Test Summary and Execution Report

Personal Project		**Test Types:**	**Functional, Validation, and Negative Testing.**
		Test Methodologies:	**Automated unit and integration testing using the JUnit framework; requirement-based and scenario-driven validation of core modules (SeatReserver, SeatingPlan, SellTicket, Passenger).**
		Pre-condition	**System initialized with 14 total seats (2 Business, 12 Economy); ticket sequence starts at 1,000,000; console I/O simulation enabled for test data DS1–DS9.**
Project Name:	**Airplane Ticket Java Application**	**Dependencies:**	**Modules: SeatingPlan, SeatReserver, SellTicket, Passenger, and Ticket classes; dependent on internal seat and passenger state persistence.**
Module Name:	**Ticket Purchase Flow**	**Test Priority**	P1 - Seat allocation limits, ticket pricing, and rule validation P2 - Input handling, passenger type, and business logic conditions P3 - Edge-case prompt and loop tests
Release Version:	**v1.0**	**Total Requirements**	**11**
Test Designed by:	**Garam Yoon**	**Covered Requirements**	**BR: 01, 02, 03, 04, 05, 07 NO: 01, 02, 03, 04**
Test Designed date:	2025-09-02	**Total Test Cases**	**16**
Test Executed by:	**Garam Yoon**	**Tested Requirements**	**11**
Test Execution date:	2025-09-02	**Executed Tests**	**16**

Legends

Test Data Sets Definition (DS):

DS1: "Y", "y", "Yes" - Affirmative input used for Yes-type prompts.
DS2: "N", "n", "No" - Negative input used for No-type prompts.
DS3: (empty) - Null or empty input used for validation testing.
DS4: "quit", 123 - Invalid input for prompt validation testing.
DS5: "Garam", "garam" - Sample first name input.
DS6: "Yoon", "yoon" - Sample last name input.

Prompt Map:

Q1: "Do you want to purchase a ticket?"
Q2-B: "Do you want BUSINESS class?"
Q2-E: "Do you want ECONOMY class?"
Q3: "First name?"
Q4: "Last name?"
Q5: "Initial?"

Output Messages:

OUTPUT: Ticket issued: 1000001 for seat 1B at $750.0 - Standard success message after ticket issuance.
Validation Message: "Please answer Y or N" - Prompt validation message for incorrect input.

Repetition Map:

1R: Repeat 1 - First repetition due to invalid input.
2R: Repeat 2 - Second repetition due to invalid input.
3R: Repeat 3 - Third and final repetition before termination.

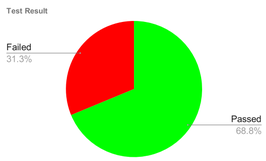
Loop Definition:

L1: Loop1 - First full execution of the purchase cycle.
L2: Loop2 - Second purchase cycle iteration.
L3: Loop3 - Third loop or system re-entry iteration.

Test Metrics Summary

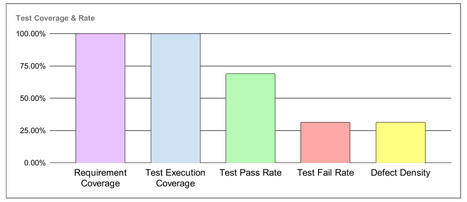
Test Result

Passed	11
Failed	5
Total Bugs	5

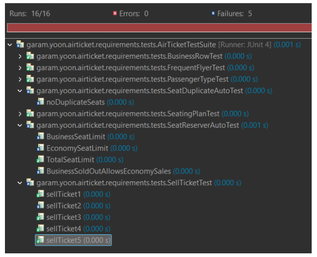


Test Coverage & Rate

Requirement Coverage	**100.00%**
Test Execution Coverage	**100.00%**
Test Pass Rate	**68.75%**
Test Fail Rate	**31.25%**
Defect Density	**31.25%**



