Faculty of Engineering & Technology
Computer Science Department
Software Engineering COMP433

Phase 2: Requirements Engineering – Online Flight Booking System

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Group Number: 4
Section: 2
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Group members:

Name	ID	Role
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Task 2.1: USER REQUIREMENTS

UR1. The system shall enable users, as customers, to search for available flights.

UR2. The system shall enable users, as customers, to view information for each available flight.

UR3. The system shall enable users, as customers, to reserve a flight.

UR4. The system shall customers to cancel a confirmed booking.

UR5. The system shall enable users. as customers, to request modifications to an existing booking.

UR6. The system shall enable users, as customers, to contact customer support.

[Leader: Nasri, Reviewing: Ayham, Discussing: Sameer, Finalizing: Diaa, Re-drawing: Omar]

Task 2.2: SYSTEM REQUIREMENTS

UR1. The system shall enable users, as customers, to search for available flights.

SR1 The system shall require customers to enter origin, destination, travel date, and passenger count before submitting a search.

SR2 The system shall validate that origin and destination fields contain valid airport locations.

SR3 The system shall prevent users from selecting a travel date earlier than the current date.

SR4 The system shall retrieve only flights that match all entered search parameters.

SR5 The system shall return flight data that includes departure time, arrival time, fare for each class, and availability status.

SR6 The system shall return an empty-result notification when no flights match the criteria.

[Leader: Sameer, reviewing: Diaa, discussing: Nasri, Finalizing: Omar, Re-drawing: Ayham]

UR2. The system shall enable users, as customers, to view information for each available flight.

SR1 The system shall retrieve the following information when a customer clicks on a specific flight:

2.1.1. The date of the flight

2.1.2. The Start and End time of the flight.

2.1.3. Th available seat classes, for each class the system shall display the price in that class. The classes are Economy, Business and VIP.

SR2 The system shall show baggage allowance associated with each fare class.

SR3 The system shall retrieve up-to-date seat availability from the reservation subsystem.

SR4 The system shall prevent users from selecting a class that has zero available seats.

SR5

[Leader: Ayham, reviewing: Nasri, discussing: Omar, Finalizing: Diaa, Re-drawing: Sameer]

UR3. The system shall enable users to reserve a selected flight by providing passenger information and confirming their travel options.

SR1 The system shall require the customer to provide passenger information during the reservation process, which includes:

- → Full name (first and last name).
- → Date of birth.
- → Email address.

SR2 The system shall validate passenger information according to the following rules:

- → The full name shall consist of a first and last name and shall contain only alphabetical characters.
- → The passenger's year of birth shall be earlier than the reservation year.
- → The system shall ensure that the provided email address is verified before continuing the reservation process.

SR3 The system shall ensure that the passenger complies with airline age regulations:

- → Passengers under the age of 18 shall not be allowed to complete a reservation without parental authorization.
- → Adult passengers (18 years or older) shall be allowed to proceed without additional authorization.

SR4 The system shall verify seat availability for the selected flight before creating a reservation.

SR5 The system shall associate selected seats with the customer's reservation.

SR6 The system shall prevent reservation creation if no seats are available.

SR7 The system shall assign an initial status of "Pending Payment" to newly created reservations.

SR8 The system shall keep unpaid reservations active for up to 30 minutes after the reservation is done.

SR9 The system shall immediately cancel unpaid reservations once the time limit expires,

SR10 The system shall release previously reserved seats upon reservation cancellation.

SR11 The system shall enable the customer to provide payment information required to complete the reservation, including:

→ Cardholder name.

→ Card number.

→ Card security code (CVV).

SR12 The system shall determine whether the payment is successful or unsuccessful after processing it.

SR13 The system shall create a reservation record once passenger information, seat selection and payment are validated

SR14 The system shall generate a unique reservation reference number for it.

SR15 The system shall update the reservation status to "Confirmed" upon successful payment.

SR16 The system shall prevent confirmation of reservations with failed or incomplete payments.

SR17 The system shall generate an electronic ticket for confirmed reservations. The electronic ticket shall include passenger information, flight details, and reservation reference number.

SR18 The system shall enable the customer to select optional services during the reservation process, including but not limited to

→ Additional baggage.

→ Seat selection.

→ Assistance services.

→ Pet travel.

SR19 The system shall validate the availability of optional services for the selected flight.

SR20 SRX.13 The system shall update the total reservation price when optional services are added or removed. The updated price shall be associated with the reservation record.

SR21 The system shall store all selected optional services as part of the confirmed reservation.

SR22 The system shall prevent the selection of unavailable optional services.

[Leader: Diaa, coleader: Nasri, discussing: Ayham, Finalizing: Omar, Re-drawing: Sameer]

UR4. The system shall enable customers to cancel a confirmed booking.

SR1 The system shall retrieve the booking details after the user enters a valid booking reference.

SR2 The system shall trigger a refund request to the financial module when refund is applicable. Refund is applicable if the customer attempts to cancel the flights up to 2 weeks before the flight date, if it's less than 2 weeks duration the system shall not process the refund.

SR3 The system shall display refund eligibility and total refund amount to the user before confirmation.

SR4 The system shall update the booking status to "Cancelled" after user confirmation.

SR5 The system shall restore the cancelled seats back into available seat inventory.

[Leader: Nasri, reviewing:Omar, discussing: Dia, Finalizing: Sameer, Re-drawing: Ayham]

UR5. The system shall enable customers to request modifications to an existing booking, including date changes or seat adjustments.

SR1 The systems shall enable the modification upon two categories:

5.1.1. Seat adjustment: this option does not change the flight itself, but the seat type instead.

5.1.2. Date changes: this option shall enable the user to search for other flights that have the same origin and destination but with different dates.

