

Ethical design

To be able to gather our ethical requirements we worked together and looked through the Tarot Cards of Tech. While doing this we discussed for each card how it applies to our project, what we can do about it, and how important it is. We also looked at the Technology Impact Cycle Tool, after understanding the different categories within TICT we created a conclusion for each category.

TICT

Name: Quantum chess tournament

Data: 11th of April 2024

Description of the technology:

The Quantum Talent and Learning Centers (TLC) Eindhoven is focused on advancing education in quantum tech, information, and sensing. Quantum Talent and Learning Centers (TLC) Eindhoven has created a game called Quantum Chess, which is a variant of chess with dynamic effects of quantum mechanics. To help with their goal, we have been asked to make a software solution to make an online platform to host Quantum Chess Tournaments.

Right now, they can only play a game on one computer, making it so that users need to be physically together with one computer. The task that the software developers need to solve is to offer a software solution where users can use an online platform where they can join tournament-hosted games held by Institutes. This system is used for engaging and collaborative competition that spans all four Quantum Talent and Learning Centers (TLCs) in the Netherlands. A user can log in to the system, sign up for a tournament and play online hosted games. The focus will be on a user-friendly design, participants can sign up and smoothly take part. This end goal is to have a working solution with a great approach to future working software developers for this project.

Human values

People need to be able to be respected so we need to create a safe environment where people can make reports when they feel like something was inappropriate or unsafe.

Transparency

The game is going to have explanations on how to play and join tournaments, in different languages to make it easily accessible.

Impact on society

The tournament game is aiming towards bringing more attention towards the quantum world and getting students more interested in a physics career. Having a game makes it easier to understand, get involved, and more accessible.

Stakeholders

The stakeholders of this platform are the teachers at TU/E that work with Quantum chess, students that are currently studying physics and have a better understanding of what would interest them, as well as a professional player of chess that knows more about chess tournaments, and the creators of the game.

Sustainability

Using this tool makes it a bit less sustainable because before people played on one computer together and using the platform they will be able to play from different locations together.

Hateful and criminal actors

Besides a person's name and email no personal information is going to be used, and there won't be any money involved in the platform (for playing individual games), so there is no real value for a hacker to break in the account.

Data

It is important to have a good data collection so that people can see their history and there are no mistakes in the game outcomes or leaderboard scores.

Future

The platform can bring quantum more together and let people connect about something they are interested in.

Privacy

We are planning to integrate a secure authentication and authorization system with hashing to prevent any data loss. We are also keeping in mind the GDPR rules and making sure we are in line with them.

Inclusivity

The platform will only be available to people that are accepted by the admins, to at least for the start have a clear overview of the people that can play in tournaments.

Tarot Cards of Tech

From Tarot Cards of Tech we have for each card that we found applicable a few words to what we concluded was applicable to this card.

Backstabber

- no login
- game stops midway
- authorization for the right people
- score change
- personal data leak
- toxic environment

Catalyst

- Different languages
- Visualisations how the game works

Forgotten

- only people allowed that are accepted
- always spectate

Big bad wolf

- Only known people are allowed in the platform
- Checks for inappropriate names
- Button for saying someone is inappropriate

Siren

- You can only play during tournaments when it's your turn to play
- You have to sign up for certain times to play

Superfan

- Multiple tournaments per week
- Going for the leaderboard

BFFs

- Competing against to each other and arguing

Scandal

- "The worst knock off of normal chess"

- "All personal data leaked for the chess tournament game"
- "Unreliable tournaments, people cheating, score changing"

Smash hit

- As of now our architecture is aiming for 100 thousand, but the architecture is created to be able to scale up and handle larger numbers of users.

Radio star

- Right now there is no similar application/tournament so there won't be any loss of jobs

Conclusion

From the findings that have been found from the TICT subjects and the Tarot Cards of Tech, we made some new requirements that are important for the development of the tournament system. For the security requirements, they are in the security design document (Quantum TLC, 2024, Security Design). Moreover, it specifies the Furthermore, in the (Quantum TLC, 2024, Software Requirement Specification, Ethical Requirements) the other specified findings are specified.

References

Quantum TLC. (2024). Security Design (Unpublished manuscript), FontysICT.

Quantum TLC. (2024). Software Requirement Specification (Unpublished manuscript), FontysICT.