JAVA & JPA

SISTEMA DE VIAGENS

Alunos: Jennifer Diehl, Matheus Porto e Paulo Lanius

Sistemas de gerência de banco de dados

SISTEMA
DE VIAGENS

AGENDA

- JPA
- MYSQL
- TEMA
- DIAGRAMA
- IMPLEMENTAÇÃO
- DEMO

JPA

INTRODUÇÃO

Introdução

- JPA = Java Persistence API
- Framework leve para persistir objetos Java
- Amplamente utilizado
- Não é apenas um ORM, oferece diversas funcionalidade

JPA

HISTÓRICO

- Especificação Java EE 5
- Componentes como POJOS (Plain Java Objects)
- Surgiu da necessidade dos profissionais e das soluções para resolver problemas com persistência
- JPA 2.0

JPA

CARACTERÍSTICAS

- POJOS persistentes
- Consultas de objetos
- Configurações simples
- Integração e teste

JPA

BENEFÍCIOS

- Consultas com JPQL
- Abstração de banco de dados
- Produtividade
- Portabilidade

JPA

DESAFIOS

- Complexidade configuração e anotações para iniciantes
- Problemas de desempenho se não usado corretamente
- Curva de aprendizado
- Ferramentas e ecossistema

JPA

ANOTAÇÕES

@Entity, @Table, @Id, @GeneratedValue, @Column, @OneToMany, @ManyToOne, @JoinColumn, @Transient, @NamedQuery, @Version, @Temporal, @Lob

COMANDOS

EntityManager: persist, merge, remove, find, createQuery, getTransaction, clear, refresh

Entity Transaction: begin, commit, rollback

MYSQ

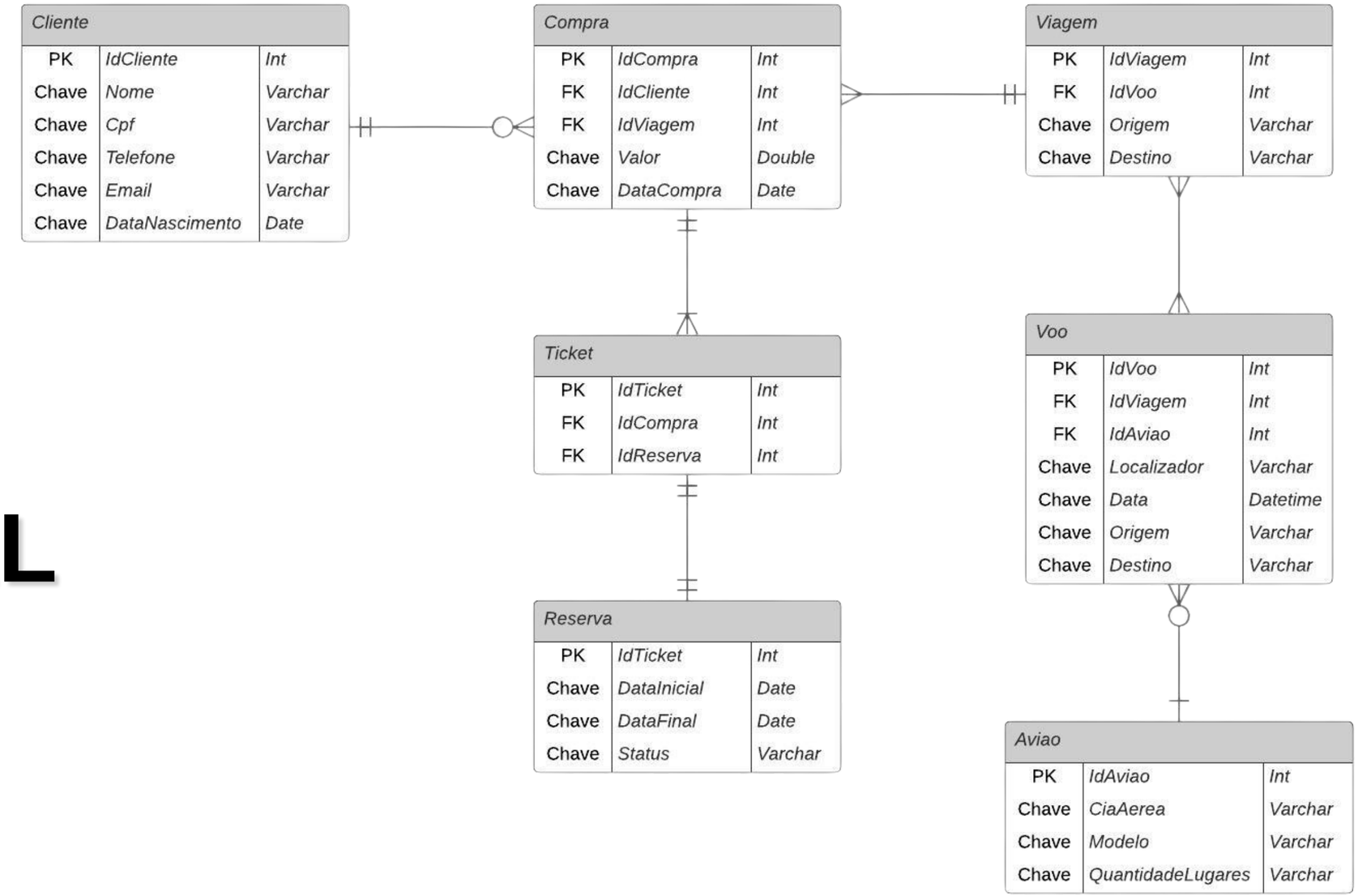
- SGBD de código aberto
- Pertence a Oracle Corporation
- Amplamente utilizado e um dos mais populares
- Utiliza SQL como interface
- Tem suporte a várias plataformas
- Boa performance e baixa latência
- Comunidade ativa e vasta documentação
- Usado em aplicações web dinâmicas, sistemas de gerência de conteúdo, armazenamento de dados empresariais, aplicações móveis e outros.

