Feasibility Report for bookmyshow (Online ticket booking system)

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1. Introduction

1.1 Overview of the Project

BookMyShow is an online ticket booking system that helps in automation of the process of reserving tickets for movies, concerts, sports events, and other live shows. BookMyShow is a web-based application that provides interfaces for various stakeholders (customers, event organizers, and venue administrators).

Tickets can be added to the system with their associated parameters (seat categories, pricing, and availability), and event organizers can create and manage event listings using them. Moreover, BookMyShow is capable of handling online ticket reservations and cancellations.

BookMyShow supports secure online payments and provides e-ticket generation. It also offers personalized recommendations based on user preferences. Users can view seat layouts and choose preferred seats while booking. Additionally, the system provides analytical insights, such as booking trends and event popularity, in various forms (graphs, tabular format).

1.2 Objectives of the Project

The objectives of this project are to:

- Develop a central database of events, movies, and shows.
- Automate the process of ticket booking and reservations.
- Provide an online platform for purchasing and managing event tickets.
- Enable users to select preferred seats through an interactive seat layout.
- Facilitate secure online payments and e-ticket generation.
- Provide an easy cancellation and refund process based on event policies.
- Provides information about the trending movies, upcoming live shows and sports events with the respective offers (including tabular data).

1.3 The Need for the Project

Managing event ticket bookings manually can be difficult, especially for large events. The BookMyShow project solves this problem by automating the ticket booking process. It allows users to book tickets online for movies, concerts, sports events, and other shows.

Currently, checking booking trends and event popularity requires extra effort. BookMyShow makes this easier by automatically generating reports and statistics, such as:

- Individual user booking history
- Ticket sales for a specific event
- Seat occupancy and availability status
- Overall booking trends for different types of events over time

1.4 Overview of Existing Systems and Technologies

Existing Systems:
Various online ticket booking platforms exist, such as Justickets and PVR Cinemas, which offer similar functionalities. However, BookMyShow is mainly focused on providing a seamless ticket booking experience for movies, concerts, sports events, and live shows, unlike some platforms that also offer streaming services or additional entertainment content.

Main Technologies associated with BookMyShow:

- **Web programming technologies** (JavaScript, React, HTML, CSS, Node.js)
- **Database** (MySQL, MongoDB)
- **Payment gateways** (Credit Card, Debit Card, UPI (Paytm, Google Pay,etc))
- **Diagram and design tools** (Visio, Draw.IO, Figma, Adobe XD)

1.5 Scope of the Project

Main actors of this system:

- Customers (Users booking tickets)
- Event Organizers
- Venue Administrators
- Customer Support Staff
- Administrators

Main use cases associated:

1. **Customers (Users) can:**
    - Browse events, movies, and shows
    - Select seats and book tickets
    - Make payments using credit/debit cards, UPI
    - Download e-tickets
    - Cancel or reschedule bookings (if applicable)
    - View booking history and recommendations
2. **Event Organizers can:**
    - Create and manage event listings
    - Set ticket prices and availability
    - Monitor ticket sales and occupancy status
    - View analytics on event popularity and revenue
3. **Venue Administrators can:**
    - Manage seating layouts and availability
    - Oversee booking and ticket validation
    - Coordinate with event organizers for logistics
4. **Customer Support Staff can:**
    - Assist customers with booking issues

- Handle cancellations and refunds
- Manage customer queries and complaints

5. **Administrators can:**

   - Manage user accounts (customers, event organizers, venue administrators, and support staff)
   - Moderate event listings and ensure compliance with platform policies
   - Configure system settings, payment options, and security policies
   - Access reports and analytics on bookings, revenue, and platform performance
   - Monitor security, data privacy, and handle fraud detection
   - Coordinate technical maintenance and system updates

1.6 Deliverables

- This is a web-based online ticket booking system that provides a seamless experience for users to browse, book, and also manage tickets. The system includes a central database that stores the event details, user bookings, and payment records.
- Since multiple stake-holders are been involved, the platform will offer different user interfaces allocated to each group that ensures smooth navigation and functionality for the customers, event organizers, and venue administrators.

2. Feasibility Study

2.1 Financial Feasibility

As a web-based application, BookMyShow will have associated hosting and maintenance of costs,but moderate bandwidth requirements due to text-based data and multimedia elements will help keep expenses manageable.

The system revenue will be generated through, convenience charge, service fees, and commissions on ticket sales. An Additional income streams may include with some advertisements and partnerships with event organizers.

At the starting stage, the primary market will be urban areas where online ticket booking is in high demand. Over the time, expansion to regional markets and smaller cities will be considered.

Other than the operational costs, the system will also offer significant benefits to users. Customers can book tickets easily without waiting in queues, while event organizers and venue administrators gain access to automated booking management and real-time analytics.

All these advantanges make BookMyShow a financially viable project.

