

Flight Management System

Front-End Implementation

Week – 8

Assignment

Project Report

Important Screenshots

Front-End Implementation Important Screenshots

Registering User: -

localhost:4200/register

Flight Management Home Login Register

Register

Full Name
Joy

Email
joy.sagarn@gmail.com

Password

Role
Customer

Registration successful! Redirecting to login...

Register

One or more settings have changed which requires a reload to take effect [Reload DevTools](#)

Elements Console Sources Network Performance Memory Application Privacy and security Lighthouse Recorder

Preserve log Disable cache No throttling

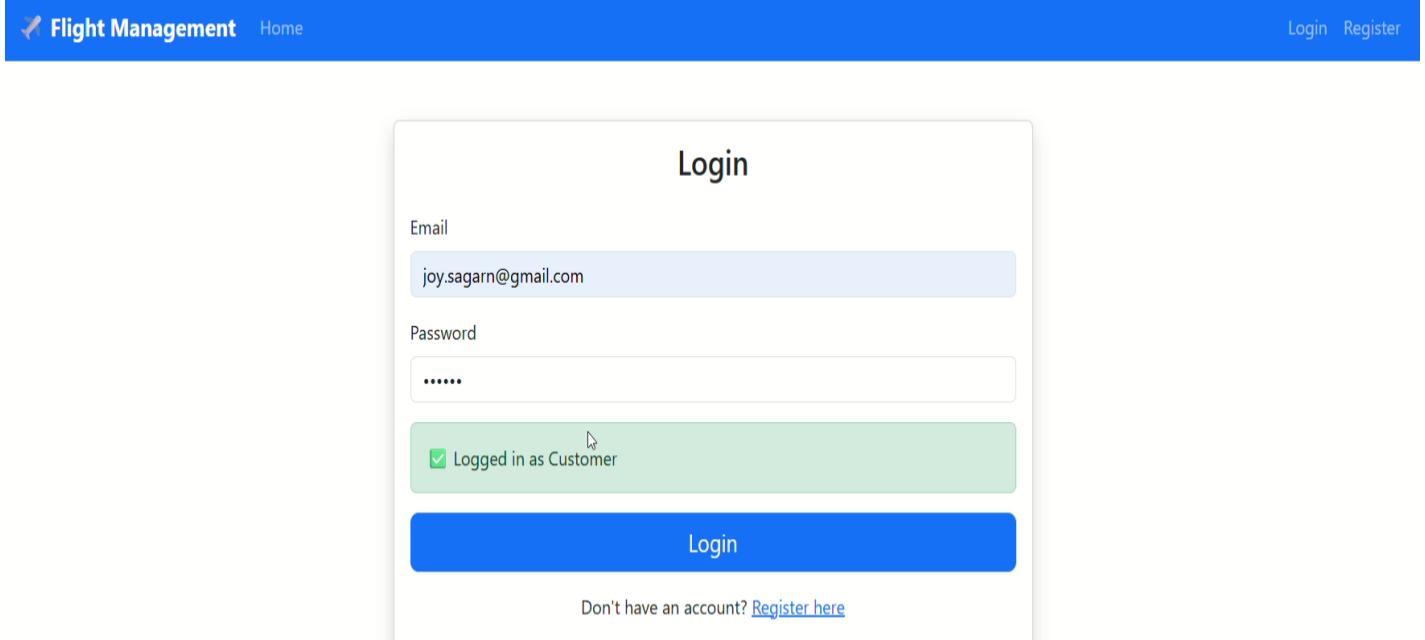
domain:localhost scheme:http

1,000,000 ms	2,000,000 ms	3,000,000 ms	4,000,000 ms	5,000,000 ms	6,000,000 ms	7,000,000 ms	8,000,000 ms	9,000,000 ms	10,000,000 ms	11,000,000 ms	12,000,000 ms	13,000,000 ms

Name	Headers	Payload	Preview	Response	Initiator	Timing	Cookies
component?c=src%2...	Request URL	http://localhost:8080/auth/register					
component?c=src%2...	Request Method	POST					
component?c=src%2...	Status Code	201 Created					
component?c=src%2...	Remote Address	[::]:8080					
component?c=src%2...	Referrer Policy	strict-origin-when-cross-origin					
component?c=src%2...	▼ Response Headers	<input type="checkbox"/> Raw					
component?c=src%2...	Access-Control-Allow-Credentials	true					
component?c=src%2...	Access-Control-Allow-Origin	http://localhost:4200					
favicon.ico	Access-Control-Expose-Headers	Set-Cookie					
register	Cache-Control	no-cache, no-store, max-age=0, must-revalidate					
register	Content-Type	application/json					
register	Date	Mon, 15 Dec 2025 17:51:46 GMT					
register	Expires	0					
register	Pragma	no-cache					
register	Referrer-Policy	no-referrer					

92 / 97 requests | 1,303 kB

User Login :-



The screenshot shows a login interface with the following details:

- Email: joy.sagarn@gmail.com
- Password: *****
- Logged in as Customer:
- Login Button

X	Headers	Payload	Preview	Response	Initiator	Timing	Cookies
▼ General							
Request URL				http://localhost:8080/auth/login			
Request Method				POST			
Status Code				200 OK			
Remote Address				[:1]:8080			
Referrer Policy				strict-origin-when-cross-origin			
▼ Response Headers		<input type="checkbox"/>	Raw				
Access-Control-Allow-Credentials				true			
Access-Control-Allow-Origin				http://localhost:4200			
Access-Control-Expose-Headers				Set-Cookie			
Cache-Control				no-cache, no-store, max-age=0, must-revalidate			
Content-Type				application/json			
Date				Mon, 15 Dec 2025 14:01:15 GMT			
Expires				0			
Pragma				no-cache			
Referrer-Policy				no-referrer			
Set-Cookie				jwt=eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJzYXR5YXN3YXJvb3AyMjA3QGdtYWlsLmNvbSIsInJvbGUiOiJST0xFX0NVU1RPTUVSliwiaWF0IjoxNzY1ODA3Mjc1LCleHAiOjE3NjU4OTM2NzV9.IVvfeQag5clxQG7WY1EGPOVH9qINbjxXwFV2Q84ar4; Path=/; Max-Age=86400; Expires=Tue, 16 Dec 2025 14:01:15 GMT; HttpOnly; SameSite=Strict			

Search Flights (For User) :-

Flight Management Home Search Flights joy.sagarn@gmail.com Logout

Search Flights

From To Date

Bangalore Mumbai 12/15/2025

SpiceJet - AI136

Route: Bangalore → Mumbai

Departure: 15/12/2025, 05:00:00

Arrival: 15/12/2025, 07:15:00

Price: ₹4500

Available Seats: 120

[View Details](#)

X Headers Payload Preview Response Initiator Timing Cookies

▼ General

Request URL	http://localhost:8080/api/flight/search
Request Method	POST
Status Code	200 OK
Remote Address	[::1]:8080
Referrer Policy	strict-origin-when-cross-origin

▼ Response Headers Raw

Access-Control-Allow-Credentials	true
Access-Control-Allow-Origin	http://localhost:4200
Access-Control-Expose-Headers	Authorization, Set-Cookie, Access-Control-Allow-Origin, Access-Control-Allow-Credentials
Cache-Control	no-cache, no-store, max-age=0, must-revalidate
Content-Type	application/json
Date	Mon, 15 Dec 2025 19:16:50 GMT
Expires	0
Pragma	no-cache <input type="button" value="Edit"/>
Referrer-Policy	no-referrer
Transfer-Encoding	chunked

Registering Admin :-

Flight Management Home Login Register

Register

Full Name
John

Email
john@gmail.com

Password

Role
Admin

Registration successful! Redirecting to login...

