**Test Case 1: Invalid Phone Number**

Test Case Name: Verify Customer Check-in via SMS

System: Customer Check-in System

Subsystem: Twilio API Integration

Designed by: Sebastian Burman

Design Date: 2/10/24

Executed by: Sebastian Burman

Execution Date: 2/11/24

Short Description: Test the system's ability to handle a customer check-in via an SMS message sent through Twilio.

Pre-Conditions:

- The customer has a scheduled appointment.
- The customer's phone number is registered in the system.
- The Twilio API is correctly integrated and operational.

Test Steps:

Step: Send Check-in SMS

Action: The customer sends a check-in SMS to the system's phone number.

Expected System Response: The system receives the SMS through the Twilio API and identifies the customer's phone number.

Step: Verify Customer Appointment

Action: The system looks up the customer's scheduled appointment.

Expected System Response: The system verifies that a current appointment exists for the customer.

Step: Confirm Check-in

Action: The system processes the check-in.

Expected System Response: The system updates the appointment status to "checked-in" and sends a confirmation SMS to the customer.

Step: Log Interaction

Action: The interaction is logged for future reference.

Expected System Response: The system records the check-in time and the confirmation SMS sent.

| Step | Action | Expected System Response | Pass/ Fail | Comment |
|---|---|---|---|---|
| 1 | Send Check-in SMS from an unregistered phone number. | The system receives the SMS but does not find a corresponding customer record. | pass | |
| 2 | System attempts to verify customers and appointments. | The system identifies the phon | pass | |

Post-Conditions:

The customer's appointment status is updated to "checked-in" in the database.

A confirmation SMS is received by the customer.

The check-in interaction is logged in the system.

**Test Case 2: Check-in Without Scheduled Appointment**

Test Case Name: Check-in Attempt Without an Appointment

System: Customer Check-in System

Subsystem: Appointment Verification

Designed by: Xiaokun Li

Design Date: 2/10/24

Executed by: Xiaokun Li

Execution Date: 2/11/24

Short Description: Test how the system handles a check-in attempt when there's no appointment scheduled for the customer.

Pre-Conditions:

- The customer's phone number is registered but no appointment is scheduled for the current time.
- The Twilio API is correctly integrated and operational.

Test Steps:

Action: Customer sends a check-in SMS.

Expected System Response: The system receives the SMS and identifies the customer.

Action: System looks up scheduled appointments.

Expected System Response: The system finds no scheduled appointments for the customer.

Action: System responds to the customer.

Expected System Response: The system sends an SMS indicating no scheduled appointment was found.

| Step | Action | Expected System Response | Pass/ Fail | Comment |
|---|---|---|---|---|
| 1 | Customer sends a check-in SMS | The system receives the SMS and identifies the customer. | pass | |
| 2 | System looks up scheduled appo | The system finds no scheduled | pass | |
| 3 | System responds to the custome | The system sends an SMS ind | pass | |

Post-Conditions:

- The customer is informed via SMS about the lack of a scheduled appointment.

**Test Case 3: Early Check-in Attempt**

Test Case Name: Early Check-in Handling

System: Customer Check-in System

Subsystem: Appointment Timing

Designed by: Jonathan Roberts

Design Date: 2/10/24

Executed by: Jonathan Roberts

Execution Date: 2/11/24

Short Description: Test the system's response to an early check-in attempt, before the scheduled appointment time.

Pre-Conditions:

- The customer has a scheduled appointment later in the day.
- The Twilio API is correctly integrated and operational.

Test Steps:

Action: Send check-in SMS earlier than the scheduled appointment time.

Expected System Response: The system receives the SMS and identifies the customer and their appointment.

Action: System evaluates the appointment time.

Expected System Response: The system recognizes the check-in as early and sends an SMS informing the customer.

| Step | Action | Expected System Response | Pass/ Fail | Comment |
|---|---|---|---|---|
| 1 | Send check-in SMS earlier than t | The system receives the SMS and identifies the customer and their appointment. | pass | |
| 2 | System evaluates the appointme | The system recognizes the che | pass | |

Post-Conditions:

- A message is sent informing the customer they have checked in early and to wait or come back closer to the appointment time.

**Test Case 4: Late Check-in Attempt**

Test Case Name: Late Check-in Handling

System: Customer Check-in System

Subsystem: Appointment Timing

Designed by: Xiaokun Li

Design Date: 2/10/24

Executed by: Xiaokun Li

Execution Date: 2/11/24

Short Description: Test the system's handling of a check-in attempt after the scheduled appointment time has passed.

Pre-Conditions:

- The customer has a scheduled appointment that has already passed.
- The Twilio API is correctly integrated and operational.

Test Steps:

Action: Customer sends a check-in SMS after their appointment time.

Expected System Response: The system receives the SMS, identifies the customer, and notes the appointment has passed.

Action: System responds to the late check-in attempt.

Expected System Response: The system sends an SMS informing the customer they have missed their appointment and provides instructions on rescheduling.

| Step | Action | Expected System Response | Pass/ Fail | Comment |
|---|---|---|---|---|
| 1 | Customers send a check-in SMS | The system receives the SMS, identifies the customer, and notes the appointment has passed. | pass | |
| 2 | System responds to the late chec | The system sends an SMS infc | pass | |

Post-Conditions:

- The customer receives instructions on how to reschedule a missed appointment.

**Test Case 5: Simultaneous Check-ins**

Test Case #: 5

Test Case Name: Handling Simultaneous Check-ins

System: Customer Check-in System

Subsystem: Concurrency

Designed by: Sebastian Burman

Design Date: 2/10/24

Executed by: Sebastian Burman

Execution Date: 2/11/24

Short Description: Test the system's ability to handle multiple customers checking in at the same time.

Pre-Conditions:

- Multiple customers are scheduled for appointments at the same time.
- Each customer's phone number is registered in the system.
- The Twilio API is correctly integrated and operational.

Test Steps:

Action: Several customers send check-in SMS simultaneously.

Expected System Response: The system receives all SMS messages and processes each check-in in the order received without error.

Action: System confirms each check-in.

Expected System Response: Each customer receives a confirmation SMS of their check-in status.

| Step | Action | Expected System Response | Pass/ Fail | Comment |
|---|---|---|---|---|
| 1 | Several customers send check-in | The system receives all SMS messages and processes each check-in in the order received without error. | pass | |
| 2 | System confirms each check-in. | Each customer receives a conf | pass | |

Post-Conditions:

- All customers are checked in successfully and receive confirmation SMS messages.

These test cases cover various scenarios to ensure the reliability and robustness of your customer check-in system through Twilio API integration.