

UNIVERSITATEA „ALEXANDRU IOAN CUZA” DIN IAȘI
FACULTATEA DE ECONOMIE ȘI ADMINISTRAREA AFACERILOR
SPECIALIZAREA SISTEME INFORMAȚIONALE PENTRU AFACERI
DISCIPLINA SISTEME DE INTEGRARE INFORMAȚIONALĂ

Arhitectura serviciilor de date integrate

Tema: Platformă pentru analiza pieței imobiliare

Indicativ echipă: SIA_10

Studenți: Diaconu Claudia, Achițeni Geanina-Ionela
Grupa 1, anul 2

Arhitectura proiectului:

Pentru o analiză integrată a datelor din piața imobiliară, proiectul nostru prezintă o arhitectură modulară, prin intermediul căreia diverse surse de date (SQL, NoSQL, XML etc.) sunt procesate de microservicii specializate create prin intermediul framework-ului Spring Boot și trimise către un motor analitic – SparkSQL.

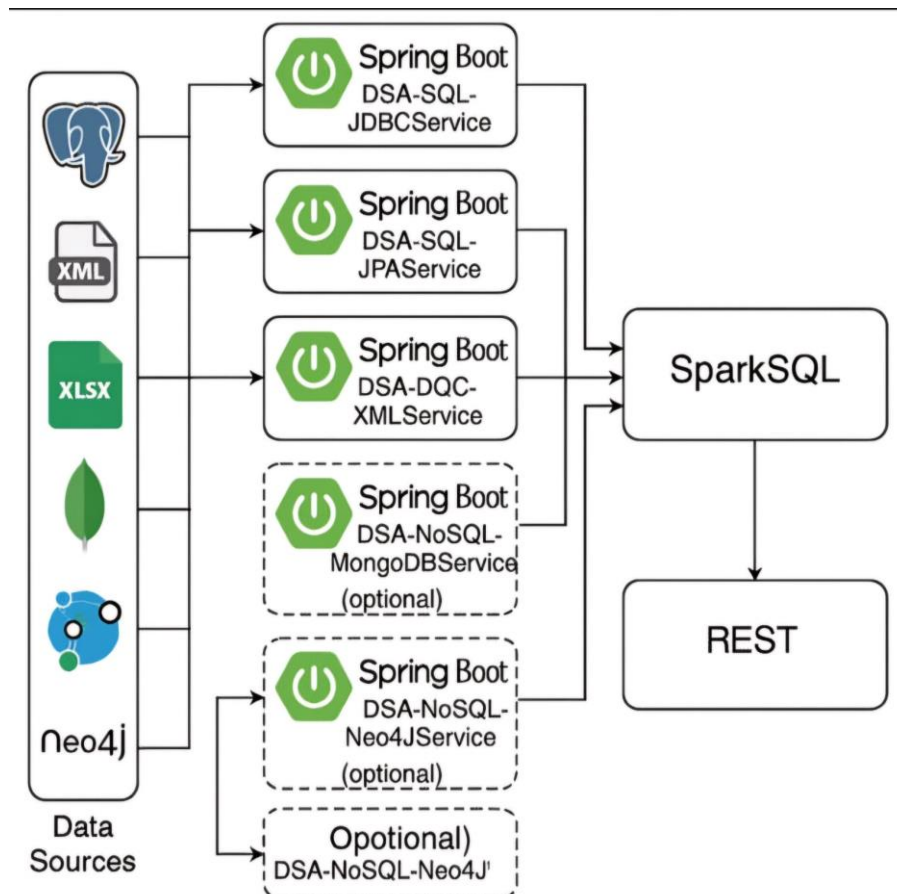


Figura nr. 1 Arhitectura unei platforme de integrare a datelor

După cum se poate observa și în Figura nr. 1, fiecărei surse de date îi este repartizat un microserviciu care se ocupă de extragerea, prelucrarea și trimiterea datelor analizate către SparkSQL. Astfel, avem:

