Functional and Non-functional Requirements

Functional Requirements:

1. User Registration:
   - Users can register with their name, email, phone number, and agree to the privacy policy.
   - Upon registration, users receive a verification email to confirm their email address.
2. Room Viewing:
   - Users can browse through available rooms and view their respective calendars.
   - The calendar displays availability based on the specified working hours and booking rules.
   - Administrators can set different views for users, such as by venue or by individual room.
3. Booking:
   - Users can select available time slots and book rooms for specific periods.
   - The system should prevent double bookings and ensure that overlapping bookings are not allowed.
   - Bookings can be made for multiple hours, subject to minimum booking requirements.
4. Cart Management:
   - Users can add multiple time slots to their cart before finalizing their bookings.
   - The system calculates the total cost based on the selected time slots and applicable pricing rules.
   - Users can review and edit their cart contents before confirming the booking.
5. Forehead Visit:
   - Users can optionally book a visit to the venue before the event to inspect the facilities.
   - Forehead visit bookings are separate from event bookings and may have different availability rules.
   - Users receive confirmation emails with details of both their event booking and forehead visit.
6. Payment:
   - Registered users can make payments for their bookings using various payment methods (credit/debit cards, PayPal, etc.).
   - Payment processing should be secure and comply with relevant regulations (e.g., PCI DSS).
   - Users receive payment confirmation emails and receipts upon successful transactions.
7. Admin Management:
   - Administrators can configure booking options, including working hours, pricing rules, and availability limits.
   - They can manually edit or cancel bookings, adjust payment statuses, and update client information.
   - The system provides reporting features for administrators to track booking metrics and revenue.

Non-functional Requirements:

1. Security:
   - User data, including personal information and payment details, should be encrypted and stored securely.
   - Access to sensitive information and administrative functions should be restricted to authorized users.
   - The system should have mechanisms in place to detect and prevent unauthorized access attempts.
2. Performance:
   - The system should be responsive and capable of handling simultaneous requests from multiple users.
   - Load balancing techniques should be employed to distribute traffic evenly across servers.
   - Caching mechanisms can be used to improve response times and reduce database load.
3. Scalability:
   - The system architecture should be designed to scale horizontally and vertically to accommodate increasing user traffic and data volume.
   - Cloud-based infrastructure and auto-scaling capabilities can help manage sudden spikes in demand effectively.
4. Usability:
   - The user interface should be intuitive and accessible across different devices and screen sizes.
   - Clear error messages and helpful tooltips should guide users through the booking process.
   - Accessibility features should be implemented to accommodate users with disabilities.
5. Reliability:
   - The system should be highly available, with minimal downtime for maintenance or upgrades.
   - Regular backups of data should be performed to prevent data loss in the event of hardware failures or other incidents.
   - Automated monitoring tools should alert administrators to any system failures or performance issues promptly.