TEMA

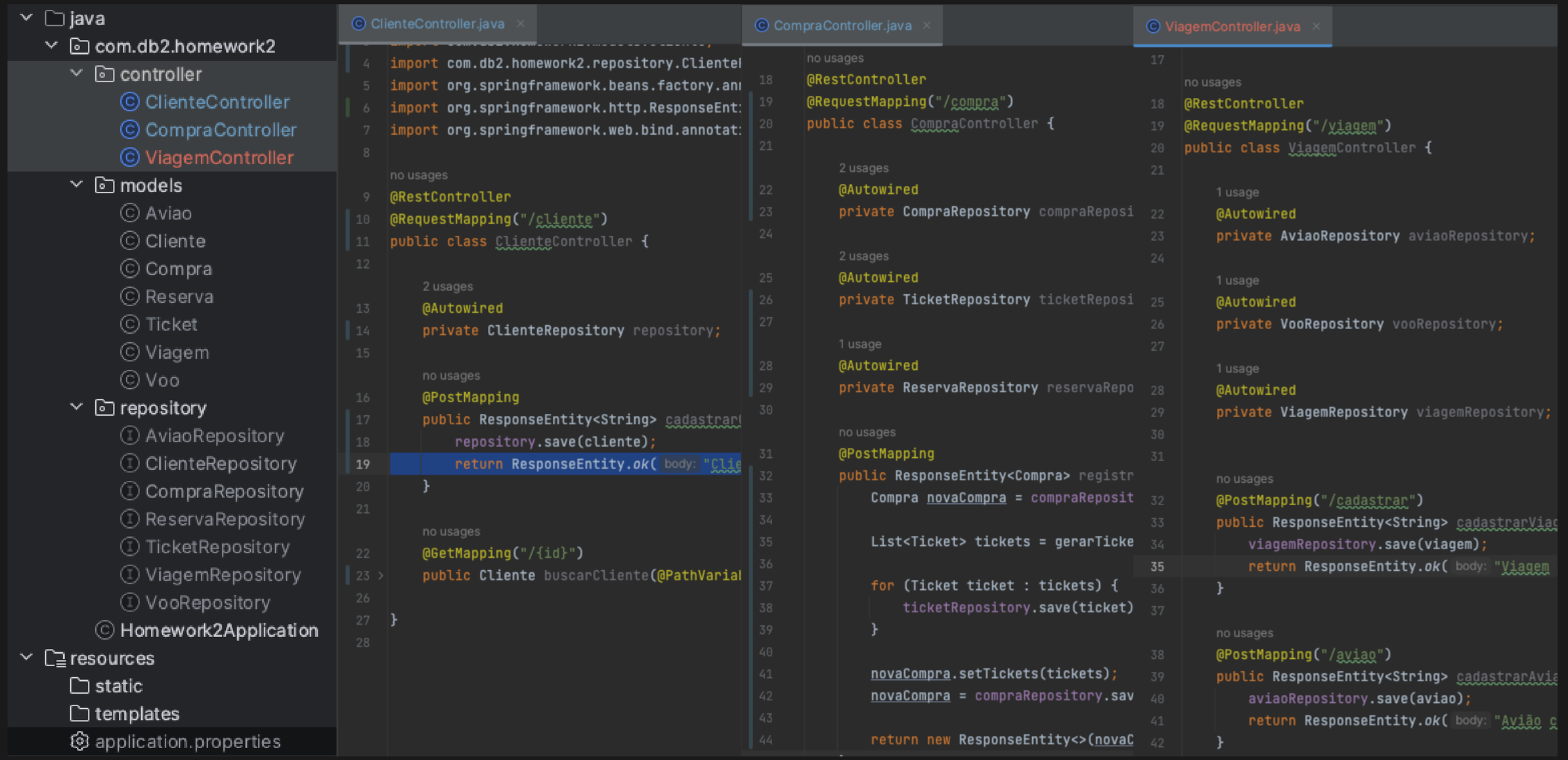
- Registrar novos usuários
- Realizar compras de pacotes
- Obter histórico de compras
- Obter informações do voo
- Realizar reservas