- DSA-SQL-JDBCService – facilitează conectarea SQL cu JDBC la PostgreSQL
- DSA-SQL-JPIService – facilitează accesul la PostgreSQL prin JPA/Hibernate (ORM)
- DSA-DQC-XMLService – se ocupă de prelucrarea fișierelor XML și integrarea lor
- DSA-NoSQL-MongoService – face posibilă conectarea la baza de date MongoDB
- DSA-NoSQL-Neo4JService – facilitează conectarea și interacțiunea cu o bază de date grafică Neo4J

Toate aceste microservicii trimit datele prelucrate către SparkSQL care integrează datele, normalizează structurile și permite rularea interogărilor SQL. Rezultatele analizei realizate cu ajutorul SparkSQL sunt expuse cu ajutorul API-ului REST, care permite aplicațiilor client să aibă acces la date, centralizează accesul la datele provenite din surse eterogene și suportă endpoint-uri REST parametrizabile care permit execuția de interogări.

Microservicii:

Proiectul nostru este structurat în opt microservicii, după cum urmează:

1. DSA-DOC-CSVService

Acesta este responsabil pentru citirea și expunerea datelor din fișiere CSV într-un format accesibil aplicațiilor client, folosind o interfață REST. Pachetul principal *org.datasource.csv.custcategories* conține:

- *BudgetCategoryView*
- *BudgetCategoryViewBuilder*: componentă logică pentru construirea listei de *BudgetCategoryView* din fișierul CSV
- *RESTViewServiceCSV* – clasa REST controller, responsabilă cu expunerea datelor prin HTTP.
- *SpringBootDOCCSVService* – clasa principală care pornește aplicația Spring Boot.

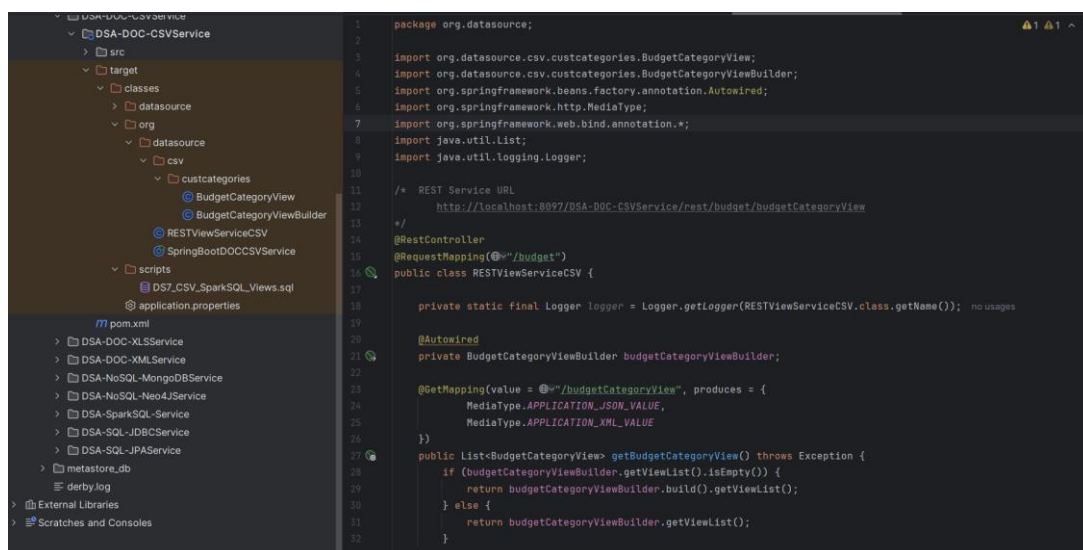


Figura nr. 2 Structură DSA-DOC-CSVService

Clasa *RESTViewServiceCSV* conține o serie de funcționalități, adnotări și metode, precum:

