

Test Case: SciPark

- Booking Flow

Test Case 1	Precondition	User is logged in, Selected zone has available parking slots, User has valid payment method
	Inputs	Select parking zone (e.g., Zone A), Confirm booking, Complete payment (20 THB)
	Outputs	System auto-assigns slot number (e.g., "A-15"), Fee receipt, 30-minute countdown timer started
	Post-condition	Slot status updated to "BOOKED", User has active booking with assigned slot
Test Case 2	Precondition	User is logged in, Selected zone has NO available slots
	Inputs	Select parking zone with full capacity
	Outputs	Error message: "slot is full, select new zone"
	Post-condition	User remains on zone selection screen, No booking created, No slot assigned

Test Case 3	Precondition	User is logged in, Selected zone has available slots, Payment method has insufficient funds/error
	Inputs	Select parking zone, View available slots count, Confirm booking, Payment fails
	Outputs	Error message: "payment failed, try again!"
	Post-condition	Booking not confirmed, No slot assigned, Zone remains available

- **Cancellation Flow**

Test Case 4	Precondition	User has active booking with assigned slot, Within cancellation time limit, Before scheduled arrival time
	Inputs	Cancel booking request (booking_id), Confirm cancellation
	Outputs	Cancellation success message
	Post-condition	Assigned slot released back to zone, Slot status updated to "IDLE", Possible refund based on policy

Test Case 5	Precondition	User has active booking with assigned slot, Outside cancellation time limit OR after scheduled arrival time
	Inputs	Cancel booking request (booking_id)
	Outputs	Error message: "booking is cancelled"
	Post-condition	Assigned slot released, No refund, 20 THB booking fee forfeited
-	Entry and Timer Flow	
Test Case 6	Precondition	User has confirmed booking with assigned slot (e.g., A-15), 30-minute countdown active, User arrives within 30 minutes
	Inputs	Scan QR code at assigned parking slot entrance
	Outputs	Entry granted to assigned slot, Timer cancelled
	Post-condition	User parked in assigned slot, Countdown timer stopped
Test Case 7	Precondition	User has confirmed booking with assigned slot, 30-minute countdown expired, User did not arrive
	Inputs	None (automatic timer expiration)
	Outputs	Error message: "booking is cancelled"
	Post-condition	Assigned slot released back to zone, Slot status updated to "IDLE", Booking forfeited, 20 THB fee lost

- **Parking Monitoring Flow**

Test Case 8	Precondition	User entered assigned parking slot, System monitoring duration
	Inputs	Continuous parking duration tracking
	Outputs	Real-time parking information displayed to user (slot number, duration, current fee)
	Post-condition	Assigned slot status "INUSE", Accurate time tracking maintained
Test Case 9	Precondition	User is currently parked in assigned slot, User exceeds booked parking time
	Inputs	Parking duration exceeds scheduled time
	Outputs	Error message: "Parking disclaimed!", Overtime notification
	Post-condition	Additional charges may apply, User notified of overtime

- **Exit and Payment Flow**

Test Case 10	Precondition	User finished parking in assigned slot, Valid payment method available
	Inputs	parking_ended(), Complete payment for parking fee
	Outputs	Fee receipt showing slot number and total duration, Payment success confirmation
	Post-condition	Parking session completed, Assigned slot updated to "IDLE", Slot returned to zone pool
Test Case 11	Precondition	User finished parking in assigned slot, Payment method has issues
	Inputs	parking_ended(), Payment fails
	Outputs	Error message: "Please finish your payment in time, otherwise you will be deducted"
	Post-condition	User cannot exit from assigned slot, Payment retry required, Slot remains "INUSE"

- **Payment Method Management**

Test Case 12	Precondition	User is logged in
	Inputs	Access edit_payment_methods()
	Outputs	Display all saved payment methods
	Post-condition	User can view current payment details

Test Case 13	Precondition	User is logged in, On payment methods screen
	Inputs	Add/Edit/Delete payment method, Confirm changes
	Outputs	Payment method updated successfully, Confirmation message
	Post-condition	Changes saved in system

- Registration Flow

Test Case 14	Precondition	Email/phone not registered, Valid authentication credentials
	Inputs	Email/telephone, Complete authentication (OTP/verification)
	Outputs	Registration completed notification, Prompt to add vehicle info
	Post-condition	Account status "VERIFIED", User data saved in database
Test Case 15	Precondition	Email/phone already registered in system
	Inputs	Email/telephone that exists in database
	Outputs	Error message: "This email or phone number is already registered"
	Post-condition	Registration blocked, User remains on registration screen

Test Case 16	Precondition	Email/phone not registered, Authentication fails (wrong OTP/timeout)
	Inputs	Email/telephone, Failed authentication attempt
	Outputs	Error message: "Please try to register again"
	Post-condition	Registration not completed, User must restart process
Test Case 17	Precondition	User successfully registered, On profile update screen
	Inputs	update_profile(), Enter profile information, Confirm changes
	Outputs	Profile updated successfully, Confirmation message
	Post-condition	Profile changes saved to database

- **Vehicle Information Management**

Test Case 18	Precondition	User is logged in, Account verified
	Inputs	add_vehicle_info(), Enter vehicle details (license plate, model, color), Confirm vehicle information
	Outputs	Vehicle information displayed
	Post-condition	Vehicle info saved in database, Can be used for parking verification

- **Booking Confirmation Screen**

Test Case 19	Precondition	User selected zone with available slots (e.g., Zone A - 5 slots remaining)
	Inputs	Click "Book" button for selected zone
	Outputs	Confirmation screen showing: Zone name, Available slots count, Booking fee 20 THB, "Must enter parking within 30 minutes" note, Warning about fee forfeiture, "Note: Slot will be auto-assigned after payment"
	Post-condition	User on confirmation screen, No booking created yet, No slot assigned yet
Test Case 20	Precondition	User on booking confirmation screen for selected zone
	Inputs	Click "Confirm" button, Complete payment
	Outputs	"Booking Complete" message, System auto-assigned slot number displayed (e.g., "Your assigned slot: A-15"), Zone name shown
	Post-condition	Booking created, Specific slot assigned by system, 30-minute countdown started, Payment processed

Test Case 21	Precondition	User on booking confirmation screen
	Inputs	Click "Cancel" or back button
	Outputs	Return to zone selection screen
	Post-condition	No booking created, No payment processed, No slot assigned

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