SISTEMA
DE VIAGENS

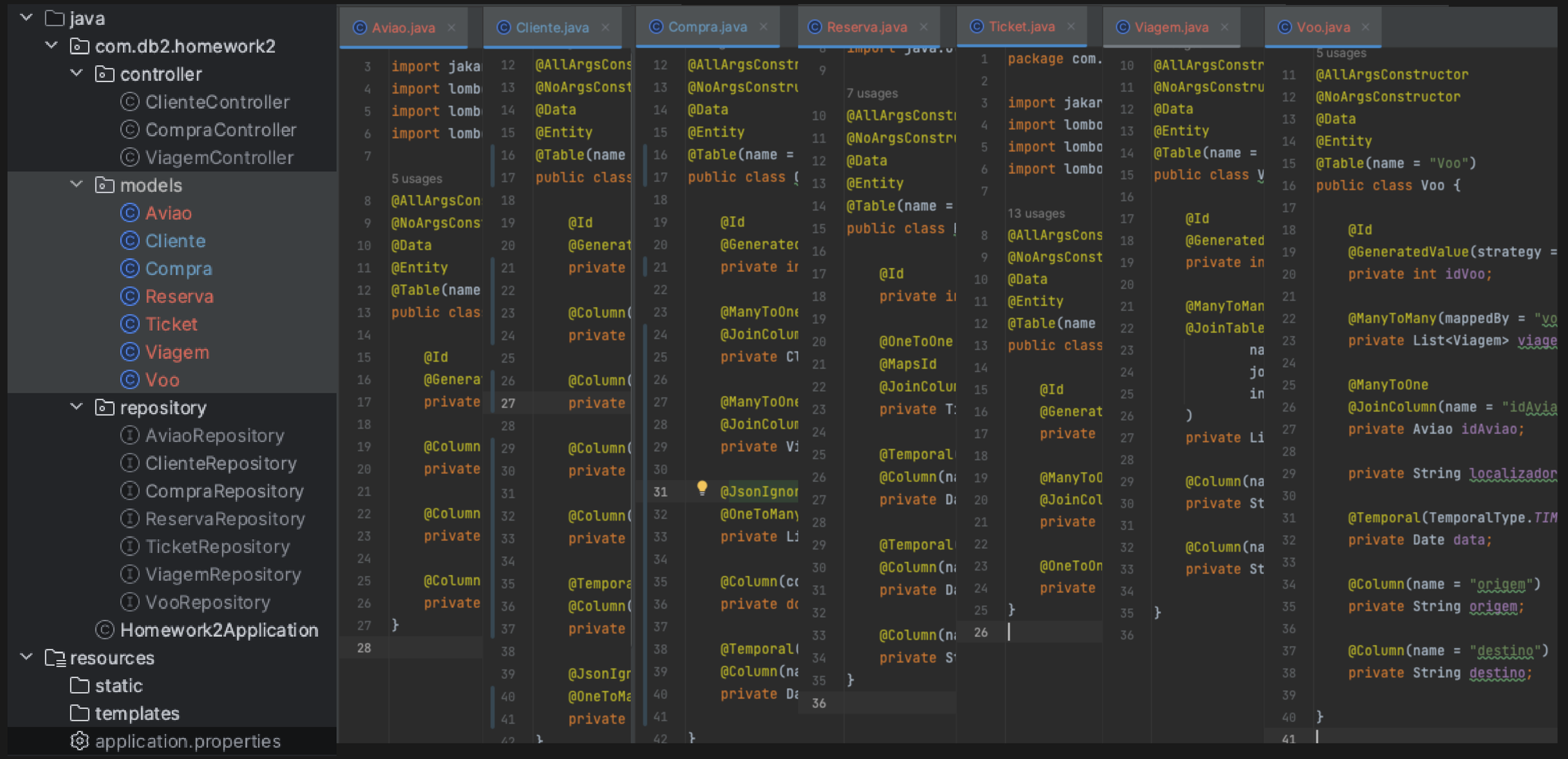
DIAGRAMA RELACIONAL



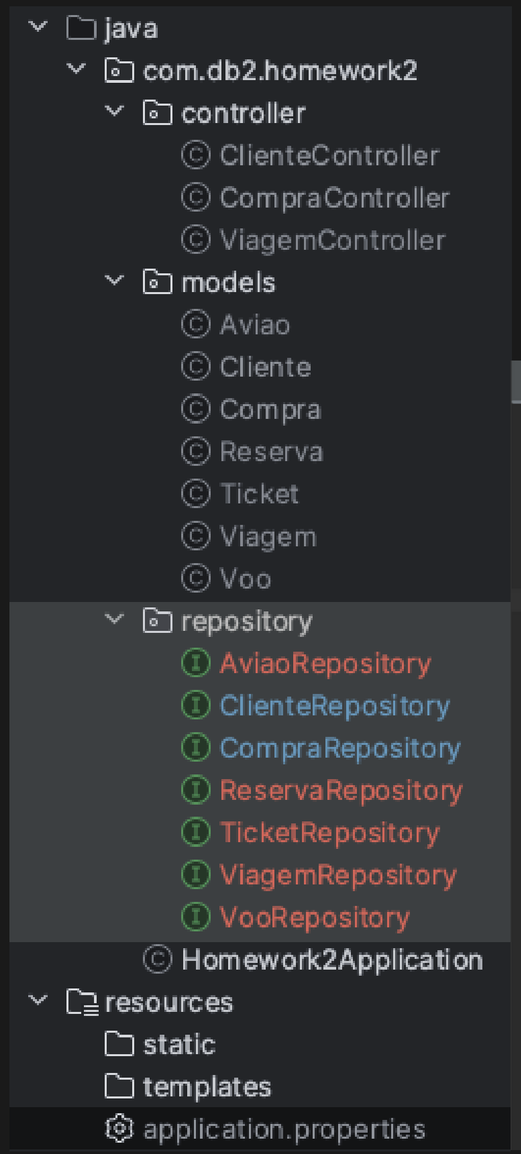
IMPLEMENTAÇÃO

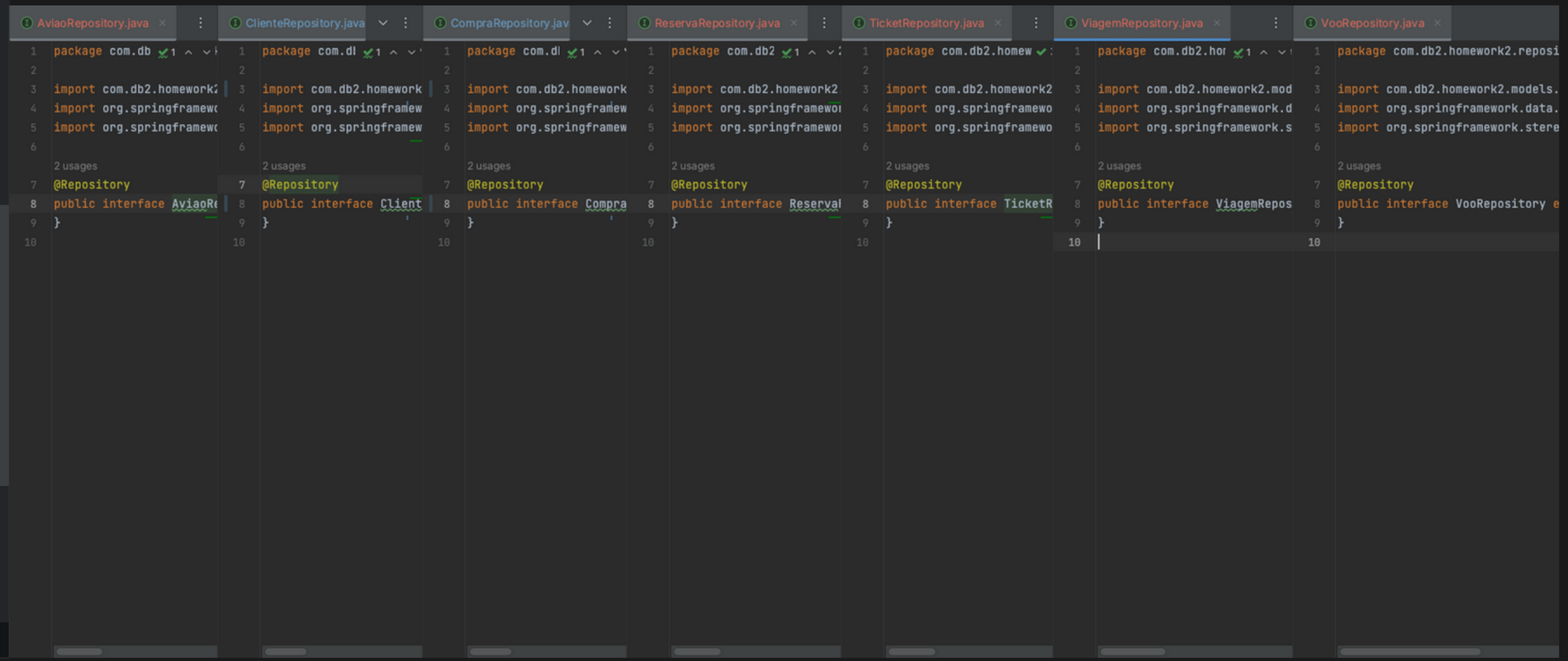


IMPLEMENTAÇÃO

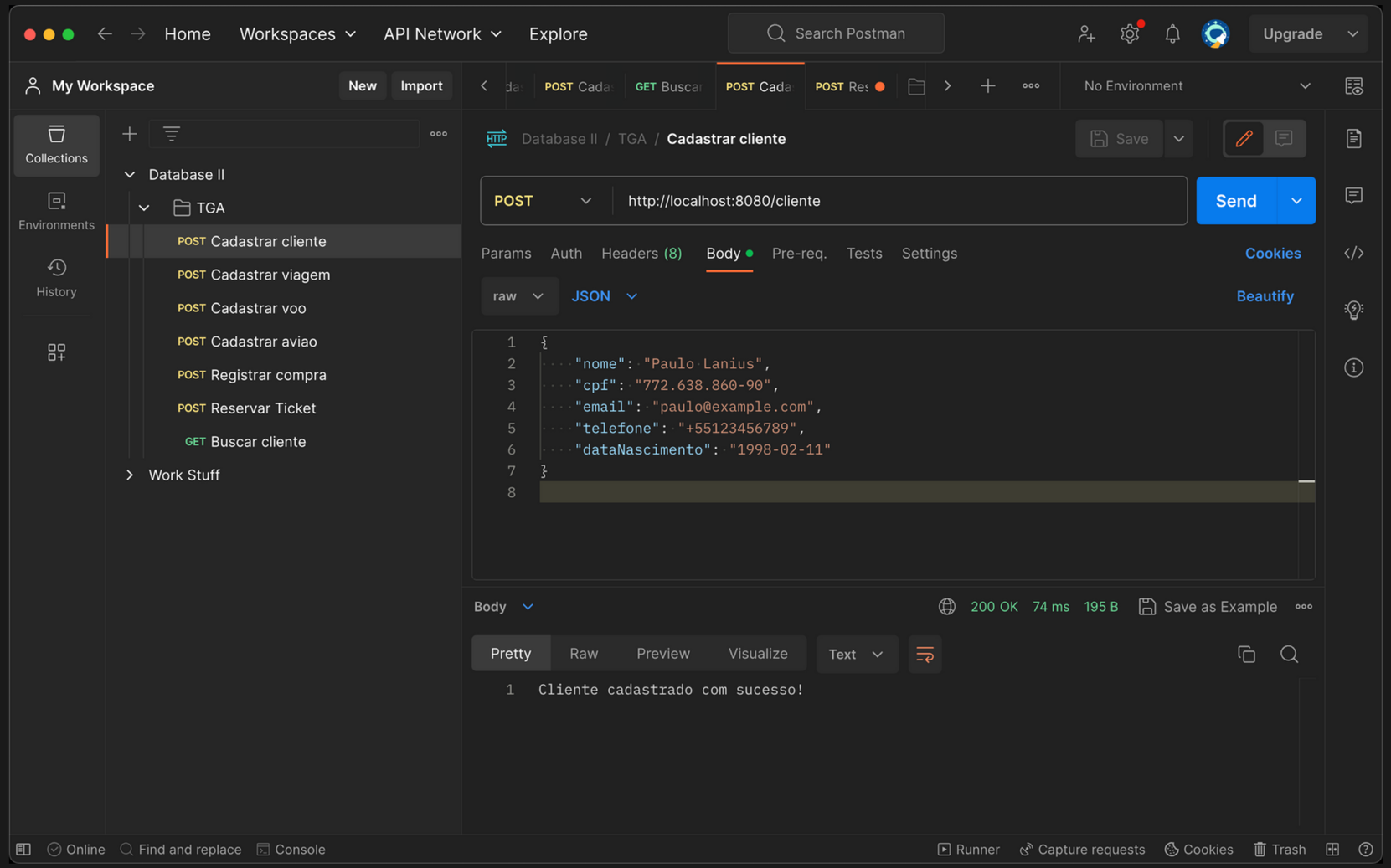


IMPLEMENTAÇÃO

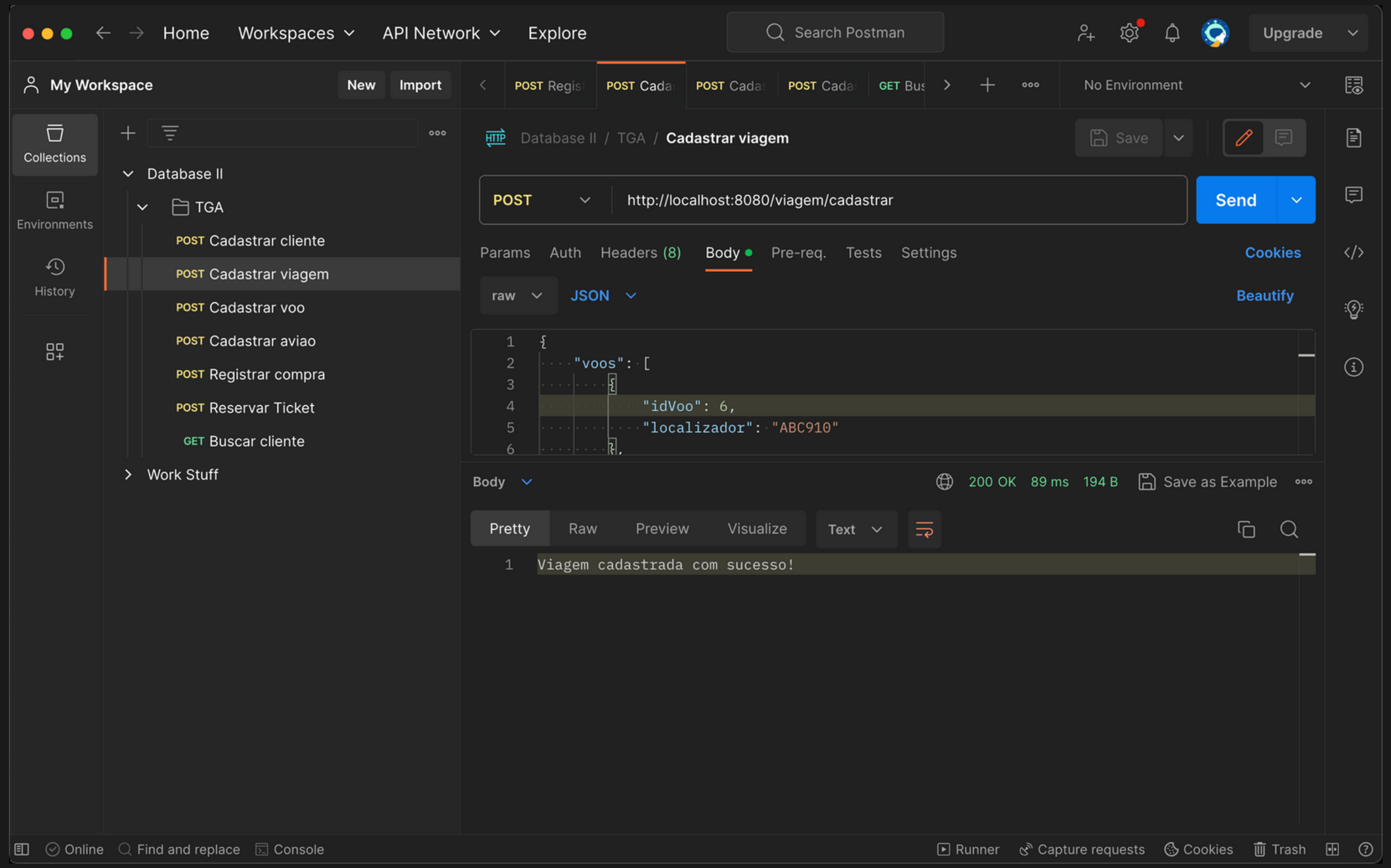




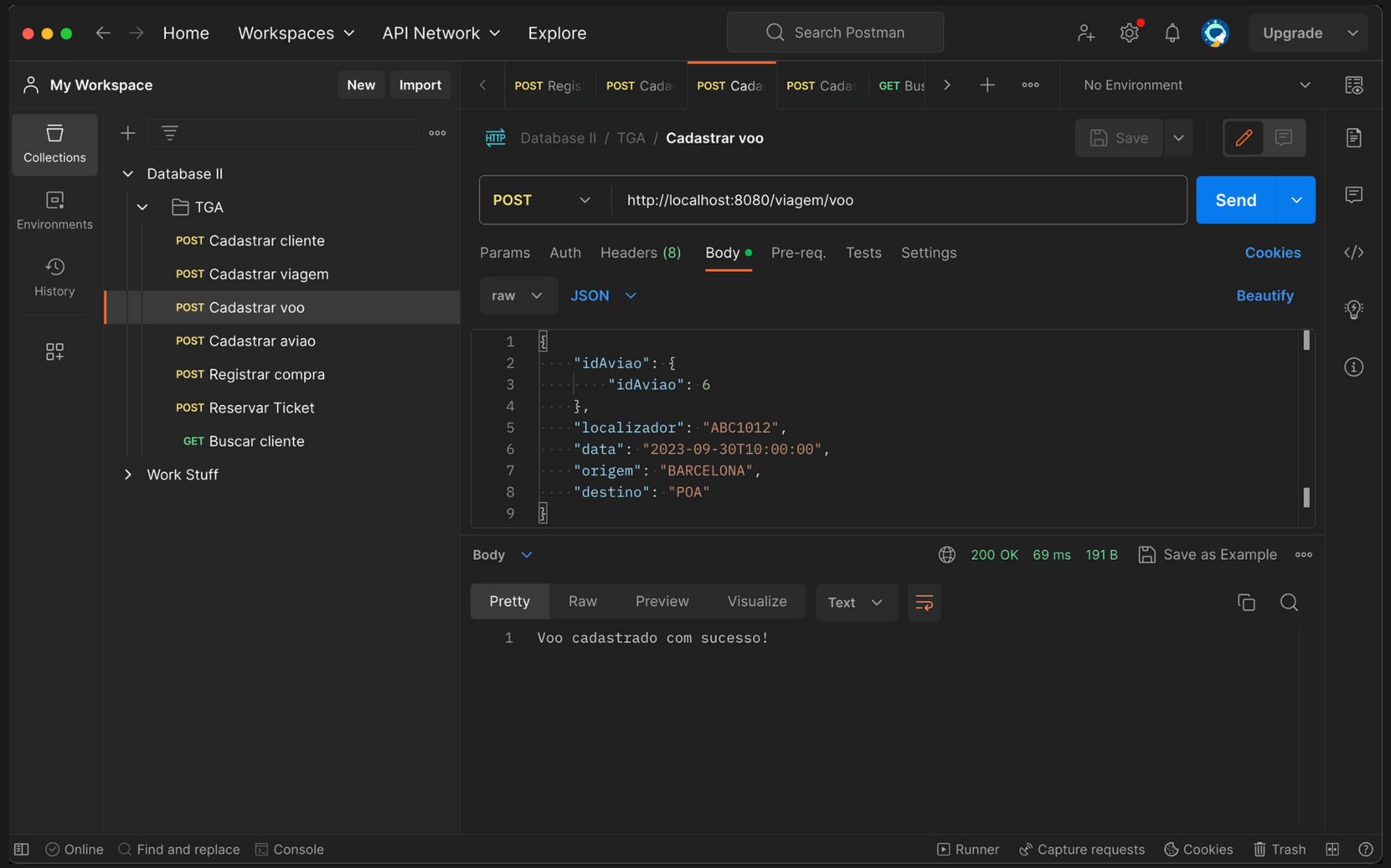
ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Cadastrar cliente
Save
POST
http://localhost:8080/cliente
Send
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
raw
JSON
Beautify
{
"nome": "Paulo Lanius",
"cpf": "772.638.860-90",
"email": "paulo@example.com",
"telefone": "+55123456789",
"dataNascimento": "1998-02-11"
}
Body
200 OK
74 ms
195 B
Save as Example
Pretty
Raw
Preview
Visualize
Text
Cliente cadastrado com sucesso!
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