Register

Login (Admin) :-

Flight Management Home Login Register

Login

Email
john@gmail.com

Password

Logged in as Admin

Login

Don't have an account? [Register here](#)

Admin Home Page

The screenshot shows the Admin Home Page of a Flight Management System. At the top, there is a blue header bar with the 'Flight Management' logo, 'Home', 'Search Flights', 'Add Airline', and 'Add Flight' links, and a user account section for 'john@gmail.com' with a 'Logout' button. Below the header, the main title 'Flight Management System' is displayed with a small airplane icon. A subtitle 'Search, book, and manage flights with ease' follows. A call-to-action message 'Get started by searching for available flights or login to your account' is centered. Two buttons, 'Search Flights' and 'Login', are below this message. The main content area features three cards: 'Search Flights' (with a magnifying glass icon), 'Book Tickets' (with a seat icon), and 'Manage Bookings' (with a clipboard icon). Each card has a brief description and a link. At the bottom, a Windows taskbar is visible with various icons and the system tray showing 'ENG IN', '12:52 AM', and '12/16/2025'.

Add Airline

The screenshot shows the 'Add New Airline' page. The title 'Add New Airline' is at the top. There are two input fields: 'Airline Name' (placeholder 'e.g., IndiGo') and 'Logo URL' (placeholder 'https://example.com/logo.png'). Below these fields is a green success message box containing the text 'Airline added successfully!' with a checkmark icon. A large blue 'Add Airline' button is at the bottom. The page is part of the 'Flight Management' system, with the same header and taskbar as the home page.

Add airline Logs

X Headers Payload Preview Response Initiator Timing Cookies

▼ General

Request URL http://localhost:8080/api/flight/airline
Request Method POST
Status Code 201 Created
Remote Address [::1]:8080
Referrer Policy strict-origin-when-cross-origin

▼ Response Headers Raw

Access-Control-Allow-Credentials	true
Access-Control-Allow-Origin	http://localhost:4200
Access-Control-Expose-Headers	Authorization, Set-Cookie, Access-Control-Allow-Origin, Access-Control-Allow-Credentials
Cache-Control	no-cache, no-store, max-age=0, must-revalidate
Content-Length	28
Content-Type	application/json
Date	Mon, 15 Dec 2025 19:24:06 GMT
Expires	0
Pragma	no-cache
Referrer-Policy	no-referrer
Vary	Origin

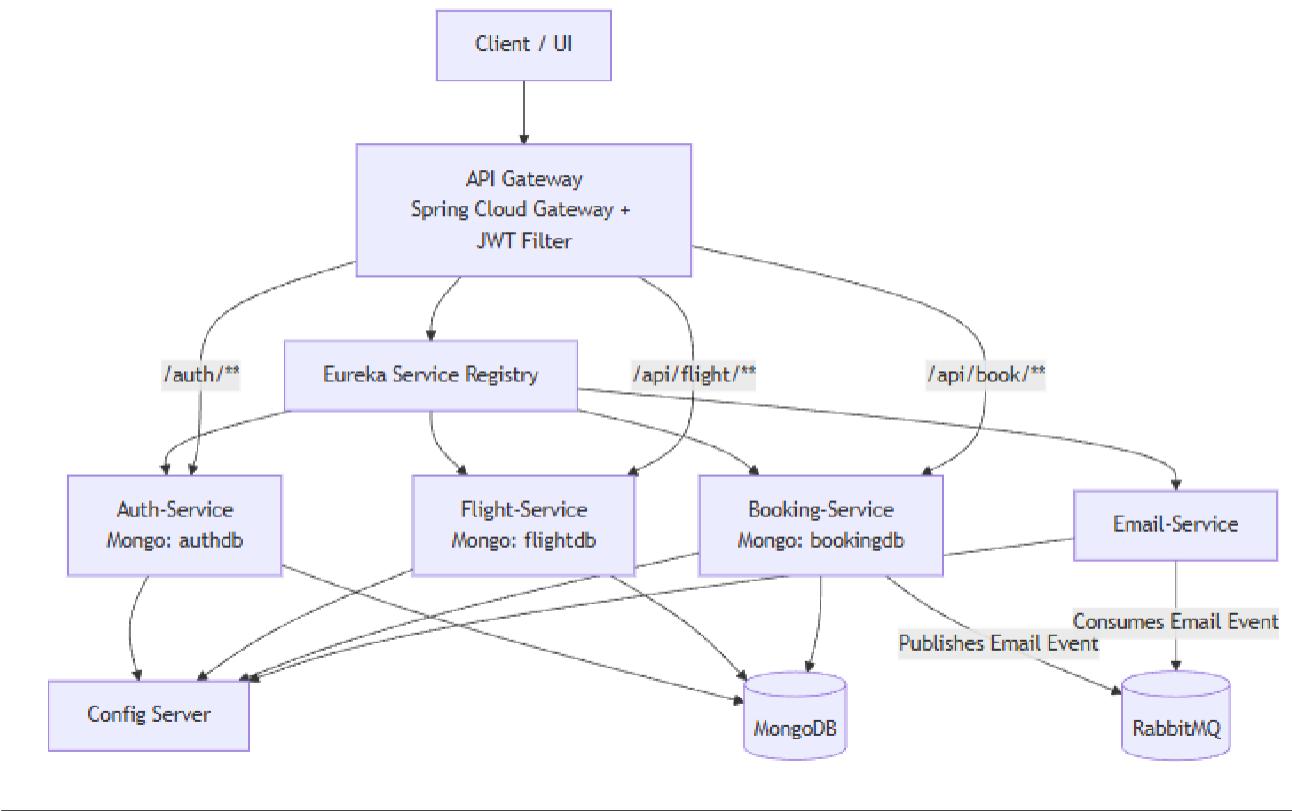
Add Flight :-

Flight Management [Home](#) [Search Flights](#) [Add Airline](#) [Add Flight](#) john@gmail.com [Logout](#)

