Electra
Group 14

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Contents

1 Functional requirements

1.1 Registration and login

1.1.1 People shall register to create a user of the system.
The following information must be entered upon registration: username, password, e-mail address
Rationale: A user is needed in order to use the system.

1.1.2 The system shall require users to log in.
Rationale: Users need to be identified and authenticated before they are able to use the system.

1.1.3 All users in the system shall have artistic points (AP).
When a user is created that user is given 100 AP. Users receive or loose AP when they win or loose a competition.
Rationale: The AP rank users (compare users against each other). The more AP the higher rank.

1.2 Profile

1.2.1 Users shall be able to add other users to a "friend-list".
The "friend-list" can be used to access those users in the future.
Rationale: Adding friends will make everyday community functions easier.

1.2.2 Every user shall have a guestbook where other users can post messages.
The guestbooks are publicly available but unique to every user.
Rationale: The guestbook enables users to communicate with each other.

1.2.3 Every user shall have a gallery where all pictures made by this user are posted.
Rationale: A gallery helps the user to show all his/her previous work.

1.3 Playing arena

1.3.1 There shall be a playing arena where users competes.
Rationale: This will help the users that wants to compete to gather and find each other.

1.3.2 The playing arena shall be viewable for all users.
All users shall be able to follow what's going on in the playing arena.
Rationale: Users might want to look at which users that are available for challenge but without being exposed for other users to challenge them.

1.3.3 Users shall not be able to interact with the playing arena unless they sign up to it.
Rationale: To avoid cheating by giving tips, and to avoid disturbance during play.

1.3.4 The playing arena shall contain a list of users willing to compete.
Rationale: To let users know whom they can compete against.

1.3.5 The playing arena shall provide a chat room.
In the chat room, users can post messages that are viewable to all other users.
Rationale: Users wants to communicate.

1.3.6 Users should be able to view statistics about other users that are signed up in the playing arena.
Rationale: To enable information about the users available for challenges.

1.3.7 A user shall be able to challenge other users in the playing arena.
To create a challenge, the user need to specify a few gaming options (listed below) and then invite the opponent.
Rationale: Users wants to compete. The gaming options makes the game more interesting.

1.4 Free sketch

1.4.1 There shall be a free sketch available.
On the free sketch users can practice their skills on their own. The pictures created in the free sketch will not be stored or published in any way.
Rationale: The free sketch enables users to learn how to draw pictures in the system.

1.5 Competition

1.5.1 A competition shall consist of three phases: Challenge, battle and vote.

- Challenge: when a user asks another user to participate in a competition.
- Battle: the two users competes by drawing pictures.
- Vote: when other users vote for one of the pictures created in the battle.

Rationale: You have got to tell someone that you want to battle them. The actual battle is a must. The voting decides who the winner is.

1.5.2 Every started competition shall have a winner.
If a tie occurs, one more vote (aka. "golden vote") is needed and that vote decides the outcome of the competition.
Rationale: To solve the problem of tied competitions.

1.5.3 When a competition ends both the participants AP shall be affected.
The user who looses the competition looses his or her betted amount of AP and that amount of AP is received by the winner of the competition.
Rationale: System often used in games. The users places bets, and the winner takes it all.

1.5.1 Challenge

1.5.1.1 The user shall be able to specify these gaming options when challenging another user:

- Time limit: For how long the battle will last.
- Bet: The amount of AP to bet. Explained below.

Rationale: Different users may want to have different time limits. You can choose how big risk you want to take in a battle by being able to choose how large share of your AP you want to bet.

1.5.1.2 When a user is challenged, the user shall be notified of that.
The notification shall also provide a link to accept the challenge.
Rationale: This is how a user tells another user that he/she wants to battle.

1.5.1.3 The bets shall relate to the amount of AP that each user has.
A specified percentage of the challengers AP and the opponents AP at this moment.
Example: User A (100 AP) challenges user B (10 AP) and choose to bet 30%. That means, if B accepts the challenge, A has betted 30 AP and B has betted 3 AP.
Rationale: The betting system are this way because if you challenge someone who has a lot less points than you the amount you gain is less than if you challenge someone at your own skill level.

1.5.1.4 While a user participates in a competition the betted amount of AP shall be reserved.
That the betted amount of AP are reserved means that they can not be used in other bets but that they still are part of the user's total

amount of AP.

Rationale: AP are reserved to ensure that the user do not bet more AP than that user have.

1.5.2 Battle

1.5.2.1 **There should be at least 64 colors available while painting pictures in the battle phase.**
Rationale: Pictures will not be so interesting with less colors.

1.5.2.2 **The system shall randomly generate a topic for each battle that the users are intended to paint.**
Rationale: The topic is what the users are intended to illustrate.

1.5.3 Vote

1.5.3.1 **The voting phase shall last 24 hours.**
Rationale: The competition must have an end. If there are no timing constraints the competition could be stuck in the voting phase forever.

1.5.3.2 **There shall be a voting page where users can vote on competitions that are in the voting phase.**
Rationale: To enable users to vote and determine who wins a competition.

