 'Buy' next to the chosen product</td></tr> <tr> <td>5</td><td>Product is added to the cart - to buy other rented products go to step (3)</td></tr> </table>	1	Log in (UC14)	2	Home page is displayed	3	Customer accesses information about currently rented products (UC19)	4	Customer clicks on 'Buy' next to the chosen product	5	Product is added to the cart - to buy other rented products go to step (3)
1	Log in (UC14)										
2	Home page is displayed										
3	Customer accesses information about currently rented products (UC19)										
4	Customer clicks on 'Buy' next to the chosen product										
5	Product is added to the cart - to buy other rented products go to step (3)										

Use case 22	Administrator updates the number of copies of an item in stock
Description	The administrator adds more copies of the same item in stock
Input	Stock information (Games).
Preconditions	Admin needs to be registered (UC12) and logged in (UC14), relevant item should exist in the database (UC1)

Output	Updated database.	
Postconditions if success	Customers can buy/rent products using the system.	
Postconditions if failure	Inconsistent information stored, products physically available but not present in the database	
Actors	Administrator	
Normal sequence	1	Register as admin (UC12)
	2	Log in (UC14)
	3	Admin home page is displayed
	4	Go to Stock Management option
	5	'Stock Management' screen is displayed
	6	Search for product using 'product code search bar'
	7	The matching product is displayed - on failure go to A1
	8	Administrator clicks on the product
	9	The product info is displayed with the list of 'copy codes' and button 'Edit' (for editing information about the product type) 'Add' (to add new 'copy code') and 'Delete' button located next to each 'copy code' - if product is rented, this information is also displayed next to each copy.
	10	Administrator clicks on 'Add'
	11	A field to enter new 'copy code' is displayed
	12	Admin types the code and confirms with 'Submit' button
	13	The typed copy code is added to the list
	14	To update more items, admin can click 'Back' and use case state goes back to step (5)
	15	Administrator logs out to complete the process

Alternative sequence	<table border="1"> <tr> <td>A1</td><td>(From 7) No product is matched with input product code, the code is incorrect or product does not already exist in the database</td></tr> </table>	A1	(From 7) No product is matched with input product code, the code is incorrect or product does not already exist in the database
A1	(From 7) No product is matched with input product code, the code is incorrect or product does not already exist in the database		

Use case 23	Administrator accepts a customer order
Description	The administrator accepts a pending order so it can be prepared for dispatching
Input	Pending order information (UC4)
Preconditions	Admin needs to be registered (UC12) and logged in (UC14), pending order has to be displayed first (UC4), printer should be available, there should be no objections for accepting the order
Output	Information for admin staff to physically process the order.
Postconditions if success	Order is sent to customer.
Postconditions if failure	Customer does not receive his order.
Actors	Administrator, Customer
Normal sequence	

	1	Display the pending order (UC4)
	2	Administrator clicks 'Accept'
	3	To avoid accidental acceptance, message is displayed asking if the administrator is sure to proceed with this action.
	4	Order details as seen on screen are automatically printed - on failure (go to A1)
	5	Order is placed in 'previously accepted/cancelled orders' section
	6	Automatic e-mail is sent to customer confirming acceptance
	7	If the order is a rental, it is placed in 'Currently Rented Products' section (of both customer and administrator account) - for purchase (go to B1), for purchase of already rented (go to C1)
	8	Administrator takes the printed accepted order and prepares it to be sent.
	9	Administrator logs out to complete the process
Alternative sequence	A1	(From 4) No information is printed - manually click 'Print' as displayed on the bottom of the page or use browser printing option
	B1	(From 7) In case of purchase, the order is placed in 'items bought' section of the cust account
	C1	(From 7) If the product bought is currently rented by the relevant customer, it is removed from 'currently rented products' section of both the cust and admin account

Use case 24	Administrator cancels a customer order
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Description	The administrator cancels a pending order so it is not processed	
Input	Pending order information (UC4)	
Preconditions	Admin needs to be registered (UC12) and logged in (UC14), pending order has to be displayed first (UC4)	
Output	Order is cancelled and not processed further (not sent to customer)	
Postconditions if success	Order is processed as 'Cancelled' and customer does not receive its order	
Postconditions if failure	Order may be processed as accepted even though it should not be (i.e. due to lack of stock)	
Actors	Administrator, Finance, Customer	
Normal sequence	1	Display the pending order (UC4)
	2	Administrator fills the required field with a reason for cancellation
	3	Administrator clicks 'Cancel'
	4	System checks if the required field of 'Reason for cancellation' is not empty - if it is empty (go to A1)
	5	To avoid accidental cancellation, message is displayed asking if the administrator is sure to proceed with this action.
	6	Order is placed in 'previously accepted/cancelled orders' section
	7	Automatic e-mail is sent to customer confirming cancellation
	8	Automatic e-mail is sent to finance team requesting a refund
	9	Administrator logs out to complete the process

Alternative sequence		
	A1	(From 4) If 'reason for cancellation' field is empty, the system informs a user (order can not be cancelled without this information). Use case processes to step 5 only upon successful completion of step 4.

Use case 25	Administrator downloads customized sales/rents reports for finance purposes
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Description	Admin personnel can modify the default daily financial report (UC3) to look at a particular period within the current fiscal year or at rents and sales separately for accounting purposes.
Input	Report requested by Administrator: Dates for the period included in sales/rents report, filter for sales respectively rents only or both, more filter options (not obligatory)
Preconditions	Admin needs to be registered (UC12) and logged in (UC14), information in database must be consistent
Output	sales/rents reports for a specific period showing all sales and rents respectively (depending on what options were ticked), product names, product codes and customers, with partial (per month) and yearly summation (depending on the period) of sales figures.
Postconditions if success	Administrator has a correct overview of total sales/rents and financial figures for a specific period within the current fiscal year.
Postconditions if failure	Report contains no data, inconsistent or incorrect data and sales figures.
Actors	Administrator, Finance

Normal sequence	1	Register as admin (UC12)
	2	Log in (UC14)
	3	Admin home page is displayed
	4	Go to 'Reports'-option is displayed
	5	Reports screen is displayed.
	6	For a customized report click 'more options' and special form is displayed with more options. Administrator can tick 'Show sales'- or 'Show rents'- option or both and enter a particular starting date (within actual fiscal year) and particular end date (if necessary, otherwise report just includes current date). To complete action administrator clicks 'run'-button.
	7	System informs administrator that the action is completed with success and displays the report; report can be downloaded as a pdf-file or (optional) administrator can go on 'Print'-button to print the report.
	8	For creating more reports admin can go to step (6) or return to admin-homepage
Alternative sequence	A1	System allows only entering of valid dates (by selecting from a calendar. At least one of the options 'Show rents' or 'Show sales' has to be ticked.
	B1	Database is only fully updated over night. Rents/ Sales of current day may not be shown in the report, to include them extract the report the following day.
	C1	If no sales or rents occur in a particular period, an error message is displayed informing the administrator. Go back to step (6) or to admin-homepage