Add Flight Inventory

Airline ID	Flight Number
<input type="text"/>	e.g., 6E101
From	To
e.g., Bangalore	e.g., Mumbai
Departure Time	Arrival Time
<input type="text"/> mm/dd/yyyy --:-- --	<input type="text"/> mm/dd/yyyy --:-- --
Price (₹)	Total Seats
<input type="text"/> 0	<input type="text"/> 0
<input type="button" value="Add Flight"/>	

MicroServices Architecture



All my microservices are deployed in docker and running from there:-

Docker dashboard showing running services:

- service-registry (flightmanagements) 8761:8761
- auth-service (flightmanagements) 8001:8001
- booking-service (flightmanagements) 8082:8082
- flight-service (flightmanagements) 8081:8081
- email-service (flightmanagements) 8084:8084
- api-gateway (flightmanagements) 8080:8080
- mongo-db

Logs for mongo-db:

```
{
  "t": {"$date": "2025-12-15T17:02:18.506+00:00"}, "s": "I", "c": "WTCHKPT", "id": 22430, "ctx": "Checkpointer", "msg": "WiredTiger message", "attr": {"message": {"ts_sec": 1765818138, "ts_usec": 506152, "thread": "1:0x7f43ff668640", "session_name": "WT_SESSION.checkpoint", "category": "WT_Verb_CHECKPOINT_PROGRESS", "category_id": 6, "verbose_level": "DEBUG", "verbose_level_id": 1, "msg": "saving checkpoint snapshot min: 376, snapshot max: 376 snapshot count: 0, oldest timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038"}}}
```

Logs for mongo-db:

```
{
  "t": {"$date": "2025-12-15T17:03:18.518+00:00"}, "s": "I", "c": "WTCHKPT", "id": 22430, "ctx": "Checkpointer", "msg": "WiredTiger message", "attr": {"message": {"ts_sec": 1765818198, "ts_usec": 518451, "thread": "1:0x7f43ff668640", "session_name": "WT_SESSION.checkpoint", "category": "WT_Verb_CHECKPOINT_PROGRESS", "category_id": 6, "verbose_level": "DEBUG", "verbose_level_id": 1, "msg": "saving checkpoint snapshot min: 378, snapshot max: 378 snapshot count: 0, oldest timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038"}}}
```

Logs for mongo-db:

```
{
  "t": {"$date": "2025-12-15T17:04:18.537+00:00"}, "s": "I", "c": "WTCHKPT", "id": 22430, "ctx": "Checkpointer", "msg": "WiredTiger message", "attr": {"message": {"ts_sec": 1765818258, "ts_usec": 537321, "thread": "1:0x7f43ff668640", "session_name": "WT_SESSION.checkpoint", "category": "WT_Verb_CHECKPOINT_PROGRESS", "category_id": 6, "verbose_level": "DEBUG", "verbose_level_id": 1, "msg": "saving checkpoint snapshot min: 378, snapshot max: 378 snapshot count: 0, oldest timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038"}}}
```

RAM 5.79 GB CPU 16.63% Disk: 21.34 GB used (limit 1006.85 GB)

Terminal: Terminal Update available

Docker dashboard showing running services:

- mongo-db (mongo:6) 27017:27017
- rabbitmq (rabbitmq:3-management) 15672:15672
- config-server (flightmanagements) 8888:8888
- service-registry (flightmanagements) 8761:8761
- auth-service (flightmanagements) 8001:8001
- booking-service (flightmanagements) 8082:8082
- flight-service (flightmanagements) 8081:8081

Logs for mongo-db:

```
timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038}}}}
```

Logs for mongo-db:

```
{
  "t": {"$date": "2025-12-15T17:02:18.506+00:00"}, "s": "I", "c": "WTCHKPT", "id": 22430, "ctx": "Checkpointer", "msg": "WiredTiger message", "attr": {"message": {"ts_sec": 1765818138, "ts_usec": 506152, "thread": "1:0x7f43ff668640", "session_name": "WT_SESSION.checkpoint", "category": "WT_Verb_CHECKPOINT_PROGRESS", "category_id": 6, "verbose_level": "DEBUG", "verbose_level_id": 1, "msg": "saving checkpoint snapshot min: 376, snapshot max: 376 snapshot count: 0, oldest timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038"}}}
```

Logs for mongo-db:

```
{
  "t": {"$date": "2025-12-15T17:03:18.518+00:00"}, "s": "I", "c": "WTCHKPT", "id": 22430, "ctx": "Checkpointer", "msg": "WiredTiger message", "attr": {"message": {"ts_sec": 1765818198, "ts_usec": 518451, "thread": "1:0x7f43ff668640", "session_name": "WT_SESSION.checkpoint", "category": "WT_Verb_CHECKPOINT_PROGRESS", "category_id": 6, "verbose_level": "DEBUG", "verbose_level_id": 1, "msg": "saving checkpoint snapshot min: 378, snapshot max: 378 snapshot count: 0, oldest timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038"}}}
```

Logs for mongo-db:

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{
  "t": {"$date": "2025-12-15T17:04:18.537+00:00"}, "s": "I", "c": "WTCHKPT", "id": 22430, "ctx": "Checkpointer", "msg": "WiredTiger message", "attr": {"message": {"ts_sec": 1765818258, "ts_usec": 537321, "thread": "1:0x7f43ff668640", "session_name": "WT_SESSION.checkpoint", "category": "WT_Verb_CHECKPOINT_PROGRESS", "category_id": 6, "verbose_level": "DEBUG", "verbose_level_id": 1, "msg": "saving checkpoint snapshot min: 378, snapshot max: 378 snapshot count: 0, oldest timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038"}}}
```

Logs for mongo-db:

```
{
  "t": {"$date": "2025-12-15T17:05:18.547+00:00"}, "s": "I", "c": "WTCHKPT", "id": 22430, "ctx": "Checkpointer", "msg": "WiredTiger message", "attr": {"message": {"ts_sec": 1765818318, "ts_usec": 547291, "thread": "1:0x7f43ff668640", "session_name": "WT_SESSION.checkpoint", "category": "WT_Verb_CHECKPOINT_PROGRESS", "category_id": 6, "verbose_level": "DEBUG", "verbose_level_id": 1, "msg": "saving checkpoint snapshot min: 378, snapshot max: 378 snapshot count: 0, oldest timestamp: (0, 0), meta checkpoint timestamp: (0, 0) base write gen: 1038"}}}
```

RAM 5.79 GB CPU 16.63% Disk: 21.34 GB used (limit 1006.85 GB)

Terminal: Terminal Update available

These are my services which are registered in service registry

Instances currently registered with Eureka			
Application	AMIs	Availability Zones	Status
API-GATEWAY	n/a (1)	(1)	UP (1) - DESKTOP-U2KN9DC:api-gateway:8080
AUTH-SERVICE	n/a (1)	(1)	UP (1) - DESKTOP-U2KN9DC:auth-service:8001
BOOKING-SERVICE	n/a (1)	(1)	UP (1) - DESKTOP-U2KN9DC:booking-service:8082
EMAIL-SERVICE	n/a (1)	(1)	UP (1) - DESKTOP-U2KN9DC:email-service:8084
FLIGHT-SERVICE	n/a (1)	(1)	UP (1) - DESKTOP-U2KN9DC:flight-service:8081
FMS-CONFIG-SERVER	n/a (1)	(1)	UP (1) - DESKTOP-U2KN9DC:fms-config-server:8888

General Info

Name	Value
total-avail-memory	72mb
num-of-cpus	12
current-memory-usage	48mb (66%)

I have added Authentication Endpoints such as :-

Register User – Customer (Books Flights)

HTTP Flight Management System - Microservices (With Auth) / Authentication Service / Register User

POST http://localhost:8080/auth/register

Docs Params Authorization Headers (9) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL **JSON**