Test Suite Results



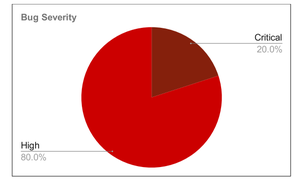
Defect Summary

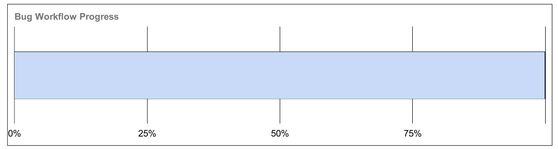
Bug Workflow Progress

Open	5
Assigned	0
In Progress	0
Resolved	0
Verified	0
Reopened	0
Closed	0

Bug Severity

Critical	**20.00%**
High	**80.00%**
Medium	**0.00%**
Low	**0.00%**





Feature (Class)	Module (Method)	Depth	Case Type	Priority	Pre-Condition	Test Case ID	Business Requirement ID (s)	Test Title	Test Summary	Test Steps	Test Data (Data Sets)	Expected Result	Post-condition	Actual Result	Status	Retested Date	Bug ID	Reference	Status	Severity	ScreenShot
Seat Management (BusinessRowTest)	Business Row Configuration (row1Seats)	L1	Unit		App initialized with seat map	JUNIT-BUSROW-TC01	BR-01, NO-02	Business Row Setup	Validate business row seats are 1A/1B only	Load plan → read row1 seats → assert count=2 & labels	N/A	1A,1B only	Seat map retained	As expected	Pass	2025-09-07	N/A	Console log	N/A	N/A	N/A
Seat Management (SeatDuplicateAutoTest)	noDuplicateSeats	L1	Unit		14 seats available	JUNIT-SEATDUP-TC02	BR-01, BR-04, NO-01, NO-02	Seat Uniqueness	No seat should be assigned twice	Auto-sell all → collect seat labels → check uniqueness	N/A	14 unique seats	Assignment log saved	Duplicate detected (e.g., 1A repeated)		2025-09-07	BUG-JUNIT-TC02-001	Stacktrace + console	Open		BUG-JUNIT-TC02-001.png
Seating Layout (SeatingPlanTest)	testSeatingPlan	L1	Unit		App started	JUNIT-SEATPLAN-TC03	BR-01, NO-01, NO-02, NO-03	Seating Plan Verification	Map equals 14 seats: row1 business, rows2–4 economy	Build plan → count seats → verify rows/letters	N/A	14 seats; 1A–4D	Plan cached	As expected	Pass	2025-09-07	N/A	Console log	N/A	N/A	N/A
Seat Management (SeatReserverAutoTest)	BusinessSeatLimit	L1	Unit		Business seats free	JUNIT-SEATRES-TC04	BR-01, NO-02	Business Seat Limit	Only two business seats may be issued	Sell 1A,1B → attempt 3rd → expect reject	N/A	3rd rejected	Counters unchanged	3rd allowed		2025-09-07	BUG-JUNIT-TC04-002	Stacktrace + console	Open		BUG-JUNIT-TC04-002.png
Seat Management (SeatReserverAutoTest)	EconomySeatLimit	L1	Unit		Economy seats free	JUNIT-SEATRES-TC05	NO-03, NO-01	Economy Seat Limit	Only twelve economy seats may be issued	Sell 12 → attempt 13th → expect reject	N/A	13th rejected	Counters unchanged	13th allowed		2025-09-08	BUG-JUNIT-TC05-003	Stacktrace + console	Open		BUG-JUNIT-TC05-003.png
Seat Management (SeatReserverAutoTest)	TotalSeatLimit	L1	Unit		All seats free	JUNIT-SEATRES-TC06	BR-01, NO-02, NO-03	Total Capacity Limit	No sale after 14th ticket	Sell 14 any order → attempt 15th	N/A	15th rejected	Capacity enforced	As expected	Pass	2025-09-08	N/A	Console log	N/A	N/A	N/A
