Spring Boot

Created by: fsanchez
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Impact on society

What impact is expected from your technology?

What is exactly the problem? Is it really a problem? Are you sure?

After the pandemic, remote work became more common, and even as things returned to normal, many employees continued working from home. In this company, a hybrid work model is in place where employees alternate between working from home and coming to the office. However, the office does not have enough space to accommodate everyone at once. As a result, the company wants to implement an office reservation system to allow employees to easily schedule their in-office days and enable team managers to track attendance more effectively.

The real issue they are trying to solve is the lack of organization and the absence of a system to manage this hybrid approach efficiently. I am confident this is a genuine problem because if it was not, they would not be requesting a
software solution to address it.

Are you sure that this technology is solving the RIGHT problem?

Yes, we are developing the web application specifically to address the exact problem the client has identified.

How is this technology going to solve the problem?

The system aims to automate and simplify scheduling, allowing employees to reserve their hours to work in the office. This approach enables admins and team managers to easily view an overview of all reservations.

What negative effects do you expect from this technology?

None.

In what way is this technology contributing to a world you want to live in?

The solution enables employees to schedule their hours and reserve seats, providing a clear overview of availability for both team members and managers. This clarity promotes a more organized, efficient, and collaborative work environment.

Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.

Enhanced User Experience (UX):
Design an intuitive, user-friendly interface that allows employees to easily book and adjust their office schedules. Include helpful features like notifications, reminders, and calendar integrations to streamline the booking process.

Dynamic Space Allocation:
Use algorithms to automatically allocate office space based on the number of people scheduled for each day, optimizing space usage and preventing overbooking. Real-time office availability updates will provide immediate feedback on current space capacity.

Team Collaboration Features:
Enable team managers to coordinate schedules more effectively with group booking options for collaborative work. Additionally, include a feature that suggests optimal days for teams to work together in the office based on individual availability.

Hateful and criminal actors

What can bad actors do with your technology?

In which way can the technology be used to break the law or avoid the consequences of breaking the law?

While the office reservation system is designed to facilitate efficient workspace management, it is crucial to address potential misuse. To prevent unauthorized activities and protect users' rights and well-being, the system should include robust security measures, clear policies, and ethical guidelines. Implementing strict access controls, monitoring for suspicious behavior, and educating users about privacy and security best practices will help mitigate these risks effectively.

Can fakers, thieves or scammers abuse the technology?

Fakers, thieves, and scammers could potentially exploit an office reservation system in various harmful ways, such as through impersonation and fake accounts, disruption and sabotage, creating societal unrest, and invading privacy or exploiting data. Addressing these risks with robust security protocols, monitoring for unusual activities, and setting clear policies on acceptable use is essential for preventing abuse. Additionally, fostering a culture of respect and accountability within the organization can help mitigate these risks and promote a safer, more positive work environment.

Can the technology be used against certain (ethnic) groups or (social) classes?

The potential misuse of an office reservation system against specific ethnic groups or social classes underscores the need for thoughtful design and implementation. To prevent discrimination, organizations should prioritize inclusive policies, utilize fair algorithms, and ensure the technology accommodates the diverse needs of all users. Additionally, fostering a culture of respect, equity, and inclusivity is essential to mitigate the risks associated with such technology. Regular audits of system usage and outcomes can further help identify and address any biases or discriminatory practices that may emerge.

In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.

The potential for bad actors to misuse an office reservation system to deepen divisions between groups is significant. By manipulating data, exploiting biases, and inciting tensions through targeted communication, these individuals could polarize society and create conflict. To mitigate these risks, it is essential to implement robust security measures, ensure transparency in

data handling, and foster a culture of inclusivity and respect within organizations. Regular assessments of the system's impact on user interactions can also help identify and address any emerging issues related to division and discrimination.

How could bad actors use this technology to subvert or attack the truth?

Bad actors could use this technology to subvert or attack the truth by creating fabricated reservations to disrupt resource management, manipulating data to spread misinformation, exploiting user trust for malicious ends, and controlling resource availability to inconvenience or mislead others.

Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.

