ScreenBuddy

ScreenBuddy is a full-stack movie booking system that allows users to browse movies, select seats, and make real-time bookings. It features a React frontend, a Spring Boot backend, and supports live updates, user authentication, and theater-managed movie listings.

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Context of use: Education
Level of education: Bachelor

Technology Impact Cycle Tool

ScreenBuddy

Impact on society
What impact is expected from your technology?

What is exactly the problem? Is it really a problem? Are you sure?
Booking movie tickets can be frustrating due to unreliable seat selection, lack of real-time updates, and poor user personalization. Theater employees often struggle to manage updates efficiently, and users don't always get notified of booking changes or new showings. These small annoyances stack up and affect the overall experience.

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

Yes. By going through the root causes, I realized it's not just about booking ticketsit's about creating a smoother, more interactive experience for both users and theater staff. ScreenBuddy tackles the core issue: lack of integration and live feedback in cinema systems.

How is this technology going to solve the problem?
ScreenBuddy is a full-stack system built with React and Spring Boot. It offers real-time notifications via WebSockets, JWT-secured logins, smart seat selection, and automated booking confirmation. It also includes tools for employees to manage listings without needing admin access. The layered architecture, REST APIs, and CI/CD pipeline ensure its scalable and maintainable.

What negative effects do you expect from this technology?
There might be issues like overbooking if real-time updates fail. If not secured well, unauthorized access to booking data could occur. Also, users may become too reliant on the system and avoid checking confirmations manually.

In what way is this technology contributing to a world you want to live in?
It helps make cinema experiences less stressful and more enjoyable. I care about making tech that feels useful in everyday lifethis system supports fairness, convenience, and better organization.

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.
Add fallback for WebSocket failure

Improve error handling and logging

Include clear user alerts for major updates

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?

If unprotected, someone could manipulate bookings or access customer info. Fake accounts could be used to hold seats unfairly.

Can fakers, thieves or scammers abuse the technology?
Yes, people might create fake users to spam bookings or steal discount codes. Theres also potential risk of users exploiting vulnerabilities in booking logic.

Can the technology be used against certain (ethnic) groups or (social) classes?
Not directly, but if the UI or communication is biased or non-inclusive (like not supporting certain languages or accessibility), it could indirectly alienate some users.

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.
Unlikely. The system is not social by design, but unchecked features (e.g., group booking preferences) could potentially exclude others.

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

If fake screenings or manipulated availability are shown, it could mislead users. Theater staff impersonation is also a concern.

Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.
Add rate limiting and CAPTCHA for fake account prevention

Better verification for employee access

Logging and audit trails for booking actions

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, names, emails, and booking history.

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

No, as all data is used strictly for the booking process and with user consent.

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

Yes, I plan to follow GDPR practices: minimal data, consent-first design, and encrypted communication.

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

Yes. Data visibility settings, opt-in preferences, and token-based security.

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

If mishandled, booking info could leak and cause annoyance or impersonation issues.

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

Add privacy policy in the UI

Encrypt all stored data

Make user settings more customizable

Human values
How does the technology affect your human values?

How is the identity of the (intended) users affected by the technology?
Each user has a profile and booking history, shaping their behavior over time (e.g., preferred genres, timing).

How does the technology influence the users' autonomy?
ScreenBuddy is user-driven: they decide what to watch, when, and how. Theater staff also get flexible tools.

What is the effect of the technology on the health and/or well-being of users?
It reduces stress from booking confusion and adds convenience. Overdependence or notification fatigue might be downsides.

Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.
Limit excessive alerts

Offer usage insights (e.g., how often a user books)

Promote accessibility in design

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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
Users

How is this stakeholder affected?
They can browse movies, book seats, get real-time updates. Their experience is smoother and more tailored.
Consulted? Yes, informal feedback. Will keep doing it.

Did you consult the stakeholder?
No

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Theater Employees

How is this stakeholder affected?
They manage listings and seating without relying on central admins. Makes their job easier and faster.
Consulted? Not yet. Planning to include them.

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
Me (Developer)

How is this stakeholder affected?
Building this teaches me full-stack dev, real-time systems, and user-centric design. Its a passion project.

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
No

Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.
Add a feedback form in the app

Talk to actual theater staff before release

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, biased or incomplete data (e.g., booking trends) could mislead. Ill analyze data transparently.

How does the technology organize continuous improvement when it comes to the use of data?
Yes, based on user feedback and live test data (post-mock).

How will the technology keep the insights that it identifies with data sustainable over time?
By letting users change/delete old data and ensuring stats are always live and accurate.

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

Consent-driven and no monetization of data. Users stay in control.

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

Document how data is used

Regularly clean outdated logs

Inclusivity
Is your technology fair for everyone?

Will everyone have access to the technology?
Yes, as a browser-based app, its available to anyone with internet.

Does this technology have a built-in bias?
None intended, but language or location-specific defaults might be a barrier.

Does this technology make automatic decisions and how do you account for them?
No, but if I add recommendations or showtime sorting, Ill explain how it works.

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

Yes, aimed at users and theater staff alike, not just power users.

Does the team that creates the technology represent the diversity of our society?
Just me for now, but Im trying to consider a wide range of user needs.

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

Support screen readers

Avoid assumptions in design (like 24/7 internet access)

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?

Yes. Booking logic and status are clearly shown. No business modelits a school project.

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

No automated logic yet, but will be documented when added.

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

Yes, a feedback section will be available.

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

YesI'll be transparent about risks like server downtime or booking errors.

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

Add an FAQ and feedback form

Show system status (e.g., WebSocket active/inactive)

Sustainability
Is your technology environmentally sustainable?

In what way is the direct and indirect energy use of this technology taken into account?
Very low. Cloud hosting planned with efficient services.

Do you think alternative materials could have been considered in the technology?
Not applicable.

Do you think the lifespan of the technology is realistic?
Can be expanded, updated, and maintained. Good foundation.

What is the hidden impact of the technology in the whole chain?
Only server uptime and streaming previews might have energy costs.

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

Monitor background tasks and reduce unnecessary network calls

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Future
Did you consider future impact?

What could possibly happen with this technology in the future?
ScreenBuddy could become a go-to for indie theaters or even link with payment providers and local cinema chains.

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.
It becomes the standard booking platform for small theaters. Everyone benefitsusers, staff, and cinema owners.

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.

It gets sold off to a larger company and filled with ads, tracking, and upsells. Or worse, used to push specific movies unfairly.

Would you like to live in one of this scenario's? Why? Why not?
Utopianabsolutely. The dystopian? No way. Thats why Im keeping control clear.

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

Thats the risk. Ill include ethical use docs, FOSS licensing, and control access to the repo carefully.

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.
Define open-source contribution guidelines

Build a community if the project scales

Keep values clear: useful, fair, user-first