Ticket Issuance (SellTicketTest)	sellTicket1	L1	Unit		Business seat available	JUNIT-SELL-TC07	BR-02	Business Ticket $750	Price must be $750 (no discount)	Build passenger/seat → create ticket	N/A	$750	Ticket persisted	As expected	Pass	2025-09-09	N/A	Assertion output	N/A	N/A	N/A
Ticket Issuance (SellTicketTest)	sellTicket2	L1	Unit		Economy seats available	JUNIT-SELL-TC08	BR-05, NO-03, NO-4	Employee 50% Economy	Employee economy price $250 and cap 12	Create staff → economy seat → assert $250	DS1	$250	Ticket persisted	Price=$500 or 13th allowed		2025-09-10	BUG-JUNIT-TC08-005	Stacktrace + console	Open		BUG-JUNIT-TC08-005.png
Discount Policy (FrequentFlyerTest)	testFrequentFlyerIsNotDiscountable	L1	Unit		Passenger type=Frequent Flyer	JUNIT-FFLY-TC09	BR-04, BR-07	FF Not Discountable	FF should not implement Discountable	Instantiate FF → instanceof check	N/A	No discount capability	N/A	As expected	Pass	2025-09-11	N/A	Assertion output	N/A	N/A	N/A
Passenger Management (PassengerTypeTest)	frequentFlyerType	L1	Unit		App running	JUNIT-PASS-TC10	NO-04	FF Type Recognition	Stores type=FF	Set flags → assert type	DS1	Type=FF	Passenger stored	As expected	Pass	2025-09-11	N/A	Test log	N/A	N/A	N/A
Passenger Management (PassengerTypeTest)	employeeType	L1	Unit		App running	JUNIT-PASS-TC11	NO-04	Employee Type Recognition	Stores type=EMP	Set flags → assert type	DS1	Type=EMP	Passenger stored	As expected	Pass	2025-09-11	N/A	Test log	N/A	N/A	N/A
Seat Management (SeatReserverAutoTest)	BusinessSoldOutAllowsEconomySales	L2	Unit		Business sold out	JUNIT-SEATRES-TC12	NO-01, NO-03	Class Independence	Economy sales continue after business sold out	Sell 2 business → sell 12 economy	N/A	All 12 economy succeed	Seats reduced accordingly	Economy blocked unexpectedly		2025-09-12	BUG-JUNIT-TC12-004	Stacktrace + console	Open		BUG-JUNIT-TC12-004.png
Ticket Issuance (SellTicketTest)	sellTicket3	L1	Unit		FF passenger active	JUNIT-SELL-TC13	BR-03	FF No Discount	FF pays base price	Create FF → business/economy price check	N/A	Base price	Ticket persisted	As expected	Pass	2025-09-12	N/A	Assertion output	N/A	N/A	N/A
Ticket Issuance (SellTicketTest)	sellTicket4	L1	Unit		Regular passenger	JUNIT-SELL-TC14	BR-06	Regular Economy $500	Regular passenger pays $500	Create regular → economy ticket	N/A	$500	Ticket persisted	As expected	Pass	2025-09-12	N/A	Assertion output	N/A	N/A	N/A
Ticket Issuance (SellTicketTest)	sellTicket5	L1	Unit		App active	JUNIT-SELL-TC15	BR-02	Sequential Ticket Numbers	Numbers increment by 1	Issue multiple tickets → compare IDs	N/A	#ERROR!	Counter updated	As expected	Pass	2025-09-13	N/A	Console log	N/A	N/A	N/A
Passenger Management (PassengerTypeTest)	regularType	L1	Unit	P3	App running	JUNIT-PASS-TC16	NO-04	Regular Default	Default to Regular if not FF/EMP	Set both N → assert type	DS2	Type=REG	Passenger stored	As expected	Pass	2025-09-13	N/A	Test log	N/A	N/A	N/A