Use case 26	Customer renews rental of a game								
Description	Customer logs into the website, checks the list of currently rented products - especially after receiving a reminder for due dates (UC2) - and extends the rental period of one or more items for another 30 days								
Input	Customer interaction with system interface								
Preconditions	User has to be logged in (UC14), Customer access a list of currently rented items (UC19) database needs to be consistent and accurate. Rental period of the item has not been renewed before. Renewal is only possible before due date for rental is reached.								
Output	list of currently rented products containing renewed items with accordingly updated due dates								
Postconditions if success	Rental period of the selected item(s) is extended for another 30 days added to the original due date.								
Postconditions if failure	Rental period of the selected item(s) cannot be extended.								
Actors	Customer								
Normal sequence	<table border="1"> <tr> <td>1</td><td>Customer clicks on option 'View Rented Items'</td></tr> <tr> <td>2</td><td>A page is displayed with a list of all items that are currently rented by the customer (unless no products are rented). On top of the list there are two buttons 'Renew all' and renew 'Renew selected items'. Upon clicking the first all items are selected and renewed. For renewal of selected items every item can be ticked individually and the second button has to be clicked.</td></tr> <tr> <td>3</td><td>After successfully completing the renewal the due date of renewed items is updated to the current date plus 30 days.</td></tr> <tr> <td>4</td><td>From here the customer can add to cart an item already rented (UC21), review games (UC 9), return to the homepage or logout.</td></tr> </table>	1	Customer clicks on option 'View Rented Items'	2	A page is displayed with a list of all items that are currently rented by the customer (unless no products are rented). On top of the list there are two buttons 'Renew all' and renew 'Renew selected items'. Upon clicking the first all items are selected and renewed. For renewal of selected items every item can be ticked individually and the second button has to be clicked.	3	After successfully completing the renewal the due date of renewed items is updated to the current date plus 30 days.	4	From here the customer can add to cart an item already rented (UC21), review games (UC 9), return to the homepage or logout.
1	Customer clicks on option 'View Rented Items'								
2	A page is displayed with a list of all items that are currently rented by the customer (unless no products are rented). On top of the list there are two buttons 'Renew all' and renew 'Renew selected items'. Upon clicking the first all items are selected and renewed. For renewal of selected items every item can be ticked individually and the second button has to be clicked.								
3	After successfully completing the renewal the due date of renewed items is updated to the current date plus 30 days.								
4	From here the customer can add to cart an item already rented (UC21), review games (UC 9), return to the homepage or logout.								

Alternative sequence	A1	(From 2) Selected item(s) are not renewed or not all of them were renewed. If item is already overdue, show a message in red: 'Product is already due, renewal not possible, please return immediately'. An item has already been renewed once, show message in red: 'No more renewal possible.'
	B1	(From 2) Customer selects no item and clicks 'Renew selected items', show message 'No items for renewal selected', go back to step (2).

6. Non-functional requirements

Usability requirements
The system has to be user friendly, i.e. easily accessible from the internet using HTML or XML/CSS. The user interface has to be implemented with a web browser and has to be intuitive without the need for special explanation.
Availability requirements
The system has to operate 24 hours a day and 365 days per year, always being available for the user.
Persistence requirements
The data in the database has to be absolutely reliable taking into account concurrency issues (see performance requirements). Inconsistent, incorrect or incomplete data could cause major damage to system. Database information has to be constantly refreshed
Performance requirements
The database has to be able to accept requests of hundreds of users simultaneously. The system has to be very responsive so a simple user request (like searching an item, clicking on a list) is processed within less than two seconds. Only payment requests can take longer.
Safety requirements
Regular backups of the database have to be done every 6 hours. So in case of a crash, hacker attack, virus no valuable data is lost.
Security requirements

Access to user and administrator accounts requires user authentication. Passwords and user data have to be secured from hacker attacks. There are two different account types: The normal user can only modify personal information or some special content (reviews) whereas the administrator can modify or edit information or update the database.
Maintainability requirements
If the database crashes or the website is down because of technical problems the system has to be recovered within no more than an hour. Updates have to be implemented without taking the system down.
System requirements
Minimum database space: 1 TB RAM: 16 GB