```
1 {
2   "name": "Joel",
3   "email": "joel@example.com",
4   "password": "password123",
5   "role": "ROLE_CUSTOMER"
6 }
```

Body Cookies Headers (13) Test Results

201 Created

Raw Preview

1 User created

Register Admin (Add Flights and Airlines)

The screenshot shows a POST request to `http://localhost:8080/auth/register`. The request body is a JSON object:

```
1 {  
2   "name": "Raj",  
3   "email": "Raj@example.com",  
4   "password": "password123",  
5   "role": "ROLE_ADMIN"  
6 }
```

The response status is `201 Created`. The raw response body is:

```
1 User created
```

Login

POST Send

Docs Params Authorization Headers (10) Body Scripts Settings Cookies (1) Headers (14) Test Results |

none form-data x-www-form-urlencoded raw binary GraphQL JSON Schema Beautify

```
1 {  
2   "email": "joel@example.com",  
3   "password": "password123"  
4 }
```

Body Cookies (1) Headers (14) Test Results | 200 OK • 158 ms • 944 B • Save Response •

{ } JSON Preview Visualize |

```
1 {  
2   "token": "eyJhbGciOiJIUzI1NiJ9.  
3     eyJzdWIiOiJqb2VsQGV4YW1wbGUuY29tIiwicm9sZSI6IlJPTEVfQ1VTVE9NRVIiLCJpYXQiOjE3NjUyMjExMDMsImV4cCI  
4     6MTc2NTMwNzUwM30.oXM7aN5m32Y8Gwba03ZyzJ1ujj1myakA00jAtyfo0iw",  
5   "tokenType": "Bearer",  
6   "email": "joel@example.com",  
7   "role": "ROLE_CUSTOMER"  
8 }
```

Logout

HTTP Flight Management System - Microservices (... / ... / Logout (Invalidate Refresh Token))

POST

Docs Params Authorization Headers (8) Body Scripts Settings

Query Params

	Key	Value	D
	Key	Value	D

Body Cookies Headers (14) Test Results | 200 OK • 374 ms

Raw Preview Visualize |

```
1 Logged out successfully
```

I have implemented Role Based Authentication so if a customer tries to access Admin Endpoints it will return 401 Error

The screenshot shows a POST request to `http://localhost:8080/api/flight/airline`. The request failed with a `401 Unauthorized` status code. The Headers tab shows 10 headers, and the Body tab shows a single character '1'.

MongoDB – AuthDB

The screenshot shows the MongoDB Compass interface. The top navigation bar has 'spring-boot' > 'authdb' > 'users'. Below this, there are tabs for 'Documents' (0), 'Aggregations', 'Schema', 'Indexes' (1), and 'Validation'. A search bar at the top says 'Type a query: { field: 'value' } or [Generate query](#)'. Below the search bar are buttons for '+', edit, delete, and explain/reset. On the right, it shows '25' results, '1-1 of 1', and a refresh/copy icon. The main area displays a single document:

```
_id: ObjectId('6937208ecd6b645dda0ff905')
name : "Joel"
email : "joel@example.com"
password : "S2a$10$G0jIkPH08mqgp8WAIJdKSOVhA43ljtCRsXK9C3i5Wv.rI9NLmJM4u"
role : "ROLE_CUSTOMER"
_class : "com.example.fms.auth.model.User"
```

BookingDB

The screenshot shows the MongoDB Compass interface. The top navigation bar has 'spring-boot' > 'bookingdb' > 'bookings'. Below this, there are tabs for 'Documents' (7), 'Aggregations', 'Schema', 'Indexes' (1), and 'Validation'. A search bar at the top says 'Type a query: { field: 'value' } or [Generate query](#)'. Below the search bar are buttons for '+', edit, delete, and explain/reset. The main area displays a single document with a play button icon:

```
_id: ObjectId('692e09b516c49c0911074fde')
pnr : "EC2AEC3E"
email : "joel@example.com"
flightId : "692e07c458e0122b39e5e1d2"
seatsBooked : 1
bookingTime : 2025-12-01T21:33:41.227+00:00
canceled : true
canceledAt : 2025-12-02T00:35:59.871+00:00
_class : "com.example.booking.model.Booking"
```

spring-boot > bookingdb > passengers

Documents 9 Aggregations Schema Indexes 1 Validation

Type a query: { field: 'value' } or [Generate query](#) +

25

```
_id: ObjectId('692e09b516c49c0911074fdf')
name : "Joel"
gender : "Male"
age : 22
seatNumber : "11A"
meal : "VEG"
bookingId : "692e09b516c49c0911074fde"
_class : "com.example.fms.booking.model.Passenger"
```

FlightDB

spring-boot > flightdb > airlines

Documents 5 Aggregations Schema Indexes 1 V

Type a query: { field: 'value' } or [Generate query](#)

```
_id: ObjectId('692e070f58e0122b39e5e1d1')
name : "Indigo"
logoUrl : "https://airindia.com/logo.png"
_class : "com.example.fms.flight.model.Airline"
```

spring-boot > flightdb > flights

Documents (4) Aggregations Schema Indexes (1) Validation

Type a query: { field: 'value' } or [Generate query](#)

25 ▾ 1 ·