- *@RestController*: această clasă oferă un endpoint REST.
- *@RequestMapping("/budget")*: toate rutele definite în clasă vor avea ca prefix /budget.
- *@Autowired BudgetCategoryViewBuilder*: injectează automat componenta care construiește datele de tip *BudgetCategoryView* din sursa CSV.
- Metoda *getBudgetCategoryView()* verifică dacă lista de vizualizare a fost deja generată (*getViewList().isEmpty()*), dacă nu sunt date încărcate atunci va apela *builder.build()* pentru a le crea din CSV și va returna o listă finală de obiecte *BudgetCategoryView*

În Postman ne sunt aratate datele în format json.

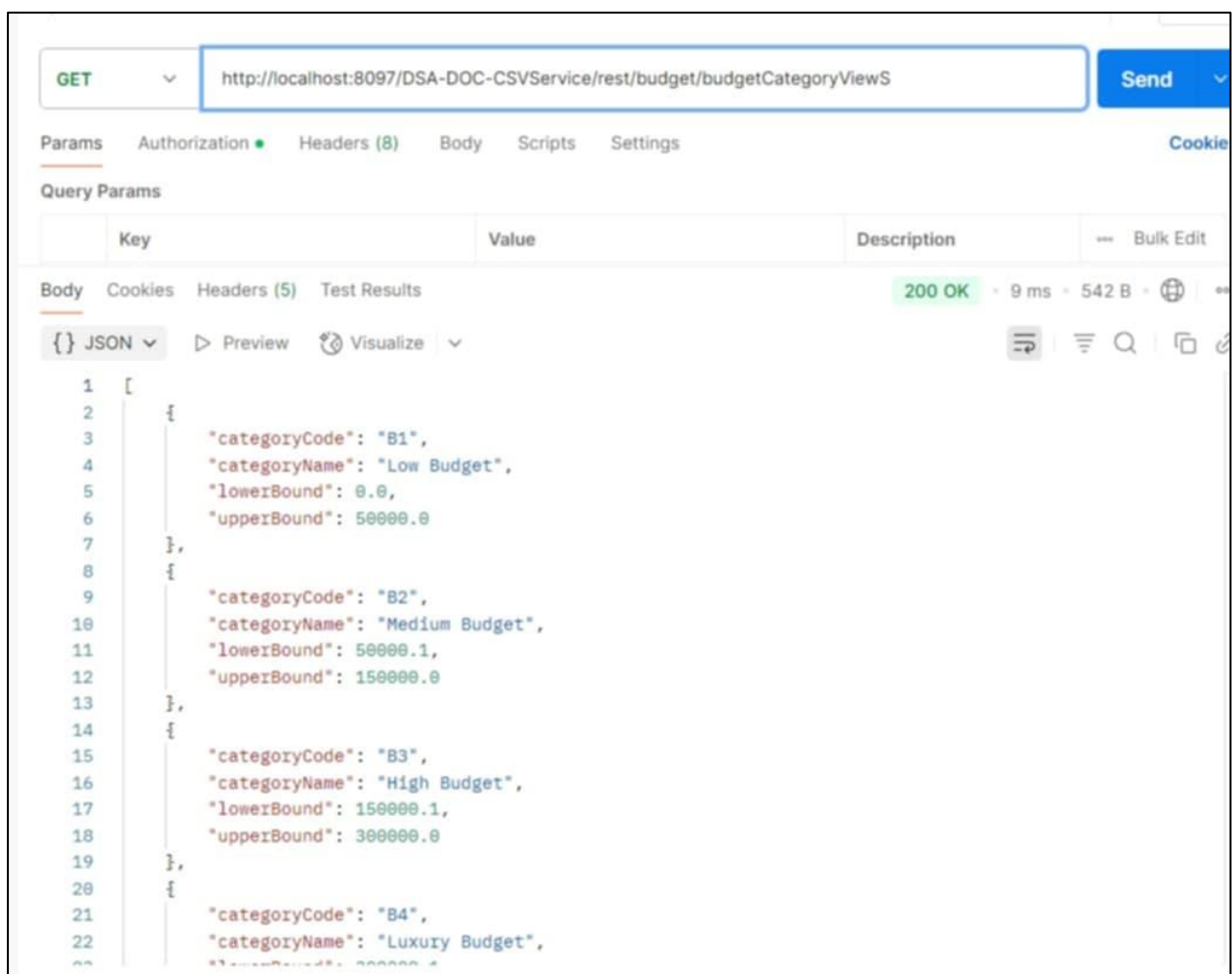


Figura nr. 3 Date în Postman în format json

2. DSA-DOC-XLSService

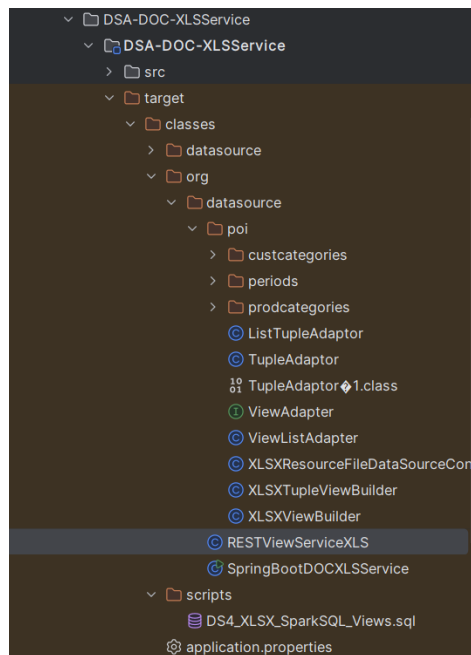


Figura nr. 4 Structură DSA-DOC-XLSService

Clasele principale ale acestui microserviciu sunt:

- *RESTViewServiceXLS*: expune datele procesate printr-un serviciu REST
- *XLSXViewBuilder* și *XLSXTupleViewBuilder*: conțin logica de prelucrare și transformare a datelor citite din Excel într-un model de date consumabil (DTO-uri).
- *XLSXResourceFileDataSourceConnector*: gestionează conectarea și accesul la fișierele Excel
- *TupleAdaptor*, *ListTupleAdaptor*, *ViewAdapter*, *ViewListAdapter*

RESTViewServiceXLS.java este controllerul principal care:

- Expune date în format JSON/XML
- Folosește clase *ViewBuilder* pentru a construi view-uri din Excel
- Returnează liste de obiecte pe diverse categorii (ex: Customer, Product, Time)