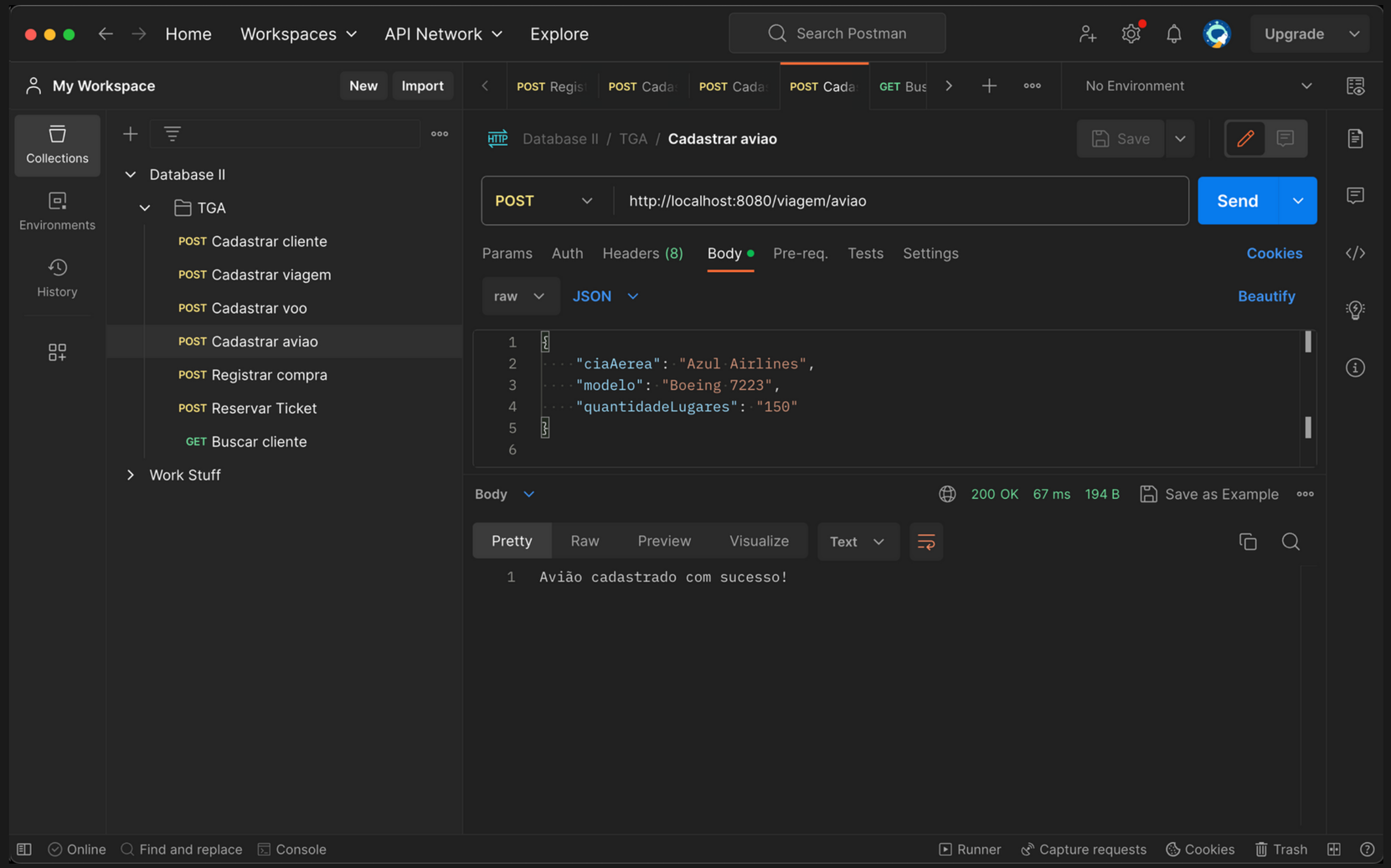
ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Cadastrar viagem
Save
POST
http://localhost:8080/viagem/cadastrar
Send
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
raw
JSON
Beautify
{
"voos": [
{
"idVoo": 6,
"localizador": "ABC910"
},
Body
200 OK
89 ms
194 B
Save as Example
Pretty
Raw
Preview
Visualize
Text
Viagem cadastrada com sucesso!
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

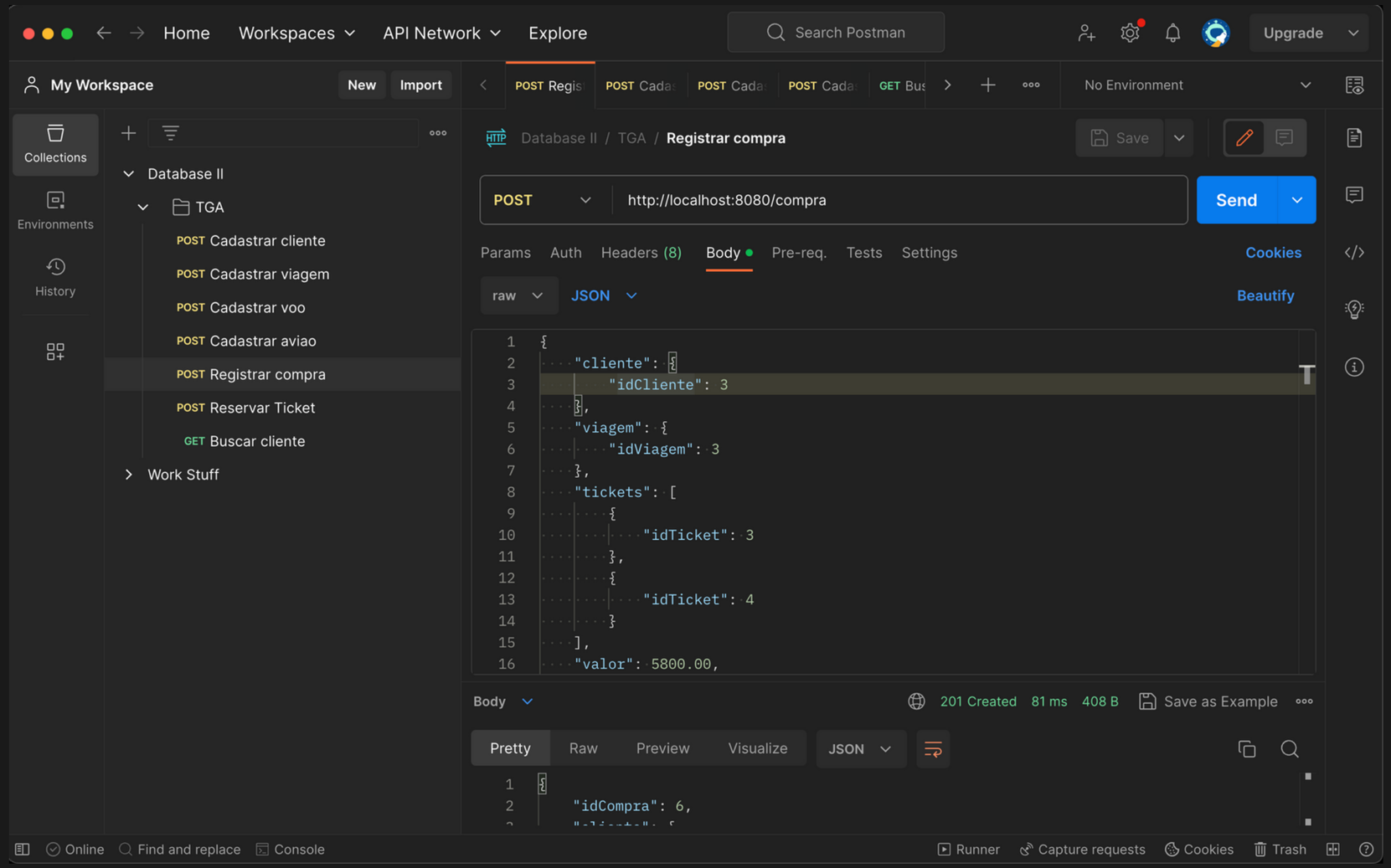
ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Cadastrar voo
Save
POST
http://localhost:8080/viagem/voo
Send
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
raw
JSON
Beautify
{
"idAviao": {
"idAviao": 6
},
"localizador": "ABC1012",
"data": "2023-09-30T10:00:00",
"origem": "BARCELONA",
"destino": "POA"
}
Body
200 OK
69 ms
191 B
Save as Example
Pretty
Raw
Preview
Visualize
Text
Voo cadastrado com sucesso!
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

