PrimeNG Calendar – Booked, Reserved & Available Dates

# Overview

This feature uses PrimeNG’s p-calendar component to visually display a date picker where:  
- Booked dates are shown in red.  
- Reserved dates are shown in yellow.  
- Available dates are shown in green.  
  
It enhances the user experience by allowing them to instantly recognize the status of each date without clicking.

# Key Components

## 1. Template (HTML)

Uses <p-calendar> from PrimeNG.  
- Binds dayTemplate (custom template) to visually style each date cell.  
- Calls getDayClass(date) to dynamically assign a CSS class based on date status.

## 2. Component (TypeScript)

### Properties

- bookedDates: Date[] → Holds all pre-booked dates.  
- reservedDates: Date[] → Holds reserved dates.  
- availableDates: Date[] → Holds available dates.  
- selectedDate: Date | null → Tracks currently selected date.

### Functions

1. isSameDay(date1: Date, date2: Date): boolean  
 - Compares two dates and checks if they are the same day (ignores time).  
 - Uses getFullYear(), getMonth(), and getDate() for precise comparison.  
 - Why: Needed because dates may have different time parts, but we only care about the day.  
  
2. getDateStatus(date: Date): 'booked' | 'reserved' | 'available'  
 - Determines the status of a given date.  
 - Loops through arrays:  
 - If it matches a booked date → returns 'booked'.  
 - If it matches a reserved date → returns 'reserved'.  
 - Otherwise → returns 'available'.  
  
3. getDayClass(date: Date): string  
 - Returns a CSS class name based on the status of the date.  
 - Example Output: 'booked-day', 'reserved-day', or 'available-day'.  
 - Why: This allows <p-calendar> to apply custom styles dynamically.

## 3. Styles (CSS)

.booked-day { background-color: red !important; color: white; border-radius: 50%; }  
.reserved-day { background-color: yellow !important; color: black; border-radius: 50%; }  
.available-day { background-color: green !important; color: white; border-radius: 50%; }

# Workflow

1. User opens the calendar.  
2. Each date cell calls getDayClass() with the date.  
3. getDayClass() checks the date status (booked, reserved, available).  
4. Applies the correct CSS class → color updates instantly.  
5. User can select a date → selectedDate gets updated.

# Why This Approach Works

✅ Separation of Concerns: Business logic (date status) stays in TypeScript, styling stays in CSS.  
✅ Dynamic Styling: Any change in the arrays (booked/reserved dates) automatically updates the calendar view.  
✅ Scalable: New date categories can easily be added by extending getDateStatus() and CSS.  
✅ User-Friendly: Provides immediate feedback and makes it easy to distinguish between available and unavailable dates.