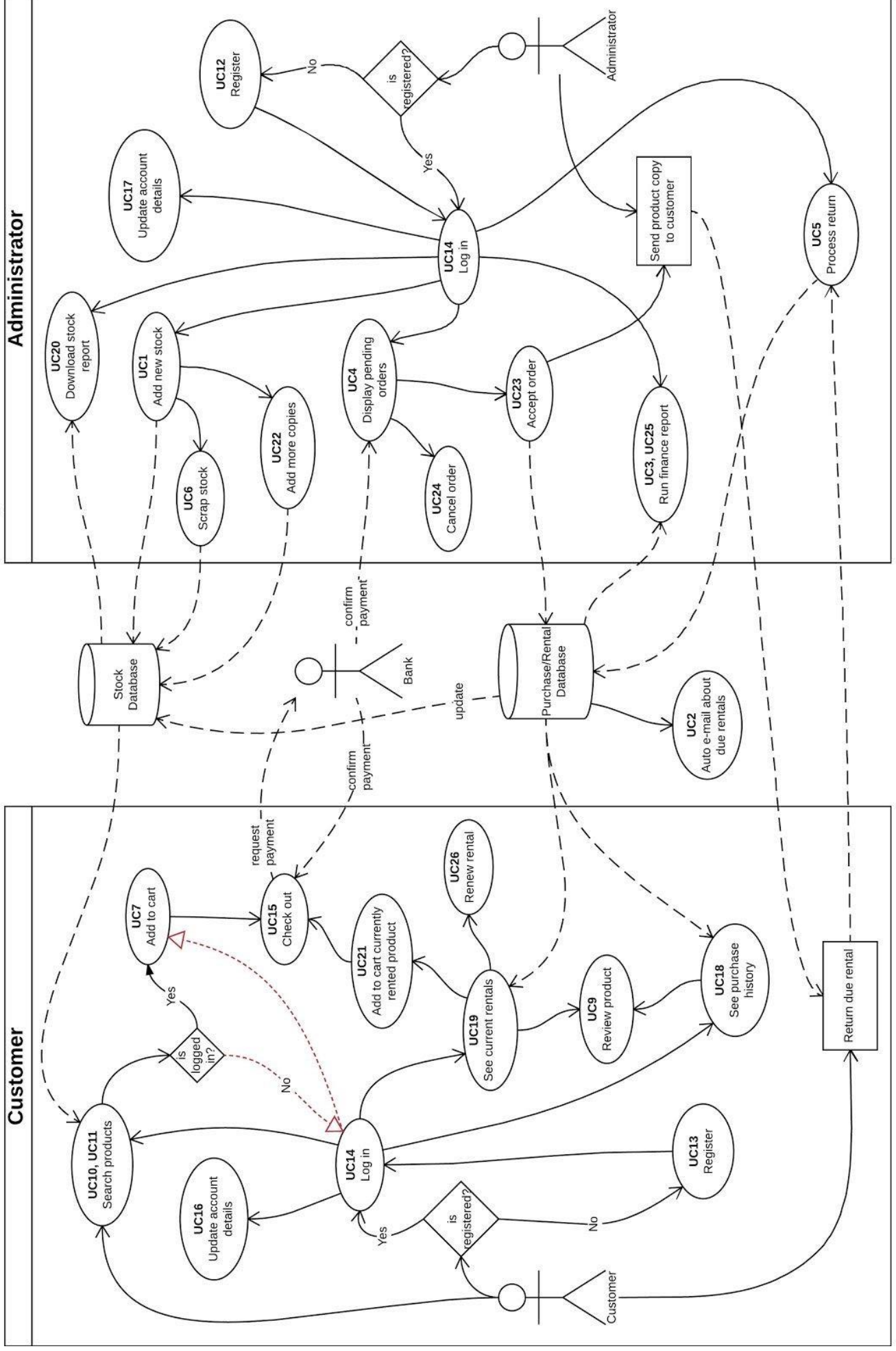
7. Glossary

administrator	a special ID for login assigned users with user administration privileges
user	a general ID for login that is assigned to most users
use case	sequence of actions that pursues a special goal and represents an autonomous fragment of functionality
user interface	graphical user interface that allows the user to interact with the application such as graphical icons and visual indicators and to perform the required tasks
item/ product	hard copies of video games in all major formats PS4, XBox One, WiiU, PS3, XBox 360, no digital copies or online streaming resources
rental period	a period of 90 days including the first day a customer rents a game with the 91 st day being the due date for the return of the book; the rental period can be renewed from day 45 of the first rental period once for another 30 days. No renewal is possible after due date regardless of no prior renewal.

8. Use case relation and event flow diagram:

The below diagram shows all the use cases in respect to their relations in a general view of event and information flow of the application.

Online Game Shop



9. Interface Prototypes:

A hand-drawn interface prototype for a registration form. At the top left is a square box labeled "Logo". In the center is the word "Register" underlined. Below it are four input fields: "email:", "Username:", "Password:", and "Card number:". The "Card number:" field is composed of four separate boxes. Below the "Card number:" field is the "Expire date:" field, which consists of two boxes separated by a slash. Below the "Expire date:" field is a checkbox followed by the text "Accept the conditions". At the bottom is a rectangular button labeled "Register".

Logo

Register

email:

Username:

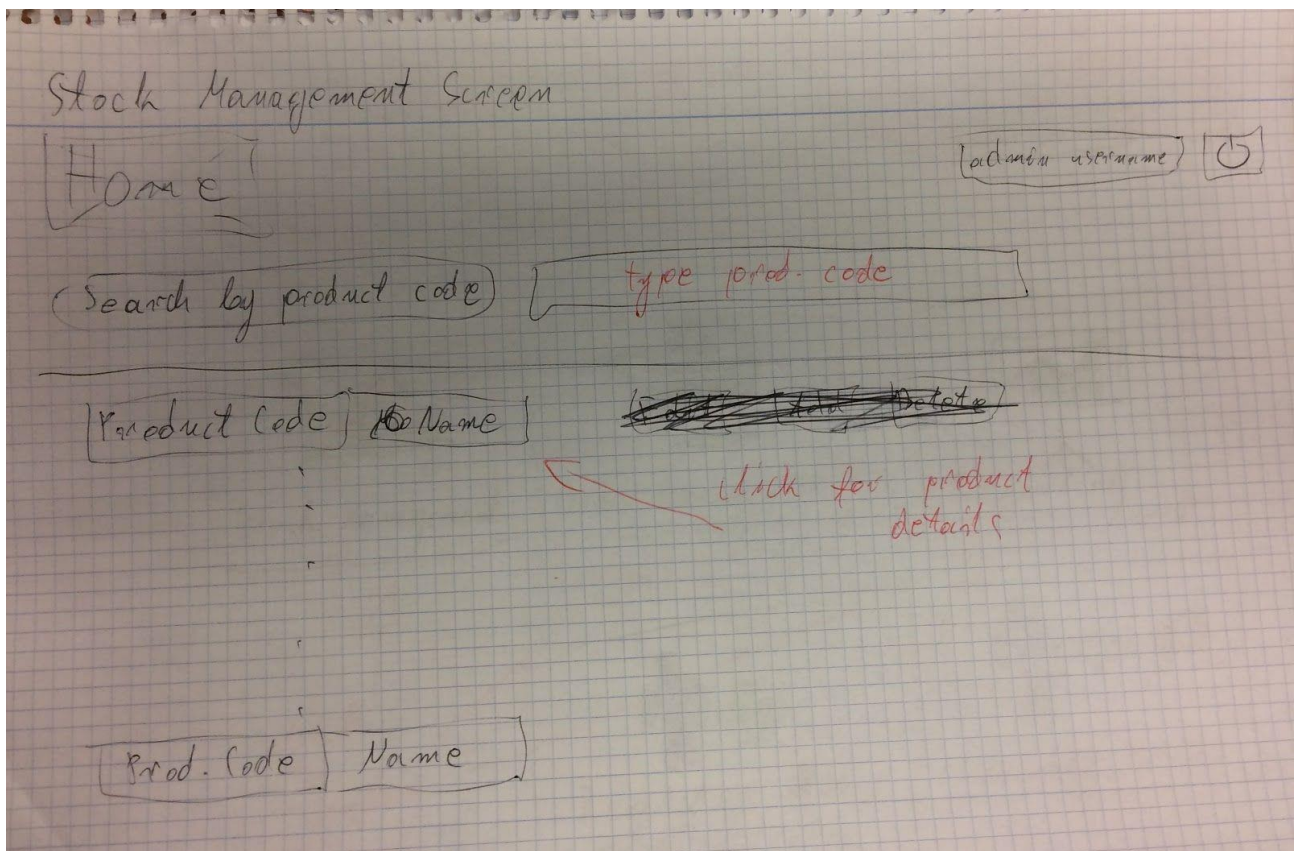
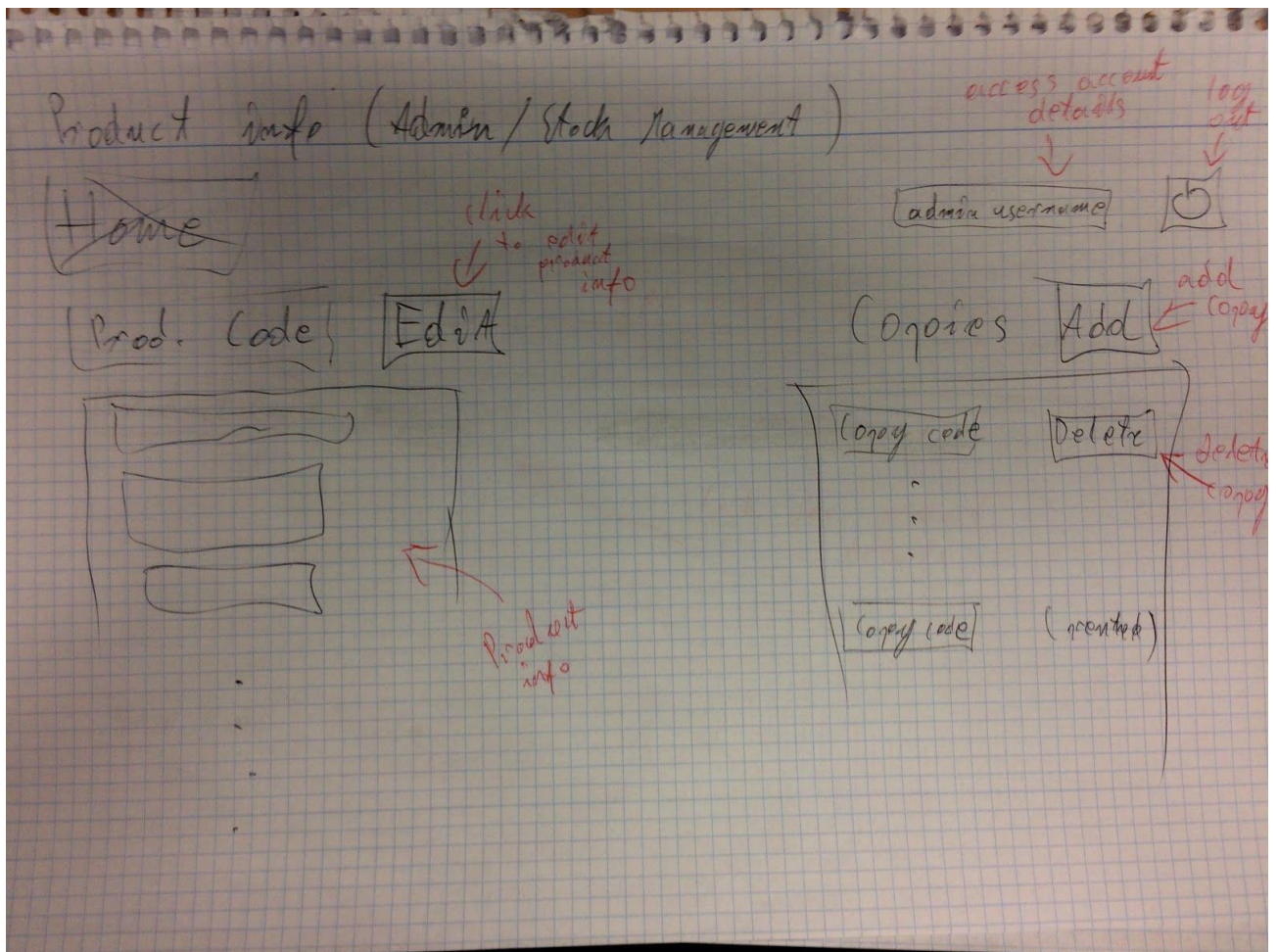
Password:

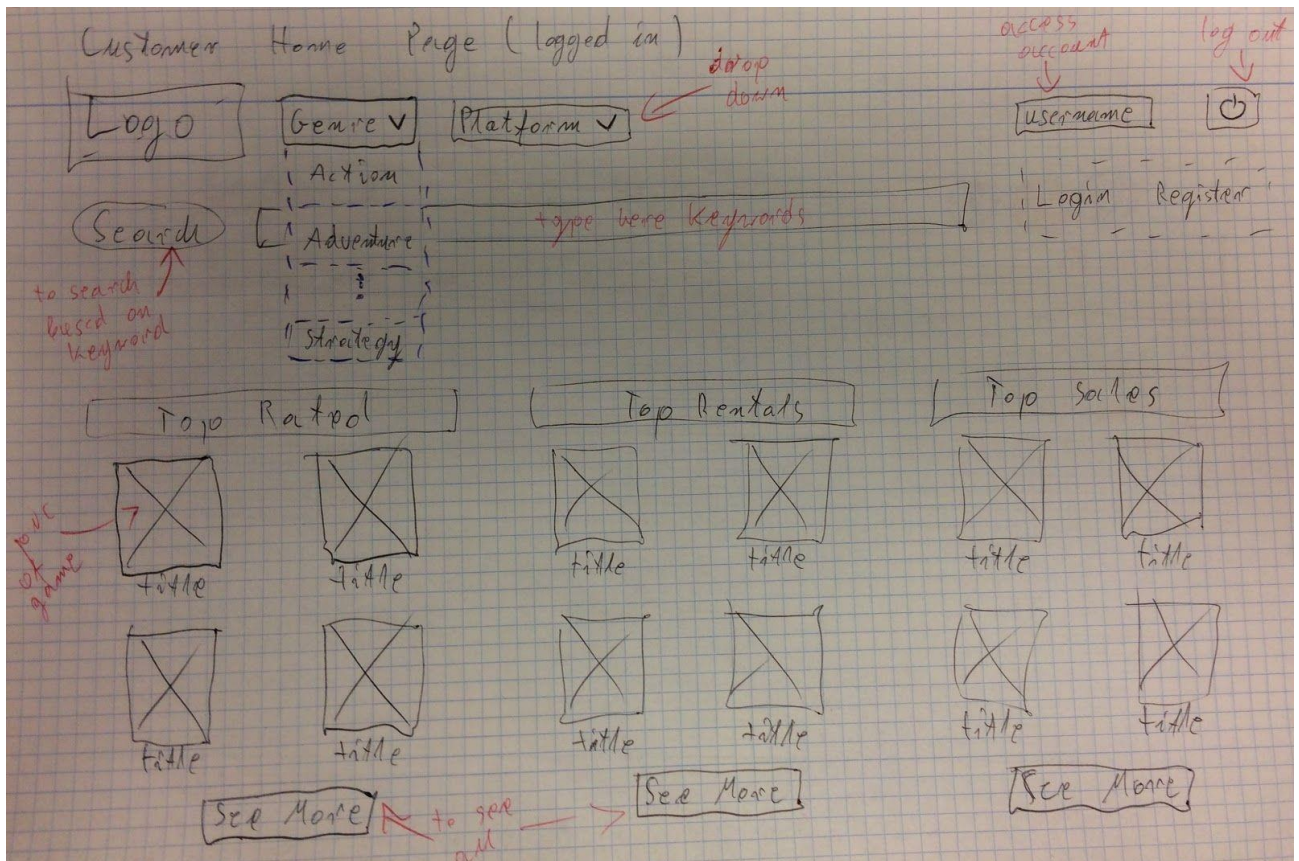
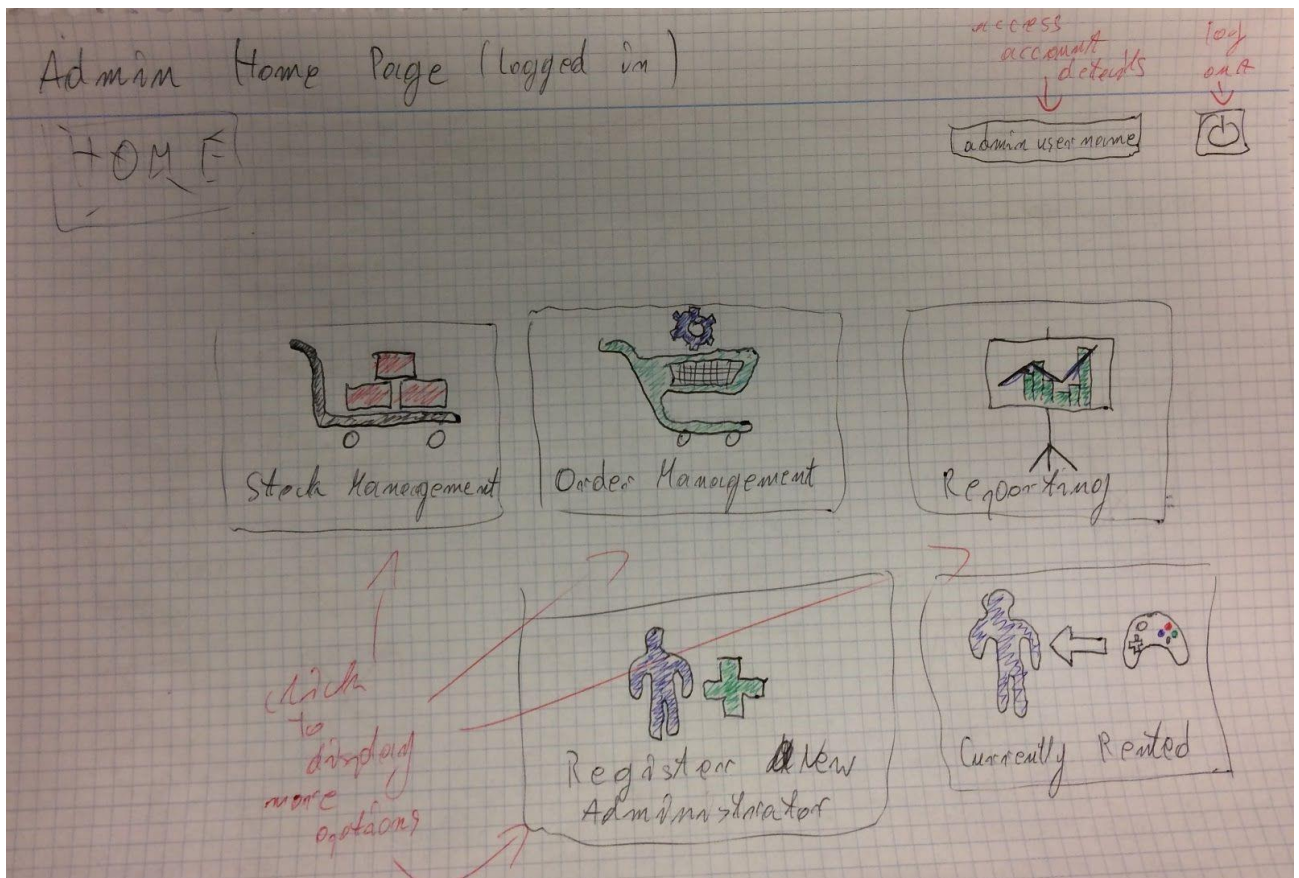
Card number:

Expire date: /

☐ Accept the conditions

Register





Top Rentals

title

title

title

title

See More

See More

Top Sales

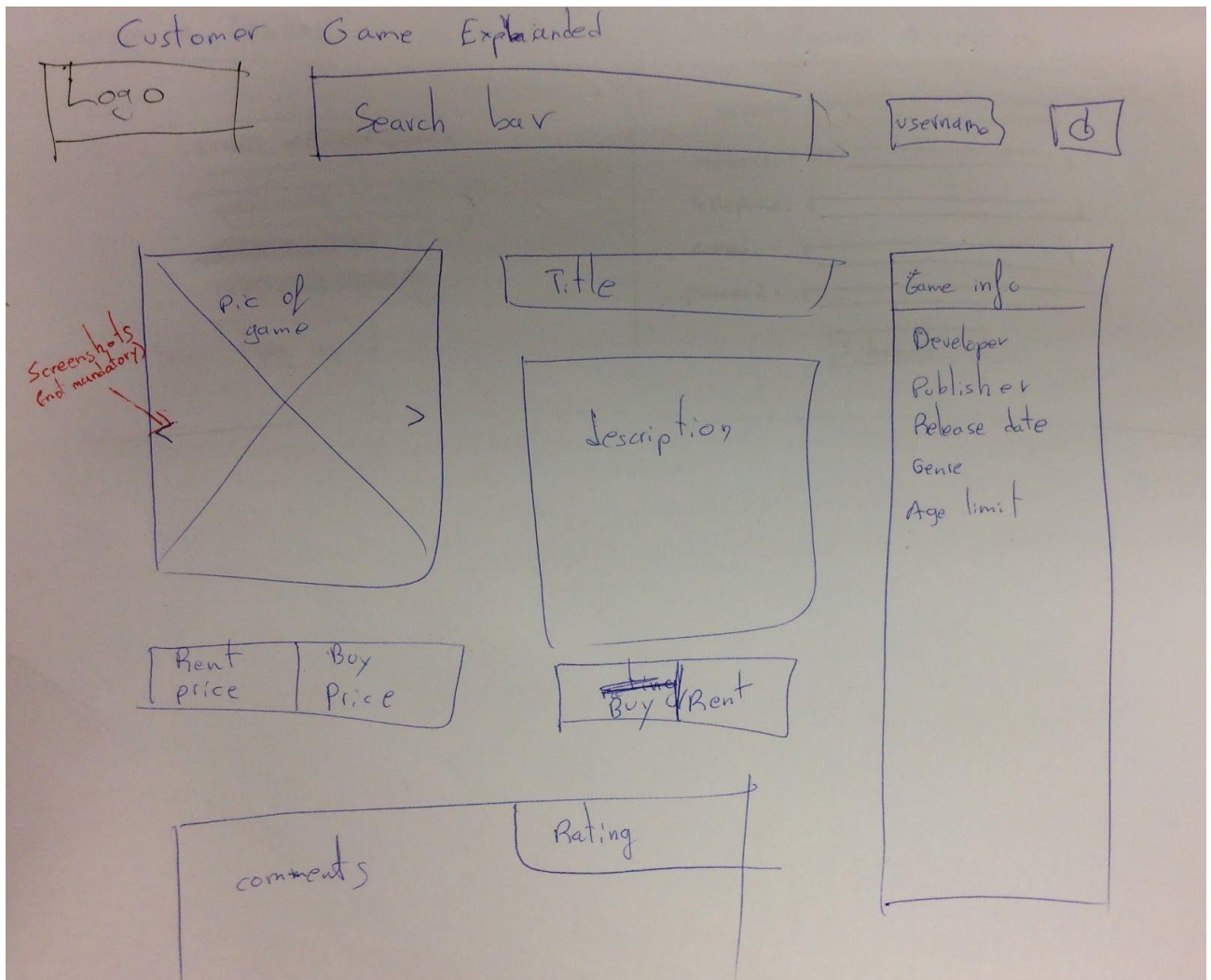
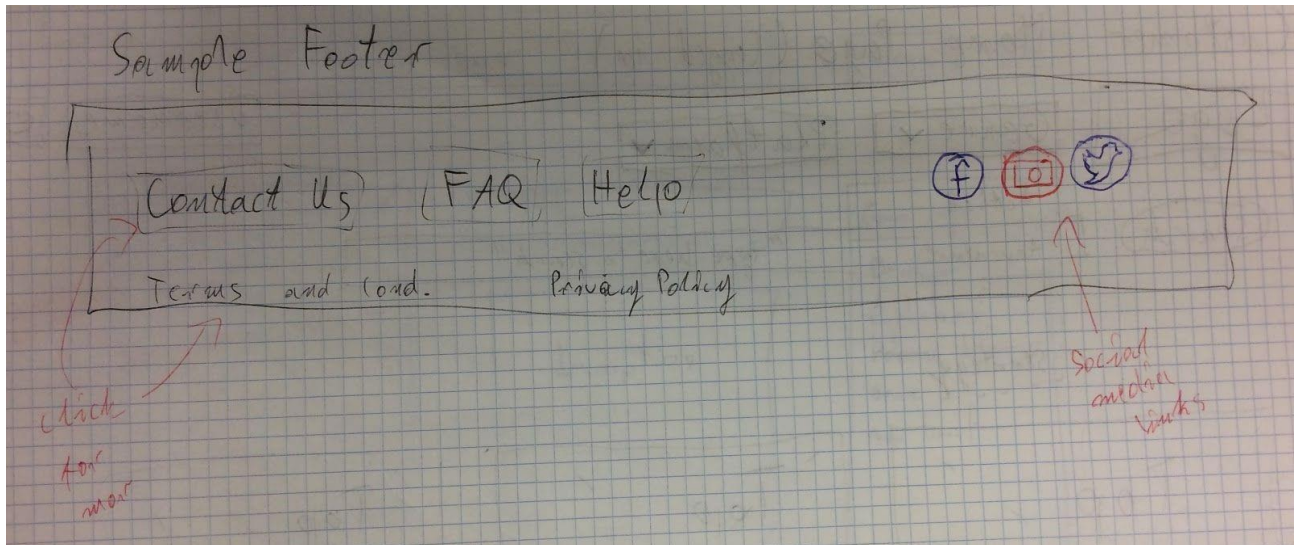
title