Key improvements include robust user authentication and access control, data integrity and monitoring, and anomaly detection algorithms to prevent misuse. Transparent reporting and analytics, along with communication controls, will help maintain accountability, while an anonymous reporting mechanism encourages users to report suspicious activities confidentially.

Privacy

Are you considering the privacy & personal data of the users of your technology?

Does the technology register personal data? If yes, what personal data?

Yes, it registers users' email addresses and passwords.

Do you think the technology invades the privacy of the stakeholders? If yes, in what way?

No.

Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?

Yes, because we only require an email address and password, we avoid collecting unnecessary information that could pose a risk if leaked.

Does the technology mitigate privacy and data protection risks/ concerns (privacy by design)? Please indicate how.

I believe the risk is quite low, as the software is designed solely for internal company use and is not accessible to the public. Since it is not widely known outside the organization, external access to the data is unlikely.

In which way can you imagine a future impact of the collection of personal data?

We dont collect sensitive information, and the app functions without needing any personal data, resulting in minimal impact.

Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.

Passwords and emails are encrypted and only visible to admins to prevent data leaks.

Human values

How does the technology affect your human values?

This category is not applicable for this technology.

Stakeholders

Have you considered all stakeholders?

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.

Name of the stakeholder
Tim Langen

How is this stakeholder affected?
Tim Langen is our client for the office reservation system project, which he intends to implement at his company. He oversees the projects progress and provides feedback on a triweekly basis.

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Driessen Employees

How is this stakeholder affected?
Ultimately, it will be the employees at Driessen who use the office reservation system. They are directly impacted, as the system must be user-friendly and tailored to meet their needs.

Did you consult the stakeholder?
No

Are you going to take this stakeholder into account?
Yes

Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?

Name of the stakeholder
Jessie Chua

How is this stakeholder affected?
Although Jessie is not directly affected by the office reservation system, our performance on this project will impact our grade. Therefore, the progress we

make on the system will be evaluated, so we will cater to her needs as much as the client's.

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.
I would like to improve the group dynamics of the project. Since this is our first time working together, we need to familiarize ourselves with each other's work styles and leverage each members strengths. This will help us create a collaborative environment where we can achieve maximum productivity.

Data

Is data in your technology properly used?

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?

Yes, were aware of data issues and take them into account in our office reservation system. We know that data can sometimes be incomplete or have errors, so weve added checks to ensure accuracy, like validating user inputs and preventing overbooking. This helps keep the system fair and user-friendly while minimizing data-related problems.

How does the technology organize continuous improvement when it comes to the use of data?

Our office reservation system does not yet include formal processes for continuous data improvement. However, we plan to conduct several rounds of testing ourselves before the final deliverable. This testing will help us identify any data issues or areas for enhancement, ensuring that the system functions smoothly for users.

How will the technology keep the insights that it identifies with data sustainable over time?

Our project is on a smaller scale, so we dont anticipate many complex insights from the data collected. The primary data includes schedules and reservations, which may not directly contribute to the system's long-term sustainability. Since this is a school project, we wont be conducting ongoing monitoring after the final deliverable. However, we aim to make the system functional and relevant by ensuring it meets all requirements by the projects end.

In what way do you consider the fact that data is collected from the users?

We collect minimal data from users, only work emails for sign-in and reservation and scheduling details for system functionality. This data is kept confidential and used only to support the system, respecting user privacy.

Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.

None.

Inclusivity

Is your technology fair for everyone?

Will everyone have access to the technology?

No, because the application is intended exclusively for the companys employees, with no access for external stakeholders.

Does this technology have a built-in bias?

No.

Does this technology make automatic decisions and how do you account for them?

Our application is not fully automated; users assign and reserve their own spots, but they can also set up recurring reservations, choosing the number of weeks theyd like to keep a seat reserved. If we implement automated scheduling in the future, it will be rule-based rather than person-specific, following standard procedures that determine when employees can work.

Is everyone benefitting from the technology or only a a small group? Do you see this as a problem? Why/why not?

Everyone benefits from this technology, as it is a scheduling and reservation tool that serves all employees equally and does not exclude any group or minority.

Does the team that creates the technology represent the diversity of our society?

No.

Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.

We would like to make several improvements, as we haven't fully considered color-blind users in our current color schemes.

Transparency

Are you transparent about how your technology works?