```
_id: ObjectId('692e07c458e0122b39e5e1d2')
flightNumber : "AI101"
fromPlace : "Bangalore"
toPlace : "Mumbai"
departureTime : 2025-12-14T23:30:00.000+00:00
arrivalTime : 2025-12-15T01:45:00.000+00:00
price : 4500
totalSeats : 120
availableSeats : 110
airlineId : "692e070f58e0122b39e5e1d1"
_class : "com.example.fms.flight.model.Flight"
```

I have used RabbitMQ as my Message Broker to send emails

Containers [Give feedback](#)

Container CPU usage 0.65% / 1200% (12 CPUs available)

Container memory usage 156MB / 6.54GB [Show charts](#)

Search Only show running containers

<input type="checkbox"/>	Name	Container ID	Image	Port(s)	CPU (%)	Last started	Actions
<input type="checkbox"/>	rabbitmq	d62f89d2be6b	rabbitmq:3-management	15672:15672 Show all ports (2)	0.27%	5 hours ago	

[Overview](#) [Connections](#) [Channels](#) [Exchanges](#) [Queues and Streams](#) [Admin](#)

Queues

▼ All queues (1)

Pagination

 Page of 1 - Filter: Regex ? 

Overview						Messages			Message rates			+/-
Virtual host	Name	Type	Features	State	Ready	Unacked	Total	incoming	deliver / get	ack		
/	email.queue	classic	D	running	0	0	0	0.00/s	0.00/s	0.00/s		

▶ Add a new queue
[HTTP API](#) [Documentation](#) [Tutorials](#) [New releases](#) [Commercial edition](#) [Commercial support](#) [Discussions](#) [Discord](#) 

Connections

▼ All connections (2)

Pagination

 Page of 1 - Filter: Regex ? 

Overview			Details				Network			+/-
Name	User name	State	SSL / TLS	Protocol	Channels	From client	To client			
172.17.0.1:43606 rabbitConnectionFactory#3909a854:0	guest	running	○	AMQP 0-9-1	1	0 B/s	0 B/s			
172.17.0.1:58122 rabbitConnectionFactory#14fded9d:0	guest	running	○	AMQP 0-9-1	1	2 B/s	2 B/s			

[HTTP API](#) [Documentation](#) [Tutorials](#) [New releases](#) [Commercial edition](#) [Commercial support](#) [Discussions](#) [Discord](#)

This is the email that it will send when you book or cancel a ticket

Booking Confirmed Inbox ×

J

joelphilip208@gmail.com

to joel ▾

Your flight booking is confirmed.

PNR: F54F5B8B



Mail Delivery Subsystem <mailer-daemon@googlemail.com>

to me ▾



Address not found

Your message wasn't delivered to **joel@example.com** because the domain [example.com](#) couldn't be found. Check for typos or unnecessary spaces and try again.

[LEARN MORE](#)

▲This link will take you to a third-party site

```
: EMAIL SERVICE → Using SMTP user: joelphilip208@gmail.com
: Attempting to send email to: joel@example.com
: Email sent successfully to joel@example.com
: Received EmailEvent from RabbitMQ: EmailEvent[to=joel@example.com, subject=Booking Confirmed, body=Your flight booking is confirmed.

: EMAIL SERVICE → Using SMTP user: joelphilip208@gmail.com
: Attempting to send email to: joel@example.com
: Email sent successfully to joel@example.com
: Received EmailEvent from RabbitMQ: EmailEvent[to=joel@example.com, subject=Booking Cancelled, body=Your booking has been cancelled.
```

I have used SMTP to do it and I put my credentials in my run configurations

The screenshot shows an email inbox with two messages. The first message is from 'joelphilip208@gmail.com' with the subject 'Booking Cancelled'. It contains the text 'Your booking has been cancelled. PNR: F54F5B8B'. The second message is from 'Mail Delivery Subsystem <mailer-daemon@googlemail.com>' with the subject 'to me'. It displays an 'Address not found' error message stating: 'Your message wasn't delivered to **joel@example.com** because the domain example.com couldn't be found. Check for typos or unnecessary spaces and try again.' Below the error message is a 'LEARN MORE' link.

I have used newman tool to test my API end points and every request gave a valid response

```
C:\Users\Hp\OneDrive\Documents\Postman - Collections>newman --version  
6.2.1  
  
C:\Users\Hp\OneDrive\Documents\Postman - Collections>newman run FlightManagementSystem-Microservices.postman_collection.json  
newman
```

```

Flight Management System - Microservices

□ Health Check
└ API Gateway Health
    GET http://localhost:8080/actuator/health [200 OK, 114B, 235ms]

└ Eureka Server UI
    GET http://localhost:8761 [200 OK, 6.08kB, 153ms]

□ Flight Service (via API Gateway)
└ Add Airline (Admin)
    POST http://localhost:8080/api/flight/airline [201 Created, 149B, 529ms]

└ Add Flight Inventory (Admin)
    POST http://localhost:8080/api/flight/airline/692e070f58e0122b39e5e1d1/inventory [201 Created, 156B, 53ms]

└ Search Flights (User)
    POST http://localhost:8080/api/flight/search [200 OK, 583B, 34ms]

└ Get Flight Details
    GET http://localhost:8080/api/flight/details/692e07c458e0122b39e5e1d2 [200 OK, 342B, 18ms]

□ Booking Service (via API Gateway)
└ Book Flight
    POST http://localhost:8080/api/book/book [201 Created, 222B, 634ms]

└ Cancel Booking
    DELETE http://localhost:8080/api/book/cancel/EC2AEC3E [200 OK, 155B, 83ms]

└ Booking History
    GET http://localhost:8080/api/book/history/joel@example.com [200 OK, 595B, 28ms]

└ Get Ticket
    GET http://localhost:8080/api/book/ticket/EC2AEC3E [200 OK, 648B, 36ms]