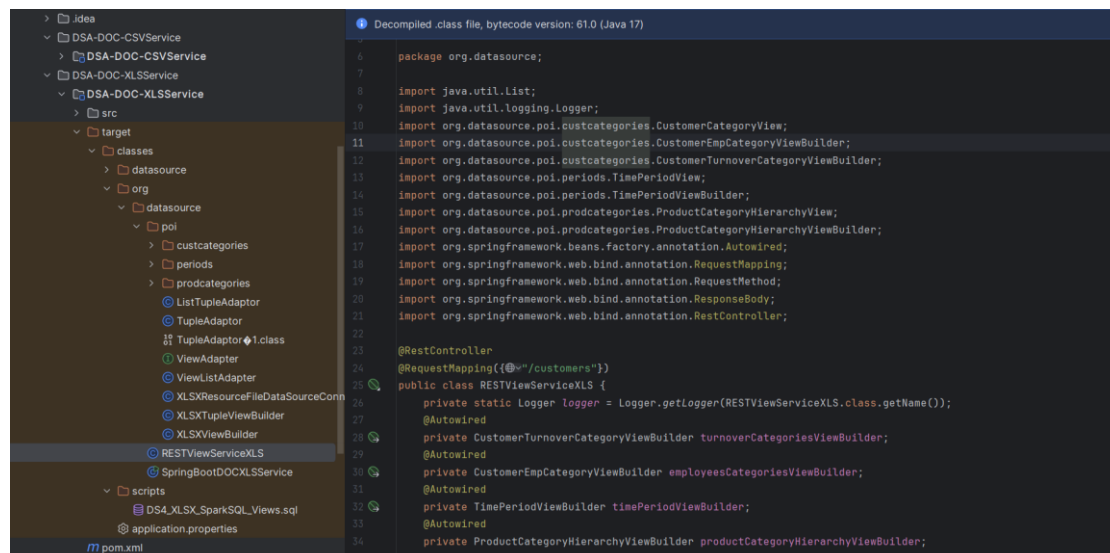


Figura nr.5.1 Clasa `RESTViewServiceXLS.java`

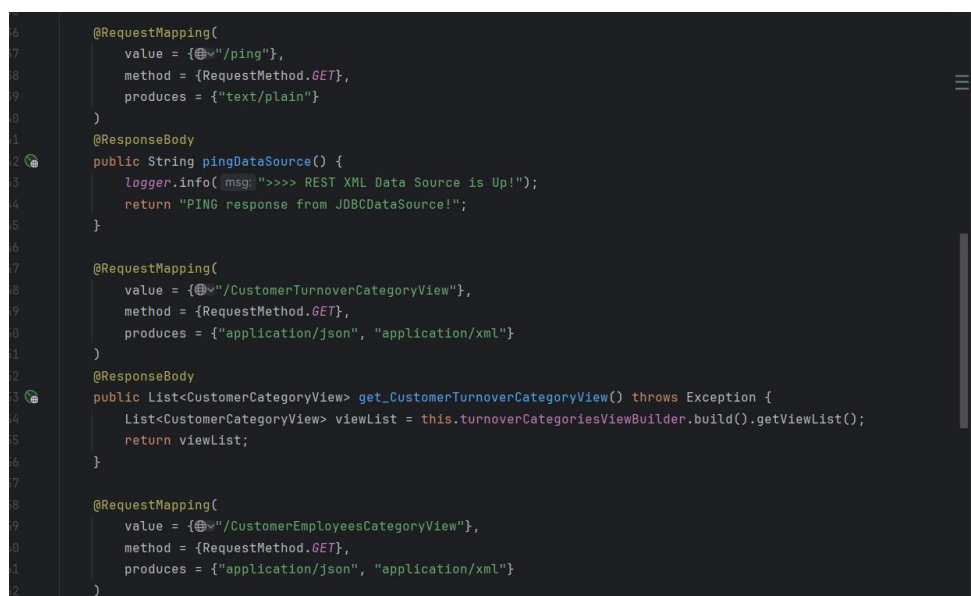


Figura nr. 5.2 Clasa `RESTViewServiceXLS.java`

```

3      @ResponseBody
4      public List<CustomerCategoryView> get_CustomerEmployeesCategoryView() throws Exception {
5          List<CustomerCategoryView> viewList = this.employeesCategoriesViewBuilder.build().getViewList();
6          return viewList;
7      }
8
9      @RequestMapping(
10         value = {"@v"/TimePeriodView"},
11         method = {RequestMethod.GET},
12         produces = {"application/json", "application/xml"}
13     )
14     @ResponseBody
15     public List<TimePeriodView> get_TimePeriodView() throws Exception {
16         List<TimePeriodView> viewList = this.timePeriodViewBuilder.build().getViewList();
17         return viewList;
18     }
19
20     @RequestMapping(
21         value = {"@v"/ProductCategoryHierarchyView"},
22         method = {RequestMethod.GET},
23         produces = {"application/json", "application/xml"}
24     )
25     @ResponseBody
26     public List<ProductCategoryHierarchyView> get_ProductCategoryHierarchyView() throws Exception {
27         System.out.println("RESTViewServiceXLS::get_CustomerCategoryHierarchyView()");
28         List<ProductCategoryHierarchyView> viewList = this.productCategoryHierarchyViewBuilder.build().getViewList();
29         return viewList;
30     }
31 }