Is it explained to the users/stakeholders how the technology works and how the business model works?

The document partially covers the system's features but doesnt fully explain the business model. It provides details on main actions like logging in, managing rooms, and scheduling, which are user-friendly, and outlines role management to clarify access levels.

If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?

No complex AI decisions are involved; straightforward methods, like FIFO for managing waiting lists, ensure clarity and fairness.

Is it possible to file a complaint or ask questions/get answers about this technology?

The document does not indicate a complaint system exists, but adding one would enhance user experience.

Is the technology (company) clear about possible negative consequences or shortcomings of the technology?

No, there could be more transparency regarding potential issues like overbooking.

Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.

Comprehensive documentation for all stakeholders involved to ensure transparency and understanding of the technologys processes.

Sustainability

Is your technology environmentally sustainable?

In what way is the direct and indirect energy use of this technology taken into account?

Direct energy use is managed by optimizing server and device processes, while indirect energy use considers the environmental impact of upstream infrastructure, such as data centers. Hosting on energy-efficient, renewable-powered servers further reduces overall energy consumption.

Do you think alternative materials could have been considered in the technology?

Since our project is software-based, alternative physical materials may not directly apply. However, the infrastructure supporting our technology, such as servers, could benefit from eco-friendly options, like renewable-powered data centers, to reduce environmental impact.

Do you think the lifespan of the technology is realistic?

Yes, the lifespan of the technology appears realistic if designed with scalability and regular updates in mind. By ensuring easy maintenance, compatibility with evolving technologies, and ongoing updates, the systems life can be extended, reducing the need for complete overhauls or replacement. This approach also minimizes environmental impact by preventing early obsolescence. However, maintenance would not be handled by us.

What is the hidden impact of the technology in the whole chain?

The "hidden impact" of our technology includes both upstream and downstream effects that aren't immediately visible. Upstream, this involves the energy and resources consumed by suppliers, such as data centers and server infrastructure. Downstream impacts include how users interact with the technology and how it is eventually disposed of. Key considerations include the energy consumed throughout its lifecycle and whether it contributes to e-waste after its usage ends.

Now that you have thought hard about the sustainability of this technology, what improvements would you like to make? List them below.

To optimize energy use, we can reduce energy consumption by refining server and client-side processes. Ensuring compatibility across a range of devices will help prevent frequent hardware upgrades and reduce e-waste. Additionally, providing clear documentation will enable the company to

maintain and update the software, extending its lifespan and sustainability.

Future

Did you consider future impact?

What could possibly happen with this technology in the future?

In the future, this technology could be maintained and enhanced by the company to ensure its continued relevance, or it may become outdated if not regularly updated. Technological advancements could also lead to its expansion or, if it doesnt adapt to evolving needs, its replacement.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.

The technology has evolved into a core system for smart, eco-friendly workspaces, enabling companies worldwide to manage hybrid teams with AI-driven insights that optimize energy use in office spaces. Supported by fully renewable-powered data centers, the system adapts seamlessly to users' needs. Employees benefit from efficient, well-balanced work environments that enhance productivity and well-being while reducing environmental impact.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.

If neglected and outdated, the technology becomes vulnerable to security breaches, leading to office inefficiencies. Without proper maintenance, the system also contributes to e-waste, straining resources and creating environmental issues.

Would you like to live in one of this scenario's? Why? Why not?

In a utopian scenario, it's great to manage teams with a well-developed application, though there are hundreds of similar tools available today, so its impact may be limited. In a dystopian scenario, I would simply switch to other tools.

What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?

If the technology is acquired by another party, its ethical principles could be compromised. The new owners might prioritize profit over ethics, potentially sacrificing privacy, inclusivity, or sustainability. They could repurpose the technology for unintended uses, such as invasive data collection or restricted access based on social biases. Alternatively, the new owners could uphold and even enhance its ethical design by investing in sustainable practices and

improving user transparency, depending on their values and objectives.

Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.

To strengthen the technology, we can enhance privacy protections for user data, increase system flexibility to accommodate future updates, and optimize energy usage to improve sustainability and reduce environmental impact. Additionally, setting clear guidelines will help maintain ethical usage, especially if the technology changes ownership.