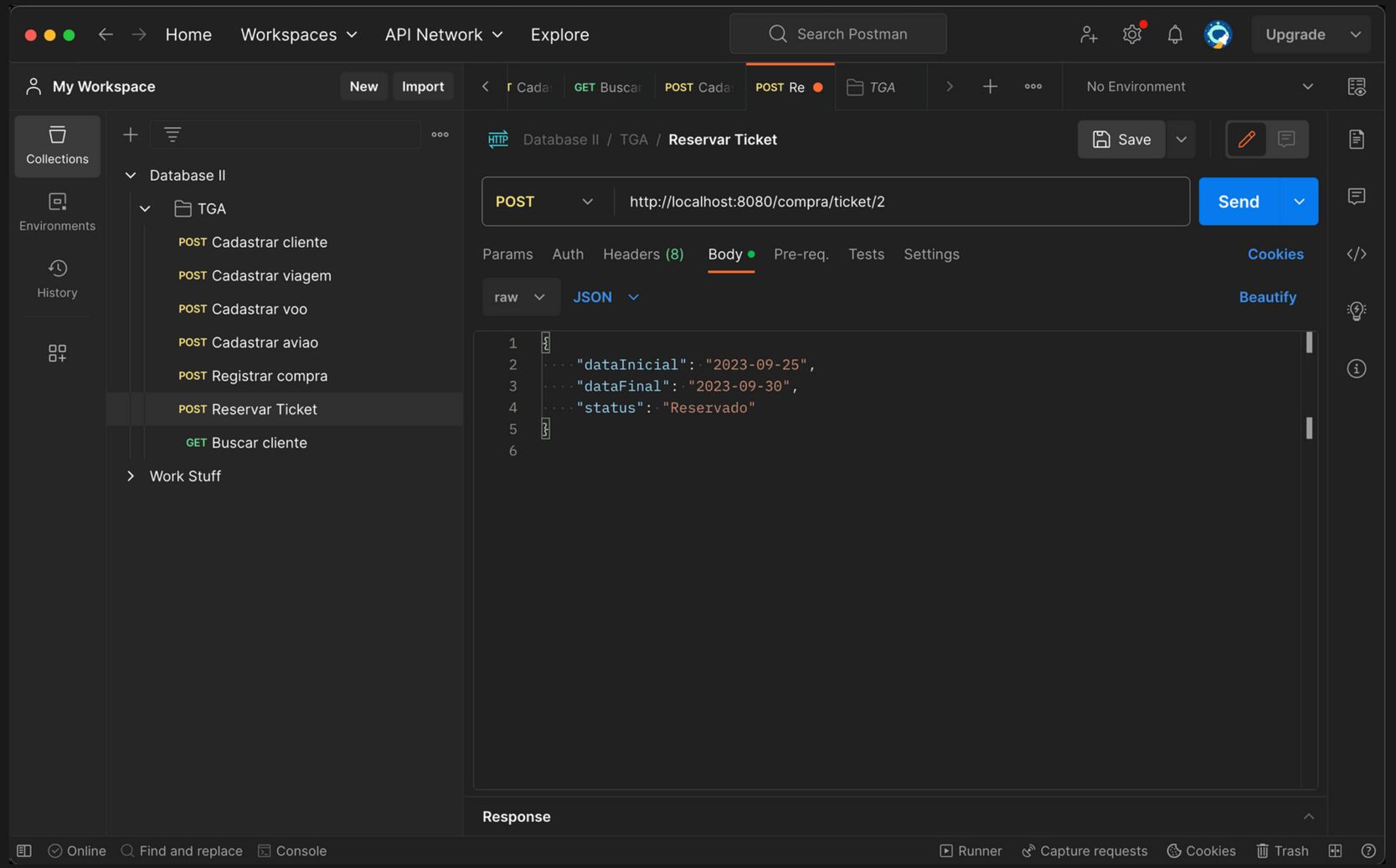
ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Cadastrar aviao
Save
POST
http://localhost:8080/viagem/aviao
Send
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
raw
JSON
Beautify
{
"ciaAerea": "Azul Airlines",
"modelo": "Boeing 7223",
"quantidadeLugares": "150"
}
Body
200 OK
67 ms
194 B
Save as Example
Pretty
Raw
Preview
Visualize
Text
Avião cadastrado com sucesso!
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