1.5.3.3 **A vote shall be related to the total amount of AP that the voting user has.**
A vote from a user with lots of AP shall weigh more than a vote from a user with less AP.
Rationale: Users with lots of AP are more influent to the community.

1.5.3.4 **Statistics showing the development of a vote should be available for presentation during a voting phase.**
These statistics are available for users that fulfill one of the following criteria:

- has participated in that competition.
- has voted on that competition.

Rationale: To enable users to follow the development of a vote as the vote phase continues. Also, people who votes will not be able to vote on the current leader (or the picture with lowest scores) on purpose.

1.5.3.5 **Users shall receive AP by voting on competitions.**
Rationale: Users need to contribute to the community and the voting system is essential for the community. The users receive AP as an incentive to vote.

1.5.3.6 **A user shall only be able to vote in a competition once.**
Rationale: The outcome of the competition is likely to be unfair if a user is able to vote more than once on the competition. Without this constraint there are no limit in how much AP a user can receive by only voting.

1.5.3.7 **A user shall not be able to vote in a competition that he/she participates in.**
Rationale: Obviously, if you can vote for yourself, you lose the whole point.

1.5.3.8 **The pictures in a competition shall be shown anonymously during the voting phase.**
Instead of showing which user that has created one of the two pictures.
Rationale: To avoid that pictures are judged based on other criteria than the actual pictures.

1.6 Statistics

1.6.1 **There shall be a list that shows the top ten ranked users.**
Rationale: Users need to be pushed into competitive thinking. They should strive to be in this top ten list.

1.6.2 **There shall be a global gallery where all pictures created in the system are shown.**
Rationale: The global gallery makes it easy to find new pictures and shows what art the community has created.

1.6.3 **Statistics about users shall be publicly available within the community.**
These user statistics are:

- the total number of participated competitions
- the number of won competition AP

Rationale: To enable information about a other users.

1.7 Search

1.7.1 **A user shall be able to search for other users.**
They will be sought of with respect to their username.
Rationale: This helps the users to get in contact with each other and therefore helps the community feeling of fellowship.

2 Non-functional requirements

2.1 **The system shall be a server/client system.**
The web browser serves as the client in this case.
Rationale: It's an online game and for the information to be accessed by other users, central storage is needed.

2.2 **The client shall be web based.**
Rationale: Easy to use and no downloads of large executables needed.

2.3 **The client shall work using the web browser Mozilla Firefox version 2.**
Rationale: It's an online game so it makes sense that it should work on at least one web browser.

2.4 **The client shall work using Flash version 9 within the client's web browser.**
Rationale: Drawing functions will be implemented with Flash

2.5 **The system shall be implemented using standardized methods.**
Rationale: Easy to develop further by others. Easy to communicate with other systems if needed.

2.6 **The pictures created in battle mode shall be stored by the system.**
Rationale: Makes the use of the system much easier for the user.

2.7 **The following information about a user shall be stored in the system: username, password, e-mail address.**
Rationale: A username to identify the user. A password to authenticate that user. An e-mail address to make it possible to contact the user outside the system.

2.8 **The system shall not disclose the e-mail address to other users.**
Rationale: E-mail addresses are considered as personal information and shall be kept confidential.

2.9 **Password and e-mail addresses shall be stored in an encrypted state.**
Rationale: To keep this sensitive personal data safe.

2.10 **There shall be rules associated with the use of the system.**
These rules shall be agreed upon by every user while registering and followed thereafter.
Rationale: Users need to conform to certain behavior.

2.11 **There should be a ranking system that partitions the users into distinct group on behalf of their AP.**
Rationale: The purpose is to encourage the users to play more by enabling them to advance to a higher "skill group".

3 Use Cases

3.1 Register an account

Primary actor: User

Stakeholders:

Preconditions:

Postconditions: A user account is created

Main scenario:

1. User clicks the link "new account" on the main page.

2. User enters his desired user name, password and e-mail.

3. User clicks "create"

4. System verifies that user name does not exist and password/email are in correct format.

5. The system notifies the user that the account is created.

Alternative flow:

4 a. The user name already exists

1. User gets a message that says user name already exists.

2. Return to item 2

4 b. The password is invalid.

1. User is notified of that

2. Return to item 2

4 b. The e-mail is invalid.

1. User is notified of that

2. Return to item 2

3.2 Login

Primary actor: User

Stakeholders: User

Preconditions: User has previously created an account.

Postconditions: User gets access to the system

Main scenario:

1. User enter her user name and password into the login form on the main page.

2. User clicks "Login"

3. System verifies that the password belongs to the given user name.

4. The system redirects the user to a page containing her profile.

Alternative flow:

3 a. There are no user with that user name exists

1. System returns a message that the password is incorrect.

2. Return to item 1.

3 b. The password does not belong to the given user.

1. System returns a message that the password is incorrect.

2. Return to item 1.

3.3 Challenge

Primary actor: User A

Stakeholders: User B

Preconditions: A has logged in and B has signed up in the playing-arena.

Postconditions: User B receives a challenge-request.