title

title

title

See More



CUSTOMER LOGIN

Email ~~XXXXXXXXXX~~

password

~~XXXXXXXXXX~~

~~XXXXXXXXXX~~

Log in

CUSTOMER REGISTER

name: _____

address: _____

telephone: _____

e-mail: _____

password: _____

Submit

CUSTOMER SEARCH PAGE

Logo

search bar

sort by: default
popularity: most
least
date: recent
oldest
price: lowest
highest

Platform

Genre

Price range

Image of
the game

<input type="checkbox"/>	NAME OF THE GAME	PRICE BUY	PRICE RENT	RATING xxxx
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REPORTING MANAGEMENT SCREEN

admin username

HOME

UC3

UC25

Output

SALES REPORT

more options

☒ sales
☐ rents

choose dates

Report for Nov-17-2017
 total
 sales ----- \$
 rents ----- \$
 total ----- \$

from November 2017
 (30) (31) (1) (2) (3) (4) (5)
 () () () () () () ()
 to December 2017
 (27) (28) (29) (30) (1) (2) (3)
 () () () () () () ()

Output

Report From Nov-2-2017 to Dec-2
 sales day ----- \$
 week 1 total day ----- \$
 week 2 total

10. Logo ideas:



11. Materials written in class:

Information sent to other group:

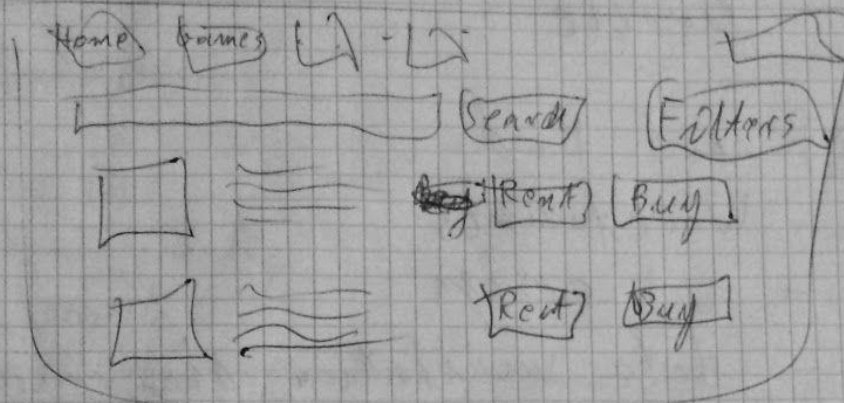
1. Login available at the top all time (not necessary for searching but mandatory for buy/sell operation).

Scenario A.

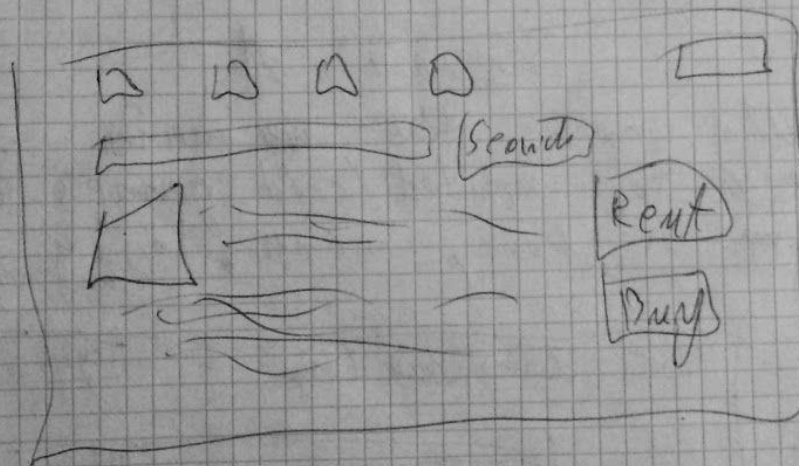
1. Sally opens the main webpage and sees top rented/sold games and search bar, menu, login button, and register

```
graph TD
    subgraph Header
        HOME[HOME]
        Games[Games]
        Rentals[Rentals]
        Help[Help]
        Login[Login]
    end
    subgraph SearchBar
        Search[Search]
    end
    subgraph TopRentals
        R1[ ]
        R2[ ]
        R3[ ]
        R4[ ]
        R5[...]
    end
    subgraph TopSellers
        S1[ ]
        S2[ ]
        S3[ ]
        S4[ ]
        S5[...]
    end
```


2. Sally search for movie called "Glo Glo" and she sees 2 positions, one movie and one game.



3. Sally selects the movie clicking on the picture or the title to read more info about product:



4. She decides to rent it and click on rent button. Because she is not logged in, the login / Register page displays.

Response from the other group:

Not specified:

- Games, Movies, Help btns.
- Filters.
- Login and account. (register, ...)
- How you ~~end~~ finish buying/renting.
and money transactions.
- What information and how you get it
when you choose a movie/game.

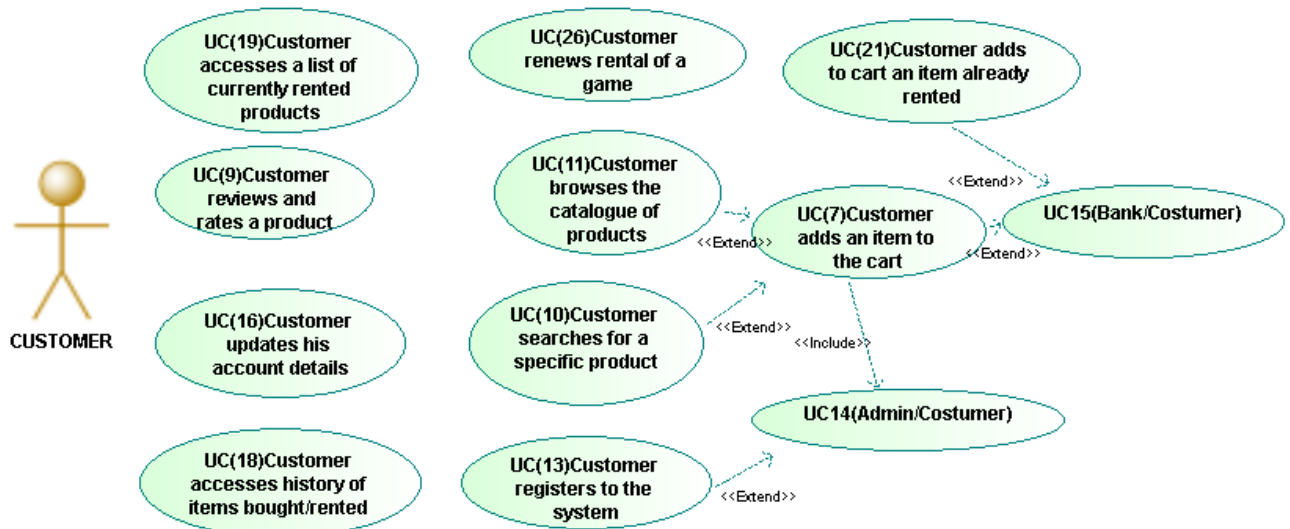
How we think that works:

- Games / movies btn: displays top rented / bought
movies or games and allows you to search only
in that genera.
- Help: support email and FAQ pages.
- Filters: allows you to choose a type and genera
and then search for them.
- LogIn / Register:
 - username
 - password
 - email
 - bank account
 - collection. (all you've bought)

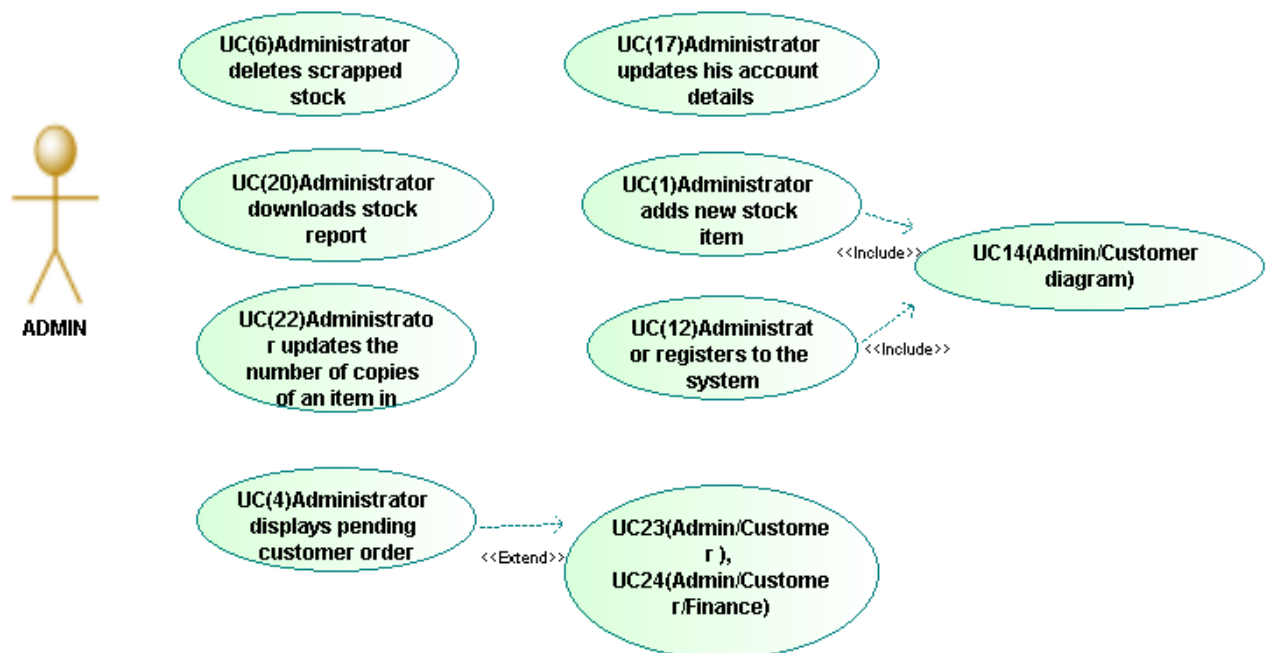
USE CASE DIAGRAM

In order to do the diagram a bit understandable we have decided to separate the diagrams in the use cases that correspond to each actor or group of actors.