SR2 The system shall enable the customer to retrieve a booking using the booking reference number.

SR3 The system shall verify availability for any requested new flight, seat class, or date.

SR4 The system shall calculate modification fees and fare differences when applicable.

SR5 The system shall allow the user to confirm the modification only after displaying total modification fees.

SR6 The system shall update the booking record and seat inventory upon successful modification.

SR7 The system shall send a confirmation message to the user after modification is completed.

SR8 The system shall prevent customers from modifying bookings that don't belong to them.

[Leader: Omar, reviewing: Diaa, discussing: Nasri, Finalizing: Sameer, Re-drawing: Ayham]

UR6. The system shall enable customers to contact customer support.

SR1 The system shall provide a support form requiring user name, contact information, and inquiry description.

SR2 The system shall validate that all required fields are filled before submission.

SR3 The system shall generate a unique support ticket ID for each submitted request.

SR4 The system shall store support tickets in the system database with a timestamp and status.

SR5 The system shall notify customer support staff when a new request is submitted via email.

SR6 The system shall enable customers to check their support request status using the ticket ID.

SR7 The system shall display customer support contact information (telephone numbers and office addresses) on the customer support page.

[Leader: Sameer, reviewing: Diaa, discussing: Nasri, Finalizing: Omar, Re-drawing: Ayham]

Task 2.3: EFFORT+TIME ESTIMATION

UR	Estimated number of Developers	Estimated Effort	Total effort "for one developer"
UR1	2	2 pw	2*2 = 4 pw
UR2	2	1 pw	2*1 = 2 pw
UR3	5	4 pw	5*4 = 20 pw
UR4	3	2 pw	3*2 = 6 pw
UR5	2	2 pw	2*2 = 4 pw
UR6	1	1 pw	1*1 = 1 pw
Total effort/avg	(2 + 2 + 5 + 3 + 2 + 1) /6 = 2.5 dev	12 pw	37 pw
Schedule time "30%"		12*1.3 = 16(min time to complete)	37*1.3 = 49 max time to complete
Cost		Avg Salary = $300	300 * 49 = $14700
Profit Margin **Min = 10%** **Max = 30%**		Min cost → Max cost →	14700*1.1 = $16170 14700*1.3 = $19100

[Leader: Diaa, coleader: Omar, Reviewing: Nasri, Finalizing: Ayham, Re-drawing: Sameer]

Minutes of Meetings

A formal meeting was held between the development team and the customer representatives to clarify expectations and gather detailed requirements for the Online Flight Booking System.

The meeting lasted 2 hour and covered essential business services, system functions, and operational processes required to ensure the system aligns with real airline reservation workflows.

Meeting Participants

From the Development Team:

- Diaa Badaha
- Nasri Omar
- Omar Shujaiah
- Sameer Ayman
- Ayham Amryah

From the Customer Side:

- Tareq Mansur
- Ali Hassouneh
- Alaa Awashra
- Noora Na'amneh
- Maysan Safi

Discussion Topics

1. Flight Search & Schedules:

   The customers emphasized the need for users to easily search for flights using origin, destination, travel date, and passenger count. The system must show accurate schedules, prices, and seat availability in real time.

   Sorting and filtering (time, price, class) were suggested as future enhancements.

2. Booking Process & Passenger Information:

   Customers clarified that the booking workflow must collect full passenger details, verify seat availability, and generate a reservation reference before payment.

   They also requested real-time seat availability checking to avoid double-booking issues.

3. Payment Methods & E-Ticket Issuance:

   Multiple payment options are required, including:

- Credit/debit cards
- Bank transfer
- Cash at agency (offline)

The system must confirm successful payment and automatically issue an **e-ticket** via email. A clear payment confirmation page is also required.

4. Modifications & Cancellations:
   Customers requested support for:
   - Date changes
   - Seat class upgrades/downgrades
   - Optional services changes (e.g. baggage)

The system must enforce airline rules and calculate fees for each modification.

For cancellations, the system must show refund eligibility and apply airline policy rules before processing.

5. Optional Travel Services:
   Customers highlighted the need to support optional travel services, including:
   - Extra baggage
   - Preferred seat selection
   - Special-needs assistance
   - Pet travel

Each service must follow airline rules and capacity limits.

6. Types of System Users:
   Customers requested support for multiple user roles with different permissions:
   - **Traveler (User):** Search, book, pay, modify, cancel, manage bookings, add services
   - **Support/Operations Staff:** Handle modifications, cancellations, refunds, and support tickets.
   - **Admin:** Manage staff accounts, flight data, system settings, reports, and policies.

Each category must have different system privileges.

7. Customer Support & Communication:
   A support center must be included to allow users to:
   - Submit inquiries
   - Request assistance
   - Report urgent travel issues

Support staff should receive notifications when new requests arrive, and users should be able to check ticket status.

8. Airline Rules, Policies, and Restrictions:
   Customers stressed the importance of displaying airline policies clearly for:
   - Baggage allowance
   - Modifications
   - Cancellation rules
   - Refund calculations

These policies must be enforced automatically during booking, modification, or cancellation.

9. Reporting & System Statistics (Admin):
   Admins require access to detailed system analytics, including:
   - Total bookings
   - Cancellations and modifications
   - Revenue summaries
   - Popular destinations
   - Customer activity
   - Support request statistics

Reports should be exportable for financial and operational use.

10. System Reliability, Performance, and Capacity:
    Customers confirmed expected business capacity:
    - 6,000–8,000 total registered users
    - 10,000–15,000 monthly flight searches
    - 250–450 monthly bookings

The system must be reliable and fast enough to handle peak periods (holidays, special events).