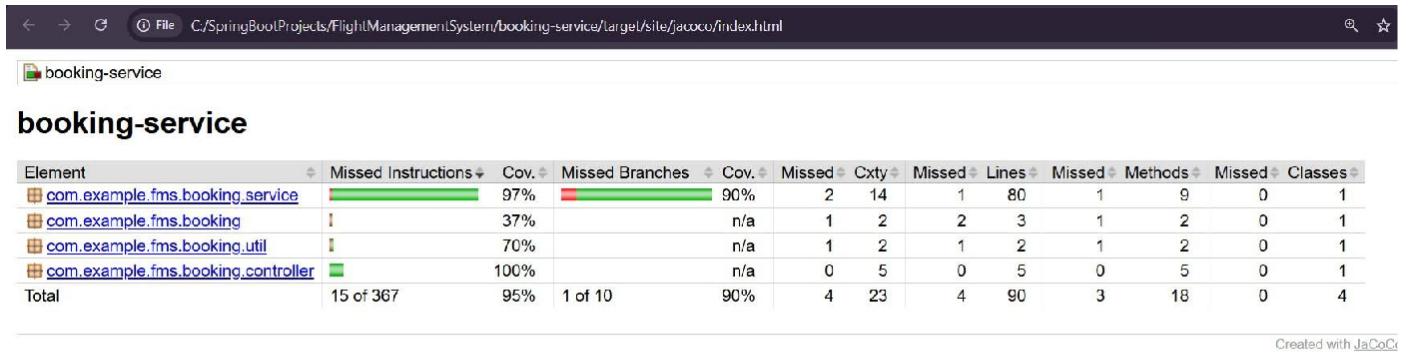
```

	executed	failed
iterations	1	0
requests	10	0
test-scripts	0	0
prerequest-scripts	0	0
assertions	0	0
total run duration:	1007ms	
total data received:	8.21kB (approx)	
average response time:	16ms [min: 10ms, max: 29ms, s.d.: 6ms]	

JaCoCo Report

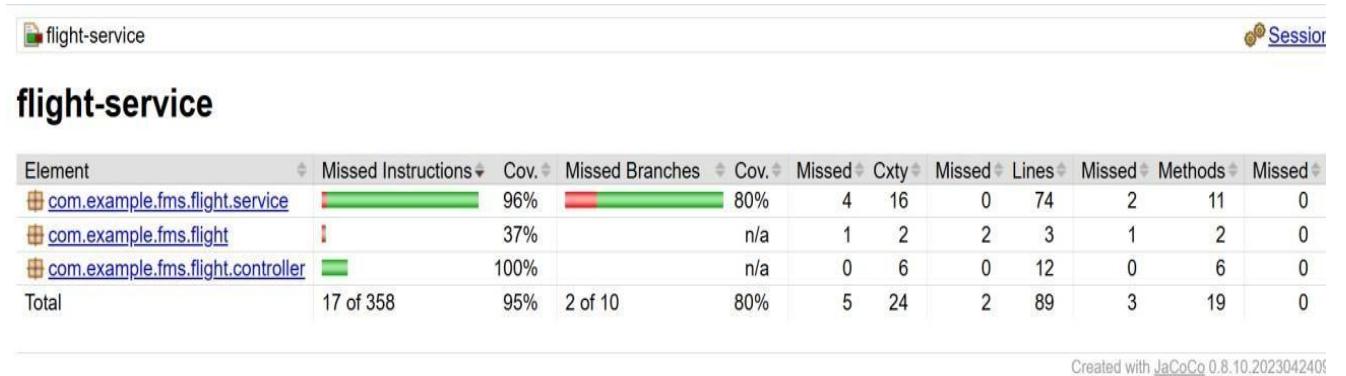
For Booking Service :-

Code coverage is 95 %



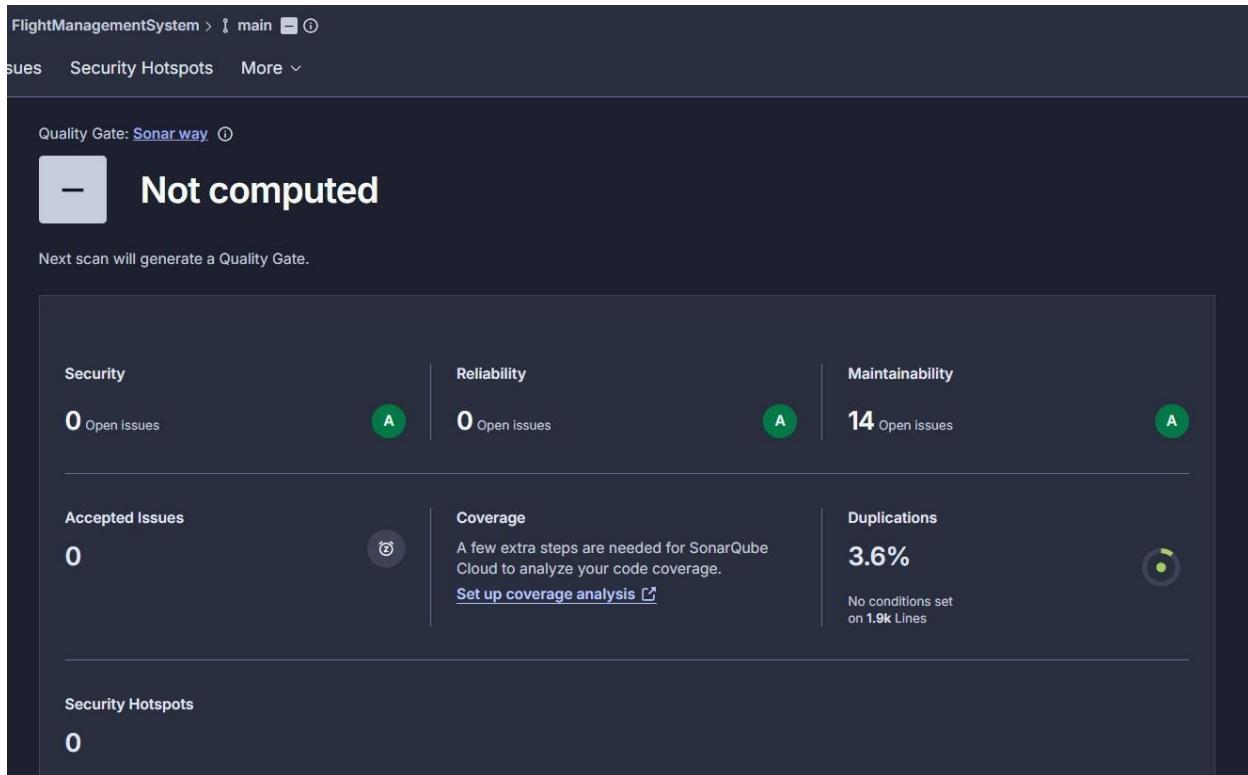
For Flight Service:-

Code Coverage is 95%



SonarQube Report

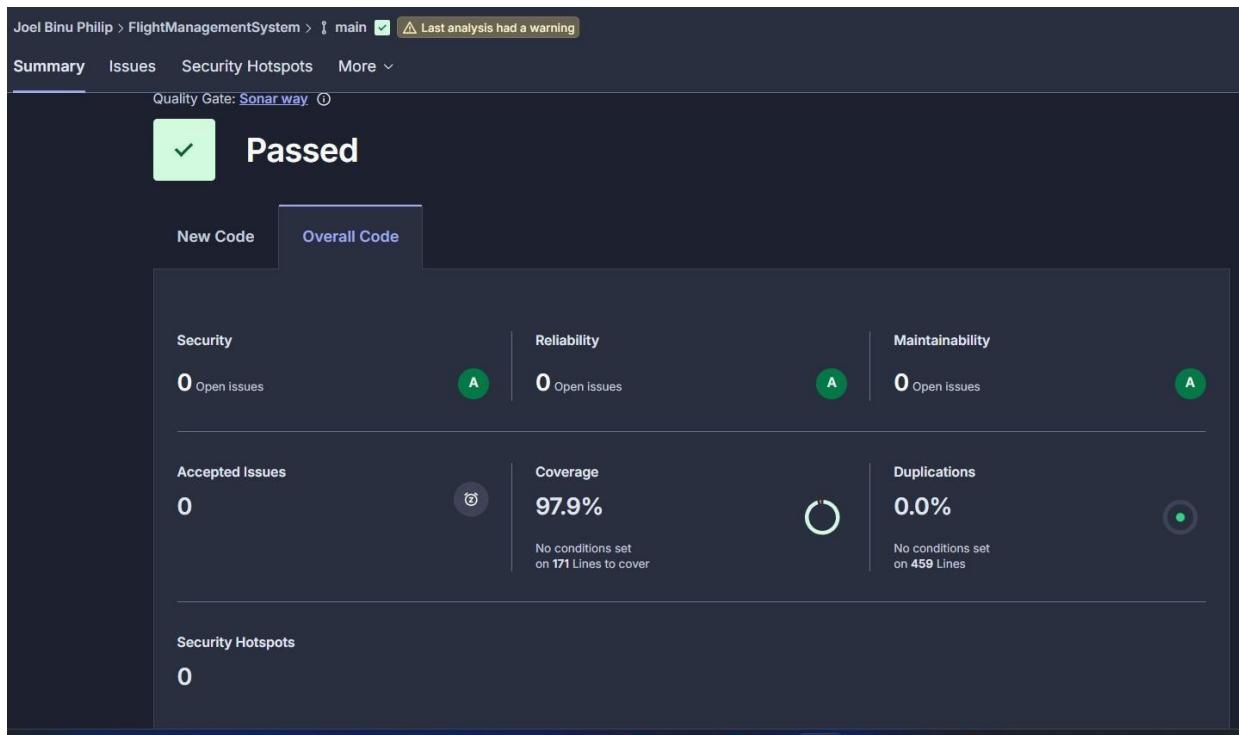
Before :-



Issue fixing history graph



After :-



JMeter Load Testing Using CLI

20 threads

