**Intelligent Clinic Scheduling Guidelines**  
**Version 2.2**  
*For GenAI Agents and Human Operators*

1. **Introduction**  
   This document serves as a comprehensive guide for AI agents and human operators to manage clinic appointments. It defines:  
   • Input requirements for booking.  
   • Logic for prioritizing appointments.  
   • Output formats for integration with downstream systems.  
   • Edge cases and validation rules.
2. **Input Definitions**

2.1 **Patient Booking Request**  
**Purpose:** Capture the patient’s required consultation time and urgency.  
**Structure:**

{

"TimeNeeded": 60, // \*Required\*. Consultation time (30 or 60 minutes).

"deadlineETA": "26-10-2023 10:30" // \*Required\*. Latest allowable booking time.

}

**Human Explanation:**  
• **TimeNeeded:** The duration the patient needs with the doctor. Only 30 or 60 minutes are allowed to align with clinic slots.  
• **deadlineETA:** The patient’s condition requires they be seen by this time. Example: A chest pain patient needing urgent care within 2 hours.

1. **Clinic Slot Structure**  
   **Purpose:** Define clinic hours and slot intervals.  
   **Details:**  
   • **Operating Hours:** 9:00 AM – 12:00 PM (6 slots/day).  
   • **Slot Times:**

* 09:00–09:30, 09:30–10:00, 10:00–10:30, 10:30–11:00, 11:00–11:30, 11:30–12:00.  
  **Human Explanation:**  
  • The clinic operates in 30-minute intervals.  
  • A 60-minute appointment requires two consecutive slots (e.g., 10:00–11:00).

1. **Scheduling Logic**  
   **Purpose:** Determine how to book appointments.

4.1 **Calculate Required Slots**  
**Rule:**

Slots Needed = TimeNeeded / 30

*Example:*  
• TimeNeeded = 60 → 2 slots (e.g., 10:00–11:00).  
**Human Explanation:**  
• The system converts time into slot units to ensure alignment with clinic hours.

4.2 **Slot Assignment Priority**  
**Rules:**

1. **Urgency:** Patients closer to their deadlineETA are prioritized.
2. **Criticality:** If deadlines are equal, prioritize High > Medium > Low criticality.  
   **Human Explanation:**  
   • A patient with a deadlineETA of today will be prioritized over one due tomorrow.  
   • Criticality ensures life-threatening cases are addressed first.
3. **Output Format**  
   **Purpose:** Provide machine-readable results for integration with booking systems.

5.1 **Success**  
If a slot is available and no conflicting appointment exists, the response should be:

{

"NewBooking": {

"ScheduledStartDateTime": "25-10-2023 10:30",

"ScheduledEndDateTime": "25-10-2023 11:30"

}

}

**Human Explanation:**  
• The patient is booked directly into the available slot without affecting any other appointment.

5.2 **Failure**  
If there is already an appointment present (i.e., no slots are available), the system should return:

{"No slots available"}

**Human Explanation:**  
• This response indicates that no valid slots exist for the requested time, and no rescheduling will be attempted.

1. **Edge Cases**  
   6.1 **TimeNeeded Exceeds 60 Minutes**  
   **Rule:** Reject requests with TimeNeeded > 60.  
   **Human Explanation:**  
   • Prevents overloading the clinic’s capacity.

6.2 **No Available Slots**  
**Resolution:** Return the failure JSON response.  
**Human Explanation:**  
• If an appointment already exists or no valid slot is free, the system responds with {"No slots available"}.

1. **Validation Rules**  
   **Purpose:** Ensure data integrity.
2. **TimeNeeded:** Must be 30 or 60 minutes.
3. **Slot Alignment:** Start/End times must match clinic slots.
4. **Deadlines:** Bookings must not exceed the provided deadlineETA.  
   **Human Explanation:**  
   • Prevents invalid bookings (e.g., a slot outside clinic hours).
5. **Appendices**

8.1 **Slot Matrix**

| **Date** | **Slot 1** | **Slot 2** | **Slot 3** | **Slot 4** | **Slot 5** | **Slot 6** |
| --- | --- | --- | --- | --- | --- | --- |
| 25-10-2023 | 9:00 | 9:30 | 10:00 | 10:30 | 11:00 | 11:30 |

**Human Explanation:**  
• A visual reference for clinic staff to verify slot availability.

8.2 **Sample Input/Output**

**Input:**

{

"TimeNeeded": 60,

"deadlineETA": "26-10-2023 10:30"

}

**Output (Success Scenario):**

{

"NewBooking": {

"ScheduledStartDateTime": "25-10-2023 10:00",

"ScheduledEndDateTime": "25-10-2023 11:00"

}

}

**Output (Failure Scenario):**

{"No slots available"}

**Human Explanation:**  
• In the success case, the patient is booked into two consecutive slots.  
• In the failure case, the system indicates that the requested slot is already taken.