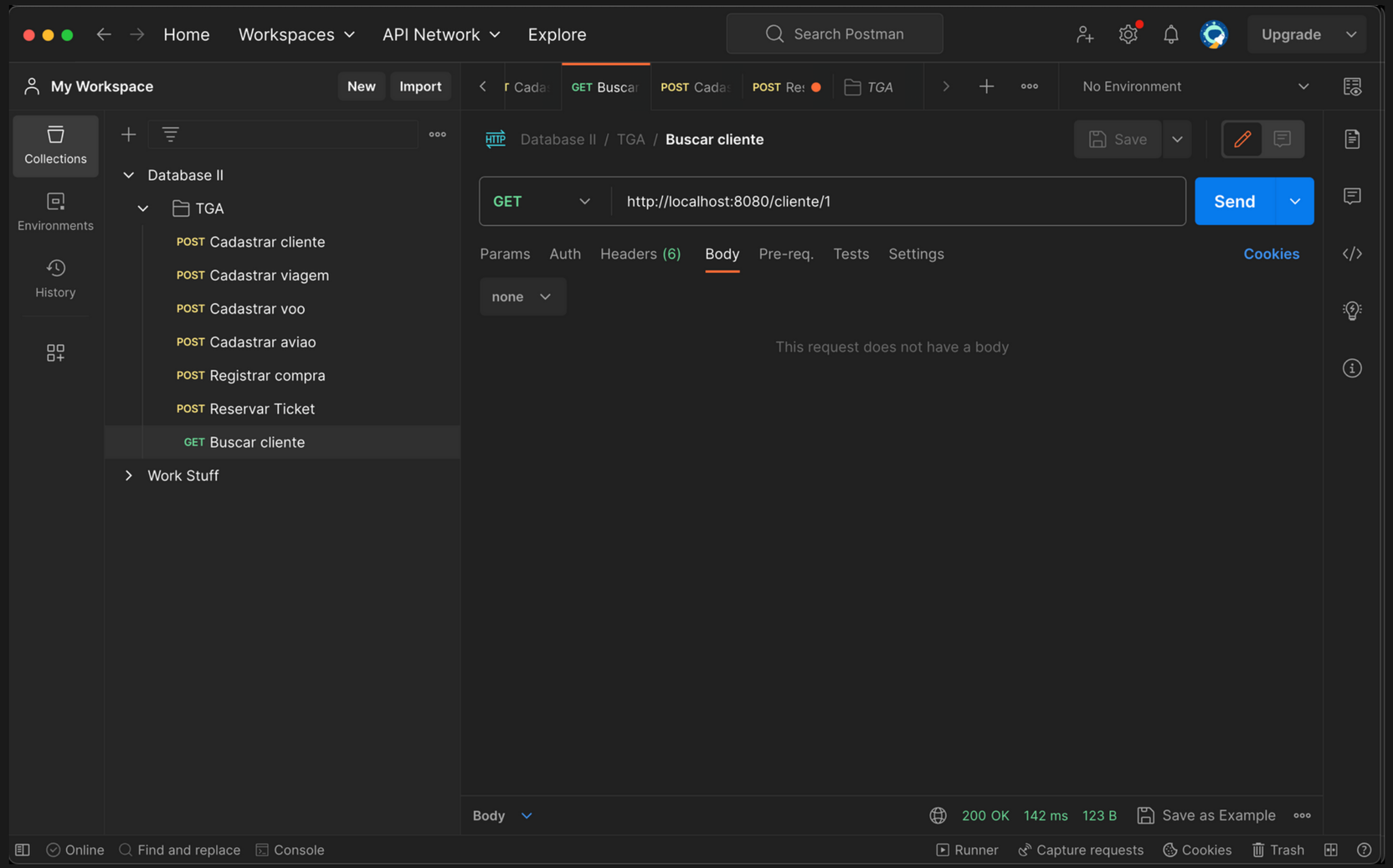
ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Registrar compra
Save
POST
http://localhost:8080/compra
Send
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
raw
JSON
Beautify
{
"cliente": {
"idCliente": 3
},
"viagem": {
"idViagem": 3
},
"tickets": [
{
"idTicket": 3
},
{
"idTicket": 4
}
],
"valor": 5800.00,
Body
201 Created
81 ms
408 B
Save as Example
Pretty
Raw
Preview
Visualize
JSON
{
"idCompra": 6,
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

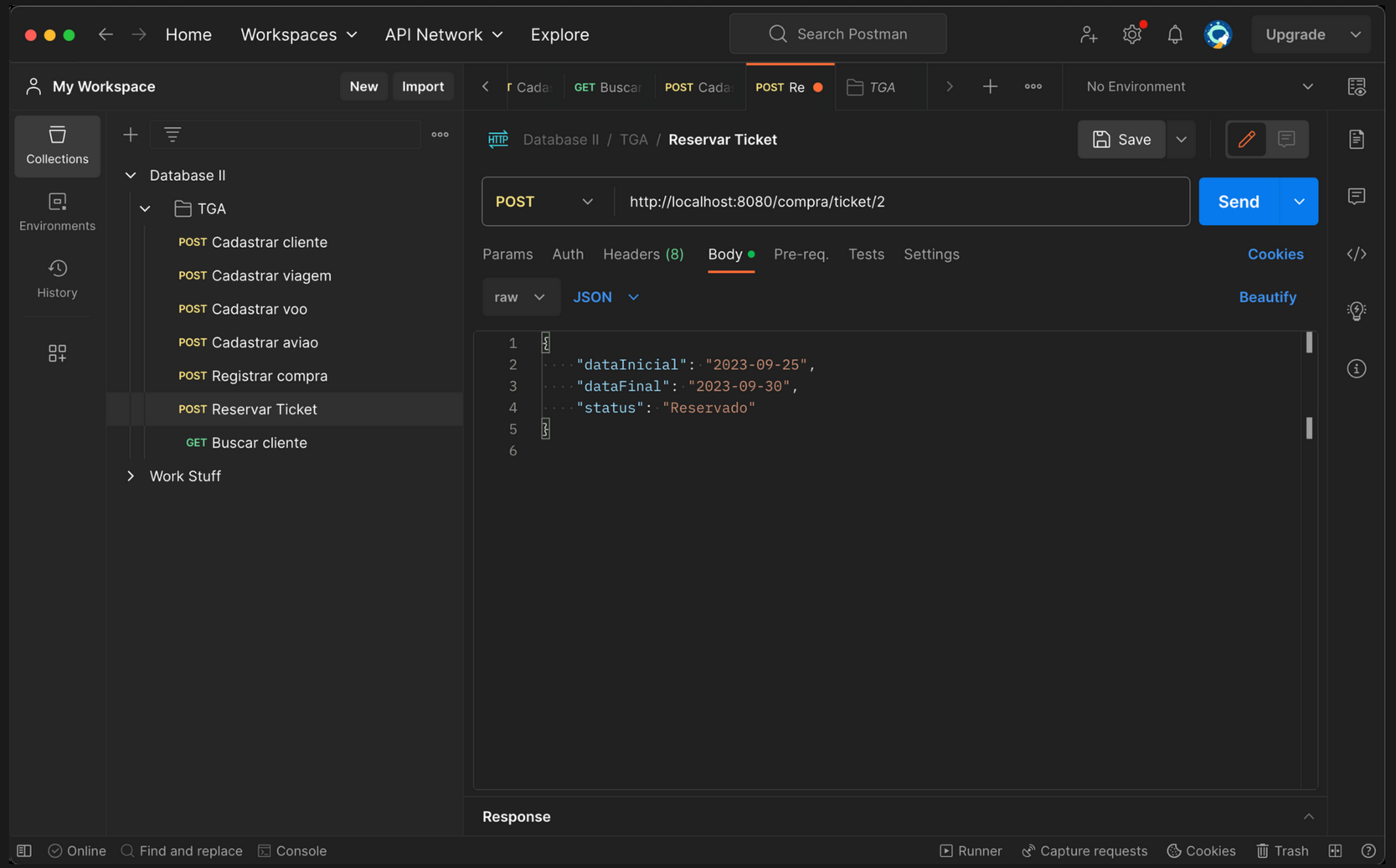
ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Reservar Ticket
Save
POST
http://localhost:8080/compra/ticket/2
Send
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
raw
JSON
Beautify
{
"dataInicial": "2023-09-25",
"dataFinal": "2023-09-30",
"status": "Reservado"
}
Response
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
GET Buscar
POST Cadas
POST Re
TGA
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Buscar cliente
Save
GET
http://localhost:8080/cliente/1
Send
Params
Auth
Headers (6)
Body
Pre-req.
Tests
Settings
Cookies
none
This request does not have a body
Body
200 OK
142 ms
123 B
Save as Example
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

ENDPOINTS


Home
Workspaces
API Network
Explore
Search Postman
Upgrade
My Workspace
New
Import
No Environment
Collections
Environments
History
Database II
TGA
POST Cadastrar cliente
POST Cadastrar viagem
POST Cadastrar voo
POST Cadastrar aviao
POST Registrar compra
POST Reservar Ticket
GET Buscar cliente
Work Stuff
Database II / TGA / Reservar Ticket
Save
POST
http://localhost:8080/compra/ticket/2
Send
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
raw
JSON
Beautify
{
"dataInicial": "2023-09-25",
"dataFinal": "2023-09-30",
"status": "Reservado"
}
Response
Online
Find and replace
Console
Runner
Capture requests
Cookies
Trash