```
C:\Users\Hp\Downloads> "C:\Tools\apache-jmeter-5.6.3\apache-jmeter-5.6.3\bin\jmeter.bat" -n -t working_plan.jmx -l results20.jtl -e -o report20
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
Creating summariser <summary>
Created the tree successfully using working_plan.jmx
Starting standalone test @ 2025 Dec 2 07:23:55 IST (1764640435750)
Waiting for possible Shutdown/StopTestNow/HeapDump/ThreadDump message on port 4445
summary + 217 in 00:00:04 = 51.3/s Avg: 5 Min: 3 Max: 35 Err: 0 (0.00%) Active: 1 Started: 73 Finished: 72
summary + 293 in 00:00:06 = 51.2/s Avg: 4 Min: 3 Max: 10 Err: 0 (0.00%) Active: 0 Started: 170 Finished: 170
summary = 510 in 00:00:10 = 51.2/s Avg: 5 Min: 3 Max: 35 Err: 0 (0.00%)
Tidying up ... @ 2025 Dec 2 07:24:05 IST (1764640445783)
... end of run
```

50 threads

```
C:\Users\Hp\Downloads> "C:\Tools\apache-jmeter-5.6.3\apache-jmeter-5.6.3\bin\jmeter.bat" -n -t working_plan.jmx -l results50.jtl -e -o report50
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
Creating summariser <summary>
Created the tree successfully using working_plan.jmx
Starting standalone test @ 2025 Dec 2 07:24:42 IST (1764640482536)
Waiting for possible Shutdown/StopTestNow/HeapDump/ThreadDump message on port 4445
summary = 510 in 00:00:10 = 51.2/s Avg: 5 Min: 3 Max: 36 Err: 0 (0.00%)
Tidying up ... @ 2025 Dec 2 07:24:52 IST (1764640492569)
... end of run
```

100 Threads

```
C:\Users\Hp\Downloads> "C:\Tools\apache-jmeter-5.6.3\apache-jmeter-5.6.3\bin\jmeter.bat" -n -t working_plan.jmx -l results100.jtl -e -o report100
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
WARN StatusConsoleListener The use of package scanning to locate plugins is deprecated and will be removed in a future release
Creating summariser <summary>
Created the tree successfully using working_plan.jmx
Starting standalone test @ 2025 Dec 2 07:25:12 IST (1764640512339)
Waiting for possible Shutdown/StopTestNow/HeapDump/ThreadDump message on port 4445
summary = 510 in 00:00:10 = 51.2/s Avg: 4 Min: 2 Max: 32 Err: 0 (0.00%)
Tidying up ... @ 2025 Dec 2 07:25:22 IST (1764640522375)
... end of run
```

20 threads report

C:/Users/Hp/Downloads/report20/index.html

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
1.000	500 ms	1 sec 500 ms	Total
1.000	500 ms	1 sec 500 ms	GET Ticket
1.000	500 ms	1 sec 500 ms	GET Flight Details
1.000	500 ms	1 sec 500 ms	GET Booking History

FAIL
PASS

Statistics

Requests	Executions							Response Times (ms)					Throughput	Network (KB/sec)	
	Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s			
Total	510	0	0.00%	5.28	3	35	4.00	7.90	8.00	10.00	51.87	28.37	7.36		
GET Booking History	170	0	0.00%	3.86	3	6	4.00	4.90	5.00	6.00	17.36	10.64	2.46		
GET Flight Details	170	0	0.00%	4.92	3	35	4.00	5.00	5.00	35.00	17.30	6.30	2.62		
GET Ticket	170	0	0.00%	7.07	5	10	7.00	8.00	9.00	10.00	17.37	11.54	2.31		

50 Threads Report

Screenshot of the Apache JMeter Dashboard showing results for 50 threads.

Test and Report information:

Source file	"results50.jtl"
Start Time	"12/2/25, 7:24 AM"
End Time	"12/2/25, 7:24 AM"
Filter for display	""

APDEX (Application Performance Index):

Apcex	T (Toleration threshold)	F (Frustration threshold)	Label
1.000	500 ms	1 sec 500 ms	Total
1.000	500 ms	1 sec 500 ms	GET Ticket
1.000	500 ms	1 sec 500 ms	GET Flight Details
1.000	500 ms	1 sec 500 ms	GET Booking History

Requests Summary:

Statistics:

Requests		Executions		Response Times (ms)									Throughput		Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent			
Total	510	0	0.00%	5.17	3	36	4.00	7.00	8.00	9.00	51.88	28.38	7.36			
GET Booking History	170	0	0.00%	3.85	3	6	4.00	5.00	5.00	6.00	17.37	10.64	2.46			
GET Flight Details	170	0	0.00%	4.94	3	36	4.00	5.00	6.00	36.00	17.31	6.31	2.62			
GET Ticket	170	0	0.00%	6.72	5	9	7.00	8.00	8.00	9.00	17.37	11.54	2.31			

100 Threads

Screenshot of the Apache JMeter Dashboard showing results for 100 threads.

Test and Report information

Source file	"results100.jtl"
Start Time	"12/25, 7:25 AM"
End Time	"12/25, 7:25 AM"
Filter for display	""

APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
1.000	500 ms	1 sec 500 ms	Total
1.000	500 ms	1 sec 500 ms	GET Ticket
1.000	500 ms	1 sec 500 ms	GET Flight Details
1.000	500 ms	1 sec 500 ms	GET Booking History

Requests Summary

Statistics

Requests	Executions				Response Times (ms)							Throughput		Network (KB/sec)	
	Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent	
Total	510	0	0.00%	4.87	2	32	4.00	7.00	7.00	10.00	51.88	28.37	7.36		
GET Booking History	170	0	0.00%	3.65	2	7	4.00	4.00	5.00	7.00	17.36	10.63	2.46		
GET Flight Details	170	0	0.00%	4.64	3	32	4.00	5.00	5.00	32.00	17.31	6.30	2.62		
GET Ticket	170	0	0.00%	6.34	4	10	6.00	7.90	8.00	10.00	17.36	11.53	2.31		

API Endpoints POST Add Airline :-

The screenshot shows a POST request to `http://localhost:8080/api/flight/airline`. The request body is a JSON object:

```
1  {
2    "name": "Spice Jet",
3    "logoUrl": "https://airindia.com/logo.png"
4 }
```

The response body is:

```
1  Airline created successfully
```

POST Add Flight Inventory

The screenshot shows a POST request to `http://localhost:8080/api/flight/airline/692e070f58e0122b39e5e1d1/inventory`. The request body is a JSON object with the following fields:

```
1 {
2   "airlineId": "692e070f58e0122b39e5e1d1",
3   "flightNumber": "AI132",
4   "fromPlace": "Bangalore",
5   "toPlace": "Mumbai",
6   "departureTime": "2025-12-15T05:00:00",
7   "arrivalTime": "2025-12-15T07:15:00",
8   "price": 4500,
9   "totalSeats": 120
10 }
```

The response status is **201 Created**. The raw response body is:

```
1 Flight inventory added successfully
```

POST Search flights

HTTP Flight Management System - Microservices / Flight Service (via API Gateway) / **Search Flights (User)**

POST <http://localhost:8080/api/flight/search>

Docs Params Authorization Headers (9) **Body** • Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL **JSON** ▾

```
1 {  
2   "fromPlace": "Bangalore",  
3   "toPlace": "Mumbai",  
4   "date": "2025-12-15"  
5 }
```

Body Cookies Headers (3) Test Results [⟳](#) 200 OK ▾

{ } JSON ▾ ▶ Preview [Visualize](#) ▾

```
1 {  
2   "flights": [  
3     {  
4       "id": "692e07c458e0122b39e5e1d2",  
5       "flightNumber": "AI101",  
6       "airlineName": "Indigo",  
7       "fromPlace": "Bangalore",  
8       "toPlace": "Mumbai",  
9       "departureTime": "2025-12-15T05:00",  
10      "arrivalTime": "2025-12-15T07:15",  
11      "price": 4500.0,  
12      "availableSeats": 115  
13    },  
..
```

GET Get Flight Details

HTTP Flight Management System - Microservices / Flight Service (via API Gateway) / **Get Flight Details**

GET http://localhost:8080/api/flight/details/692e07c458e0122b39e5e1d2

Docs Params Authorization Headers (6) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL

This request does not have a body

Body Cookies Headers (3) Test Results

200 OK

{ } JSON Preview Visualize

```
1 {  
2   "id": "692e07c458e0122b39e5e1d2",  
3   "flightNumber": "AI101",  
4   "fromPlace": "Bangalore",  
5   "toPlace": "Mumbai",  
6   "departureTime": "2025-12-15T05:00",  
7   "arrivalTime": "2025-12-15T07:15",  
8   "price": 4500.0,  
9   "availableSeats": 115,  
10  "airlineName": "Indigo"  
11 }
```

POST Book Seat in Flight

HTTP Flight Management System - Microservices / Booking Service (via API Gateway) / Book Flight

POST http://localhost:8080/api/book/book

Body •

Docs Params Authorization Headers (9) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

```
1 {
2   "flightId": "692e07c458e0122b39e5e1d2",
3   "email": "joel@example.com",
4   "passengers": [
5     {
6       "name": "Joel",
7       "gender": "Male",
8       "age": 22,
9       "seatNumber": "1A",
10      "meal": "VEG"
11    }
12  ]
13 }
```

Body Cookies Headers (3) Test Results 201 Created

{ } JSON ▾ Preview Visualize

```
1 {
2   "pnr": "E93CA33A",
3   "email": "joel@example.com",
4   "flightId": "692e07c458e0122b39e5e1d2",
5   "status": "BOOKED"
6 }
```

DELETE Cancel Booking

DELETE ▼ http://localhost:8080/api/book/cancel/E93CA33A

☰ Docs Params Authorization Headers (6) Body Scripts Settings

Query Params

Key	Value
Key	Value

Body Cookies Headers (3) Test Results ⌚ 2

{ } JSON ▼ ▷ Preview ⚒ Visualize ▼

```
1 {  
2   "pnr": "E93CA33A",  
3   "status": "CANCELLED"  
4 }
```

GET Get Booking History

HTTP Flight Management System - Microservices / Booking Service (via API Gateway) / Booking History

GET ▾ http://localhost:8080/api/book/history/joel@example.com

Docs Params Authorization Headers (6) Body Scripts Settings

Query Params

Key	Value	Description
Key	Value	Description

Body Cookies Headers (4) Test Results 200 OK

{ } JSON ▾ ▶ Preview Visualize ▾

```
1 [  
2 {  
3   "id": "692e09b516c49c0911074fde",  
4   "pnr": "EC2AEC3E",  
5   "email": "joel@example.com",  
6   "flightId": "692e07c458e0122b39e5e1d2",  
7   "seatsBooked": 1,  
8   "bookingTime": "2025-12-02T03:03:41.227",  
9   "canceled": true,  
10  "canceledAt": "2025-12-02T06:05:59.871"  
11 },  
12 {  
13   "id": "692e346fdd67044a16bbdf32",  
14 }
```

GET Ticket Details

HTTP Flight Management System - Microservices / Booking Service (via API Gateway) / Get Ticket

GET http://localhost:8080/api/book/ticket/E93CA33A

☰ Docs Params Authorization Headers (6) Body Scripts Settings

Query Params

Key	Value
Key	Value

Body Cookies Headers (3) Test Results

{ } JSON ▾ ▶ Preview ⚡ Visualize ▾

```
1  {
2      "booking": {
3          "pnr": "E93CA33A",
4          "flightId": "692e07c458e0122b39e5e1d2",
5          "email": "joel@example.com",
6          "seatsBooked": 1,
7          "bookingTime": "2025-12-02T08:06:39.552",
8          "cancelled": true,
9          "cancelledAt": "2025-12-02T08:07:55.368"
10     },
11     "passengers": [
12         {
13             "name": "Joel",
14             "gender": "Male",
15             "age": 22,
16             "seatNumber": "1A",
17             "meal": "VEG"
18         }
19     ],
}
```

```
    },
],
"flight": {
    "id": "692e07c458e0122b39e5e1d2",
    "flightNumber": "AI101",
    "fromPlace": "Bangalore",
    "toPlace": "Mumbai",
    "departureTime": "2025-12-15T05:00",
    "arrivalTime": "2025-12-15T07:15",
    "price": 4500.0,
    "availableSeats": 114,
    "airlineName": "Indigo"
}
```