2.2 Technical Feasibility

BookMyShow is a fully web-based application. The main technologies and tools used in this system are:

- **Frontend:** HTML, CSS, JavaScript, React
- **Backend:** Node.js
- **Database:** MySQL, MongoDB
- **Development Tools:** Visual Studio Code, Postman
- **Diagram Drawing Tools:** Draw.IO, Visio, Figma

The chosen technologies for BookMyShow's development are widely used, freely available, and manageable with the required technical skills. The development timeline and implementation process align well with these technologies.

This selection ensures a smooth development timeline and implementation process.

Initially, the website can be hosted on a free hosting platform, but later, it will be moved to a paid hosting service with enough bandwidth to handle high traffic. Since the system involves multimedia elements like images and trailers, moderate bandwidth will be required.

Considering these factors, BookMyShow is technically feasible.

2.3 Resource and Time Feasibility

Resource Feasibility

The resources required for the BookMyShow project include:

- **Development devices** (Laptop, PC)
- **Hosting space** (Initially free, later upgraded to paid hosting)
- **Programming tools** (Freely available, such as Visual Studio Code, Postman)
- **Skilled developers** (Frontend, backend, and database management)

Since all necessary resources are available or can be easily acquired, the BookMyShow project is resource feasible.

Time Feasibility

Here project development will be divided into multiple phases, that includes planning, designing, development, testing, and deployment. By Using modern development frameworks like React and Node.js will help speed up the process.

The estimated timeline for completion is reasonable, as similar web applications have been developed within a few months. Proper project management and teamwork will ensure that deadlines are met without major delays.

Thus, BookMyShow is also time feasible.

2.4 Risk Feasibility

Risk feasibility for BookMyShow can be analyzed under various aspects:

2.4.1Risk Associated with Size

a.Estimated size of the product in lines of code:

Since BookMyShow is a web application that handles multiple stakeholders, it will contain a required amount of code. As the system includes multimedia elements like posters, trailers, and advertisements, the complete project size is expected to exceed **200MB**.

b.Estimated size of the product in number of programs:

Despite supporting multiple stakeholders, BookMyShow will be built as a **single web application** with a unified login system. User access rights will determine the features visible to each stakeholder, avoiding the need for multiple separate websites.

c.Size of the database created or used by the product:

The system will store large amounts of **user data, event details, and transaction records**. Database size will be optimized using **MySQL and MongoDB**, ensuring efficient indexing and retrieval. **Normalization techniques** will be used to minimize redundancy and improve performance.

d.Users of the product:

- Customers (Users booking tickets)
- Event Organizers
- Venue Administrators
- Customer Support Staff

e.Projected changes to the product requirements before and after delivery:

The core functionalities of the system are well-defined, so major changes before deployment are not likely to happen. However, minor enhancements such as **new payment methods, loyalty programs, or personalized recommendations** might be introduced after launch.

f.Amount of reused software:

While most of the system will be developed from starting stage, some existing **JavaScript libraries** will be used for functionalities like payment gateway integration, seat selection, and analytics.

2.4.2.Business Impact Risks

a.Effect of this product on company revenue:

BookMyShow operates on a **commission-based revenue model**, earning from ticket bookings and partnerships with event organizers. The introduction of premium features, advertisements, and subscription plans will further enhance revenue.

b.Reasonableness of delivery deadlines:

The project is planned as a 16-week development cycle with well-defined phases including **planning, development, testing, and deployment**. Given the availability of skilled developers and tools, the deadlines are realistic.

c.Number of customers and consistency of their needs relative to the product:

The platform will serve a **large and diverse audience**, including moviegoers, event attendees, and concert lovers. The system is designed to handle **high traffic loads**, ensuring a smooth booking experience even during peak periods.

d.Interoperability with other products/systems:

BookMyShow will integrate with **payment gateways (UPI, credit/debit cards),** loyalty programs, and **movie theaters' internal systems** to enable seamless transactions.

e.Sophistication of end users:

The system is designed for ease of use, with a **clean UI and step-by-step guidance** for new users. Help documents, FAQs, and customer support will be available for assistance.

2.4.3.Development Environment Risks

a.Is a software project management tool available?

Yes, **JIRA or Trello** will be used for tracking tasks, assigning responsibilities, and monitoring progress.

b.Are tools for analysis and design available?

BookMyShow will use multiple design tools, including:

- **Draw.IO** (Database design)
- **Figma** (UI/UX design)
- **Visio** (System architecture diagrams)

c.Are compilers or code generators available and appropriate for the product?

Yes, **Node.js and React compilers** will be used for development, and all required frameworks are freely available.

d.Are testing tools available and appropriate for the product?

Jest and **Mocha** will be used for **unit and integration testing**, ensuring that the application functions correctly.

e.Are software configuration management tools available?

Yes, **GitHub** and **GitLab** will be used for **version control, change tracking, and collaborative development**.

f.Does the environment make use of a database or repository?