Main scenario:

1. A enters the battle page.

2. The system presents the playing arena and a form containing battle options. The arena is not editable.

3. A clicks "enter arena"

4. The system adds the user to the playing list

5. A set up his desired battle options.

6. A clicks on user B in the list.

7. System presents how much of B's AP that would be put on the line, should this competition start.

8. A chooses challenge B.

9. The system notifies B about the challenge.

Alternative flow:

6 a. B is already challenged by another user.

1. System notifies A that B is being challenged by another user.

2. Exit scenario.

3.4   Battle

Primary actor: User A, User B

Stakeholders:

Preconditions: User B has received a challenge-request from A

Postconditions: A and B has performed a battle

Main scenario:

1. User B accepts the challenge from A.

2. The system presents a painting page for A and B along with a topic.

3. The system starts the timer on the specified time.

4. A and B paints.

5. Timer reaches zero

6. The system lets the users see each others pictures.

7. The system puts the competition on top of the voting page.

Alternative flow:

1 a. B does not accept A's challenge.

1. B types an explanation about why he/she did not accept the challenge.

2. The system notifies A that B has rejected the challenge-request along with B's explanation.

3. End scenario.

1 b. A cancel the challenge-request before B accepts it.

1. The system notifies B that A has canceled the request.

2. End scenario.

4 a. One of the users disconnect while painting.

1. The system declares the other part as winner.

2. Exit scenario

3.5 Vote

Primary actor: User

Stakeholders: Every user (in particular the users participating in competitions).

Preconditions: There are at least one open competition in the voting phase

Postconditions: There is one more vote in a competition

Main scenario:

1. User enters the voting page.

2. System presents a list of all current active competitions.

3. User selects one of the competitions

4. System displays the two pictures created in the competition's battle phase.

5. User clicks on the left picture

6. System calculates the points awarded to the picture based on the user's total AP

7. System adds the result in 6 to the left picture's score.

8. System adds five AP to the user for voting.

9. User sees statistics of the current standing in the competition.

Alternative flow:

5 a. User decides not to vote for one of these pictures.

1. User selects another competition.

2. Return to item 4.

5 b. The voting time went out while watching the pictures.

1. System notifies the user that the voting is closed.

2. Return to item 2.

6 a. The competition is marked as a "golden vote".

1. System declares the creator of the selected picture as winner and presents that user.

2. System adds five AP to the user for voting.

3. Return to item 2.

3.6   Competition ends

Primary actor: System

Stakeholders: Users participating in the competition.

Preconditions: The time limit of a competition has exceeded

Postconditions: One of the participants is declared as winner, the winner's AP has increased, the looser AP has decreased.

Main scenario:

1. System compares the total voting points for the two pictures and declares a winner (user W) and a looser (user L).

2. System marks the competition as finished.

3. System transfer the appropriate amount of AP from L to W (see Use case Transfer AP)

4. System adds one to W's number of won competitions and adds one to L's number of lost competitions.

Alternative flow:

1 a. The pictures voting points are equal.

1. System marks the competition as "golden vote".

2. Exit scenario.

3.7 Vote for a "golden vote" competition

Primary actor: System

Stakeholders: Users participating in the competition.

Preconditions: A user has voted on a "golden vote" competition.

Postconditions: One of the participants is declared as a winner

Main scenario:

1. System declares the creator of the voted picture as a winner (user W) and the other as a looser (user L).

2. System marks the competition as finished.

3. System transfer the appropriate amount of AP from L to W

4. System adds one to W's number of won competitions and adds one to L's number of lost competitions.

3.8 Transfer AP

Primary actor: System

Stakeholders: User A and User B

Preconditions: There has been a competition and A won. The bet was 30%. For A, this was 20 AP and for B, it was 15 AP.

Postconditions: 15 AP has been transferred from B to A. All AP reserved in this competition are freed.

Main scenario:

1. The system removes 15 AP from B.

2. The system reduces B's reserved AP by 15.

3. The system adds 15 AP to A's total AP.

4. The system reduces A's reserved AP by 20.

3.9 Leave message in guestbook.

Primary actor: User A

Stakeholders: User B (owner of guestbook)

Preconditions: A is logged in and has B on his/her friend-list.

Postconditions: B's guestbook is augmented with a new message.

Main scenario:

1. A click on B's username in his/her friend-list.

2. System present B's profile to A.

3. A signs B's guestbook.

4. System puts the message on top of the guestbook and presents this to A.

3.10   Free sketch

Primary actor: User A

Stakeholders:

Preconditions: A is logged in

Postconditions: A has tested some of the functionalities of the game.

Main scenario:

1. A enters the Free Sketch page.

2. Systems presents a canvas with some painting tools to A.

3. A tries out different tools to see what they do.

4. A plays around with these tools for a while.

5. A leaves the page.

3.11   Set up battle options

Primary actor: User A

Stakeholders:

Preconditions: User has signed up in the playing arena.

Postconditions: A is ready to challenge someone with the specified battle options.

Main scenario:

1. A enters the amount to bet in percent of A's total AP.

2. System translates the percentage amount into actual AP and presents it to A.

3. Item 1 and 2 are repeated until A is satisfied with the bet.

4. A selects the desired battle-time