SCHEMAS

CLIENTE

```
10 •  SELECT * FROM ARCHIVE.cliente;
11 •
```

100% 1:15

Result Grid | Filter Rows: Search | Edit: | Export/Import:

id_cliente	cpf	data_nascimento	email	nome	telefone
1	299.432.990-53	1999-06-22	jennifer@example.com	Jennifer Diehl	+55123456789
2	467.105.810-39	1999-05-14	matheus@example.com	Matheus Moraes Porto	+55123456789
3	772.638.860-90	1998-02-10	paulo@example.com	Paulo Lanius	+55123456789

COMPRA

```
11 •  SELECT * FROM ARCHIVE.compra;
12 •
```

1:14

Result Grid | Filter Rows: Search

id_compra	data_compra	valor	id_cliente	id_viagem
3	2023-09-17	6000.00	1	1
4	2023-09-17	7000.00	2	2
5	2023-09-17	7000.00	2	2
6	2023-09-17	5800.00	3	3

TICKET

```
12 •  SELECT * FROM ARCHIVE.ticket;
13 •
```

1:9

Result Grid | Filter Rows: Search

id_ticket	id_compra
1	3
2	4
3	5
4	6

RESERVA

```
13 •  SELECT * FROM ARCHIVE.reserva;
14
```

100% 1:9

Result Grid | Filter Rows: Search

id_ticket	data_final	data_inicial	status
4	2023-09-29	2023-09-24	Reservado

SCHEMAS

AVIÃO

```
4 •  SELECT * FROM ARCHIVE.aviao;
5 •
```

100% 1:3

Result Grid | Filter Rows: Search | Edit:

id_aviao	cia_aerea	modelo	quantidade_lugares
1	Copa Airlines	Boeing 737	150
2	Copa Airlines	Boeing 768	150
3	American Airlines	Boeing 498	150
4	GOL Airlines	Boeing 733	150
5	Azul Airlines	Boeing 7323	150
6	Azul Airlines	Boeing 7223	150

VOO

```
9 •  SELECT * FROM ARCHIVE.voo;
10 •
```

100% 30:5

Result Grid | Filter Rows: Search | Edit: | Export/Import:

id_voo	data	destino	localizador	origem	id_aviao
1	2023-09-18 07:00:00.000000	CANADA	ABC123	POA	1
2	2023-09-25 07:00:00.000000	POA	ABC456	CANADA	2
4	2023-09-25 07:00:00.000000	PARIS	ABC678	POA	4
5	2023-09-30 07:00:00.000000	POA	ABC789	PARIS	4
6	2023-09-30 07:00:00.000000	BARCELONA	ABC1011	POA	5
7	2023-09-30 07:00:00.000000	POA	ABC1012	BARCELONA	6

VIAGEM

```
7 •  SELECT * FROM ARCHIVE.viagem;
8 •
```

100% 1:6

Result Grid | Filter Rows: Search

id_viagem	destino	origem
1	CANADA-POA	POA-CANADA
2	PARIS-POA	POA-PARIS
3	BARCELONA-POA	POA-BARCELONA

VIAGEM_VOO

```
7 •  SELECT * FROM ARCHIVE.viagem_voo;
8 •
```

100% 1:8

Result Grid | Filter Rows: Search | Ex

viagem_id	voo_id
1	1
1	2
2	4
2	5
3	6
3	7

CONSULTAS

CLIENTES E SUAS RESPECTIVAS COMPRAS

```
16    -- CUSTOMER/PURCHASE CONSULT
17 •  SELECT  c.*, co.id_compra, co.valor AS valorCompra, co.data_compra, t.id_ticket
18    FROM ARCHIVE.cliente c
19    LEFT JOIN  ARCHIVE.compra co ON c.id_cliente = co.id_cliente
20    LEFT JOIN ARCHIVE.ticket t ON co.id_compra = t.id_compra;
21
```

100% 1:28

Result Grid Filter Rows: Search Export:

id_cliente	cpf	data_nascimento	email	nome	telefone	id_compra	valorCompra	data_compra	id_ticket
1	299.432.990-53	1999-06-22	jennifer@example.com	Jennifer Diehl	+55123456789	3	6000.00	2023-09-17	1
2	467.105.810-39	1999-05-14	matheus@example.com	Matheus Moraes Porto	+55123456789	5	7000.00	2023-09-17	3
2	467.105.810-39	1999-05-14	matheus@example.com	Matheus Moraes Porto	+55123456789	4	7000.00	2023-09-17	2
3	772.638.860-90	1998-02-10	paulo@example.com	Paulo Lanius	+55123456789	6	5800.00	2023-09-17	4

CLIENTE ESPECÍFICO E SUAS COMPRAS

```
22    -- SPECIFIC CUSTOMER/PURCHASE CONSULT
23 •  SELECT  c.*, co.id_compra, co.valor AS valorCompra, co.data_compra, t.id_ticket
24    FROM ARCHIVE.cliente c
25    LEFT JOIN  ARCHIVE.compra co ON c.id_cliente = co.id_cliente
26    LEFT JOIN ARCHIVE.ticket t ON co.id_compra = t.id_compra
27    WHERE c.nome = 'Jennifer Diehl';
28
```

100% 1:21

Result Grid Filter Rows: Search Export:

id_cliente	cpf	data_nascimento	email	nome	telefone	id_compra	valorCompra	data_compra	id_ticket
1	299.432.990-53	1999-06-22	jennifer@example.com	Jennifer Diehl	+55123456789	3	6000.00	2023-09-17	1

CONSULTAS

CLIENTE COM TICKET RESERVADO

```
30 •  SELECT t.*, cl.nome, cl.cpf
31    FROM ARCHIVE.ticket t
32    INNER JOIN ARCHIVE.reserva r ON t.id_ticket = r.id_ticket
33    INNER JOIN ARCHIVE.compra c ON t.id_compra = c.id_compra
34    INNER JOIN ARCHIVE.cliente cl ON c.id_cliente = cl.id_cliente
35    WHERE cl.nome = 'Paulo Lanius' AND r.status = 'Reservado';
36
```

00% 33:27

Result Grid | Filter Rows: Search | Export:

id_ticket	id_compra	nome	cpf
4	6	Paulo Lanius	772.638.860-90

QUANTIDADE DE COMPRAS DE UM CLIENTE

```
38 •  SELECT COUNT(*) AS total_compras, c.nome
39    FROM ARCHIVE.cliente c
      INNER JOIN ARCHIVE.compra co ON c.id_cliente = co.id_cliente
      WHERE c.nome = 'Matheus Moraes Porto';
```

00% 59:35

Result Grid | Filter Rows: Search | Export:

total_compras	nome
2	Matheus Moraes Porto

VOOS PARA UMA VIAGEM DE POA-PARIS

```
44 •  SELECT v.*
45    FROM ARCHIVE.viagem_voo vv
46    JOIN ARCHIVE.viagem vi ON vv.viagem_id = vi.id_viagem
47    JOIN ARCHIVE.voo v ON vv.voo_id = v.id_voo
48    WHERE vi.origem = 'POA-PARIS' AND vi.destino = 'PARIS-POA';
49
```

100% 23:39

Result Grid | Filter Rows: Search | Export:

id_voo	data	destino	localizador	origem	id_aviao
4	2023-09-25 07:00:00.000000	PARIS	ABC678	POA	4
5	2023-09-30 07:00:00.000000	POA	ABC789	PARIS	4

OBRIGADO!

https://github.com/jenniferdiehll/travel-agency-dbms