Yes, BookMyShow will use a **MySQL and MongoDB database** to store user bookings, transaction details, and event information.

g.Are all the software tools integrated with one another?

Yes, all components will be connected under a single project structure, allowing seamless interaction between the frontend, backend, and database.

2.4.4. Process Issue Risks

BookMyShow will follow the **Agile development process**, allowing flexibility in accommodating new feature requests and ensuring timely updates.

2.4.5.Technical Issue Risks

a.Are specific conventions for code documentation defined and used?

Yes, **proper code documentation** will be maintained for easy understanding and future scalability.

b.Is there a specific method for test case design?

Yes, **automated and manual test cases** will be created using Jest and Mocha to cover all critical functionalities.

c.Are configuration management tools used to track changes?

Yes, **Git** will be used to track changes and ensure a stable release process

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2.4.6.Technology Risks

a.Is the technology to be built new?

No, BookMyShow will use **proven and widely used technologies** like **React, Node.js, and MySQL**, reducing the risk of compatibility issues.

b.Does the system require new algorithms for input or output?

Yes, BookMyShow will implement **dynamic seat selection, price calculation, and personalized recommendations** to enhance user experience.

Final Conclusion

By considering all the aspects, that includes system size, business impact, development risks, and technology feasibility, it is evident that the BookMyShow project is technically, financially, and operationally feasible.

2.5 Social/Legal Feasibility

BookMyShow follows legal and ethical standards while ensuring smooth ticket booking services for users.

- The platform uses **freely available and licensed development tools** such as **React, Node.js, and MySQL**, ensuring compliance with software licensing laws.
- All **payment gateways** (including **UPI, debit/credit cards, and wallets like PhonePe and Paytm**) follow **RBI regulations** and ensure **secure transactions**.
- Data privacy and security laws such as IT Act 2000 (India) and GDPR (for international users) are strictly followed to protect user information.
- BookMyShow partners with **theaters, event organizers, and venues** under legally binding agreements to **ensure fair pricing and service reliability**.
- The platform provides **refund and cancellation policies** in compliance with consumer protection laws, ensuring fair practices.
- By making ticket booking easier and **reducing long queues**, BookMyShow **enhances user convenience**, making a positive social impact in the entertainment industry.

Considering all these factors, **BookMyShow is socially and legally feasible**.

3. Considerations for BookMyShow

3.1.Performance:

- BookMyShow requires **moderate bandwidth**, and the performance is optimized to handle a **large number of users** booking tickets simultaneously.
- Initially, **shared hosting and cloud-based solutions** will be used for development. For real-world operations, dedicated high-performance servers will be used.
- **MySQL** and **NoSQL (MongoDB)** databases ensure **fast transactions** for booking and payment processing.
- **Response time:** Less than **2 seconds** for search and booking operations.
- **Processing time:** Less than **2 seconds**, as no heavy batch processing is required.
- **Query and reporting times:** Yet to be tested.
- **Throughput:** Yet to be tested.
- **Storage:** Yet to be tested, but optimized for handling large event data.

3.2.Security:

Security is a **top priority**, ensuring safe transactions and user data protection.

- **User Authentication:**
    - Users must log in using **email/phone numbers and passwords or OTP authentication**.
    - Secure payment gateways ensure **encrypted transactions**.
- **Login Details:**
    - Every user login, logout, and transaction is **logged for security purposes**.
    - Fraud detection measures are in place to prevent unauthorized access.

3.3.Usability and Ease of Use:

- The system has a **simple, intuitive UI** to ensure that **users can book tickets easily**.
- A **step-by-step guide** will be provided for first-time users.
- **No extra training** is required to use the system, as the platform is **user-friendly and mobile-responsive**.

3.4.Capacity and Scalability:

- BookMyShow is **designed to handle thousands of simultaneous users**.
- **Cloud-based hosting** solutions like AWS or Google Cloud allow **scalability** during peak booking hours (e.g., festival releases).
- The system can be **expanded globally** with minimal modifications.

3.5.Availability:

- The platform is available 24/7 with 99.9% uptime, ensuring a smooth experience for users.
- **Server redundancy and automatic failover** will help maintain service availability.
- Mean time to failure (MTTF) and mean time to repair (MTTR) will be optimized for quick issue resolution.

3.6.Maintainability:

- BookMyShow follows industry best practices for web and mobile app development.
- **Microservices architecture** ensures **modular development**, making **maintenance and updates easier**.
- **Continuous monitoring and logging** will be in place to detect issues proactively.
- Version control tools **(e.g., Git)** and **CI/CD pipelines** will be used for smooth updates and feature rollouts.

With these considerations, **BookMyShow ensures high performance, security, usability, scalability, and maintainability**, making it a **reliable and efficient** ticket booking platform.

4. References:

The following references helped us to get information regarding the project.

Hyperlinks of the resources are below:

1. Business Model
2. Developers Documentation
3. Technology Stack