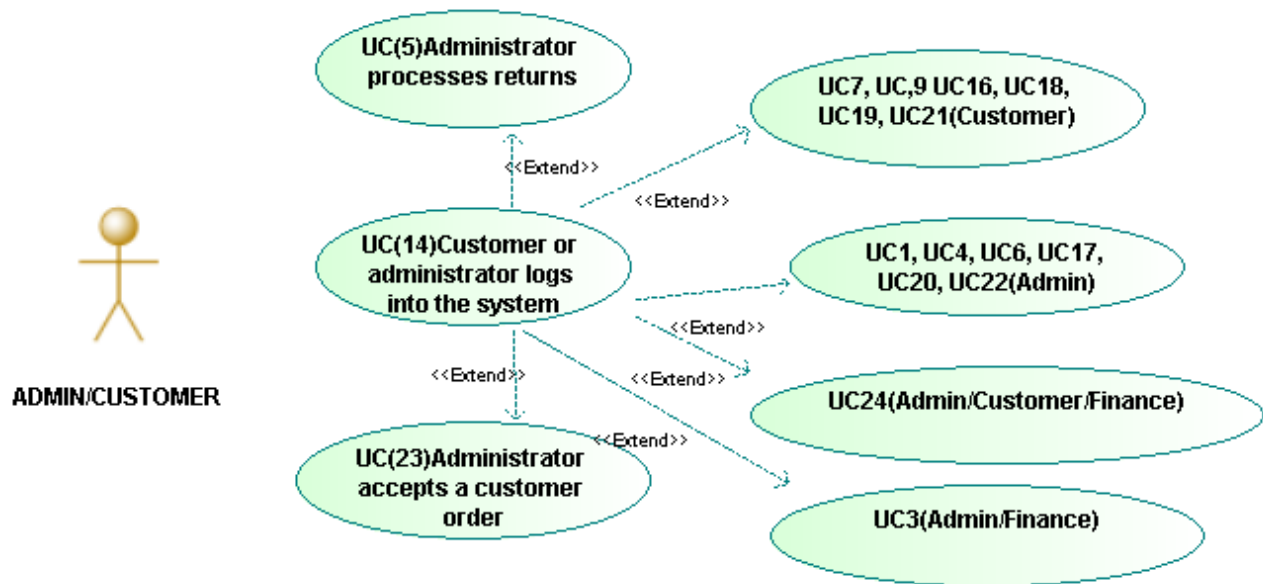
Actor - Customer



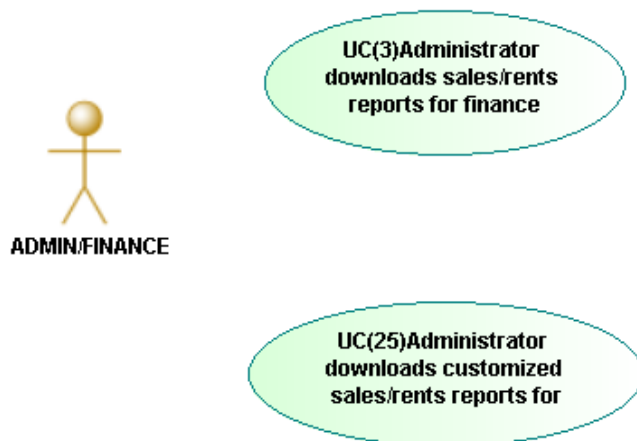
Actor – Admin



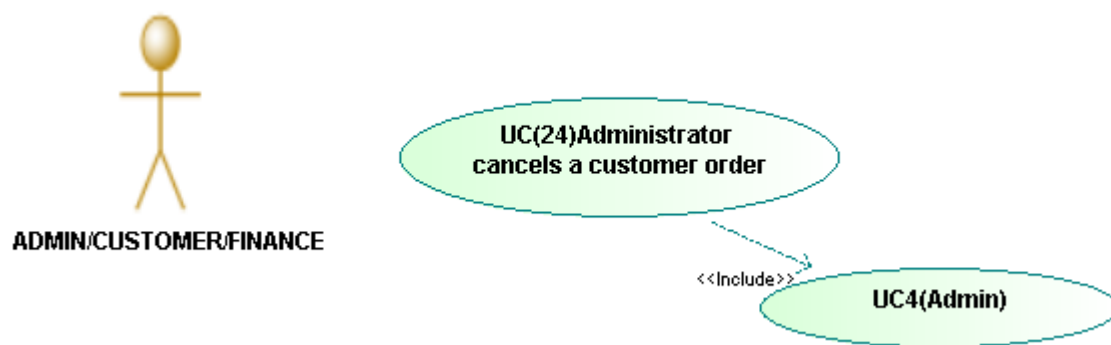
Actor – Admin/Customer



Actor - Admin/Finance



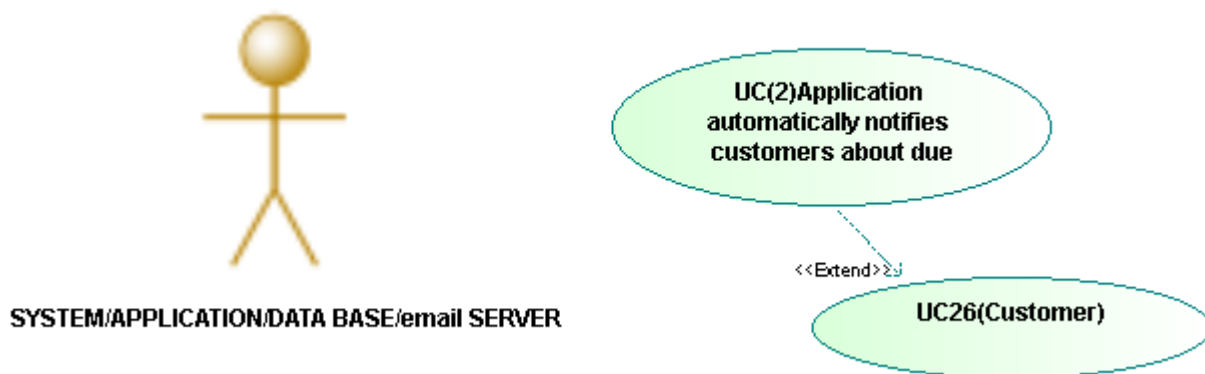
Actor - Admin/Finance/Customer



Actor – Bank/Customer

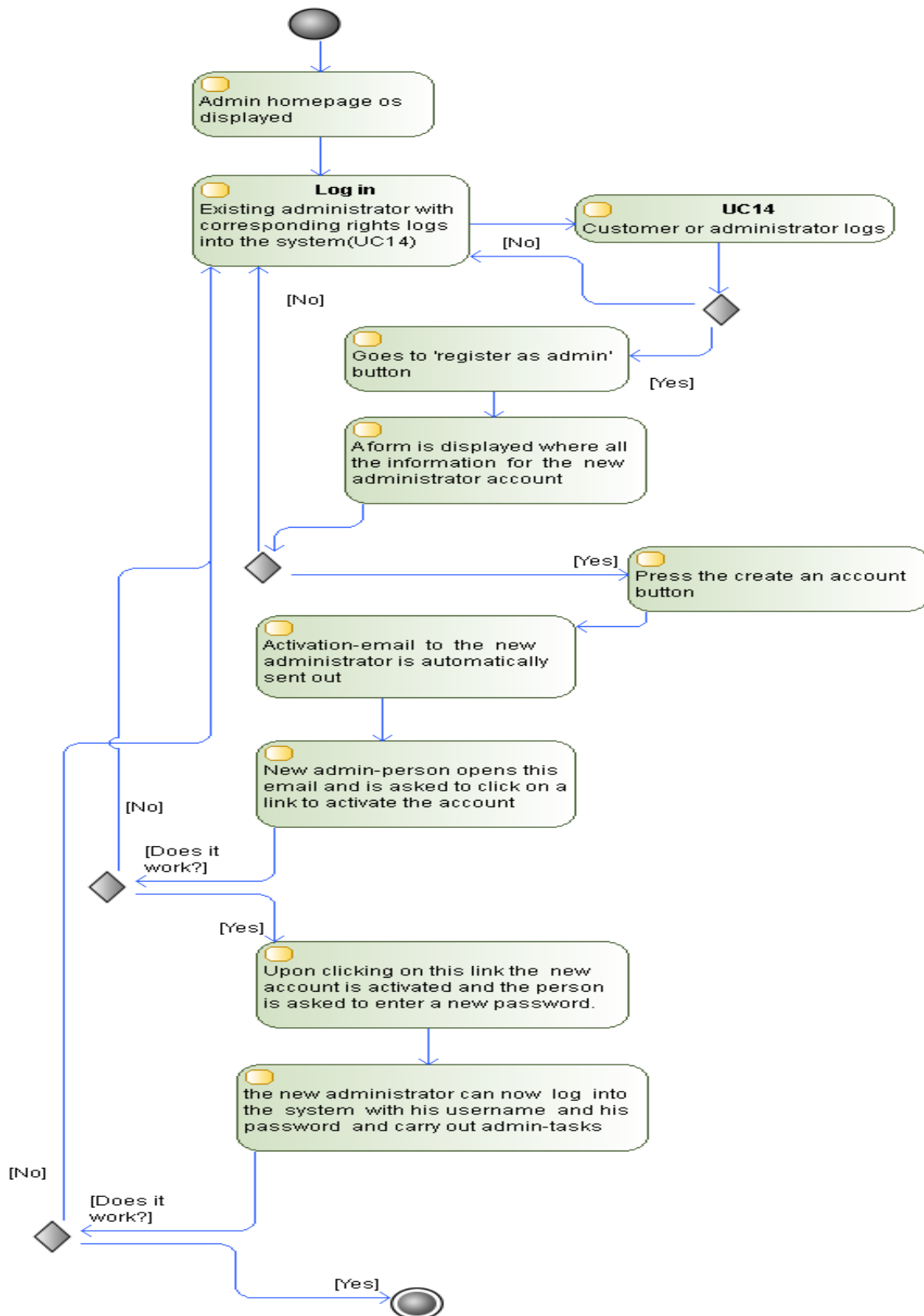


Actor - System/Application/Data Base/email server



ACTIVITY DIAGRAM

UC12 - Activity diagram



UC15 - Activity diagram