```

Figura nr.5.3 Clasa RESTViewServiceXLS.java

3. DSA-DOC-XMLService

Microserviciul *DSA-DOC-XMLService* are rolul de a integra date dintr-un fișier XML și de a le expune printr-un API REST. Componentele acestuia sunt:

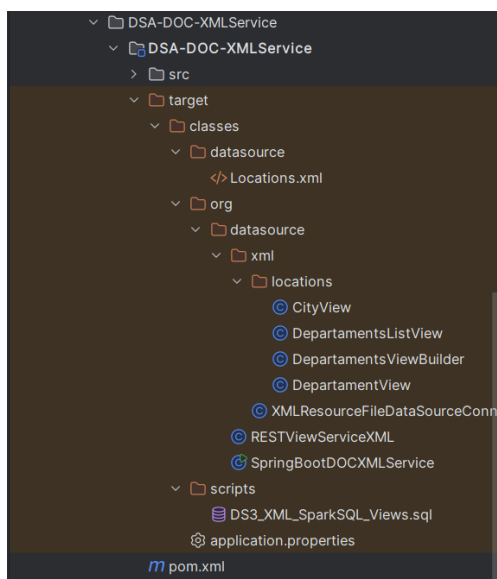


Figura nr. 6 Structură DSA-DOC-XMLService

Dintre acestea se disting:

- *SpringBootDOCXMLService.java*: clasa principală care pornește aplicația Spring Boot
- *RESTViewServiceXML.java*: controller REST care gestionează cererile HTTP și expune endpoint-urile (de tip ping și care returnează date despre locații)

- *XMLResourceFileDataSourceConnector.java*: Conector care citește fișierul XML din resurse și îl transformă într-un DataFrame Spark.
- *DepartamentsViewBuilder.java*: clasă care construiește view-uri pe baza XML-ului

4. DSA-NoSQL-MongoDBService

Microserviciul *DSA-NoSQL-MongoDBService* are următoarea structură:

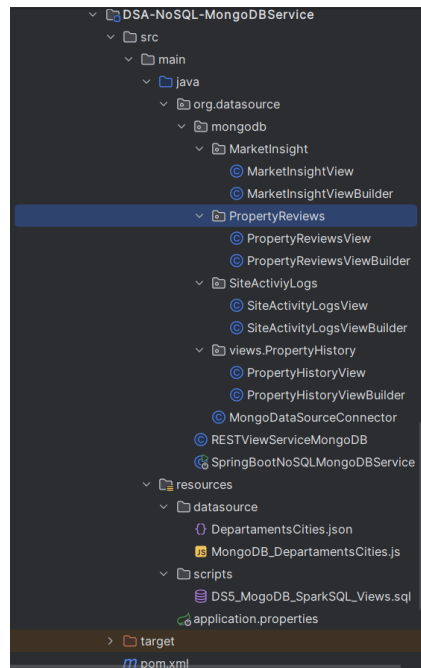


Figura nr. 7 Structură *DSA-NoSQL-MongoDBService*

Componentele esențiale:

- *SpringBootNoSQLMongoDBService.java*: pornește aplicația Spring Boot
- *MongoDataSourceConnector.java*: realizează conexiunea cu baza de date MongoDB folosind *MongoClient*
- *RESTViewServiceMongoDB.java*: controller REST care definește endpoint-urile pentru obținerea datelor
- Clase View + ViewBuilder:
 - *PropertyHistoryView*, *PropertyHistoryViewBuilder*
 - *SiteActivityLogsView*, *SiteActivityLogsViewBuilder*
 - *MarketInsightView*, *MarketInsightViewBuilder*
 - *PropertyReviewsView*, *PropertyReviewsViewBuilder*

Funcționalitatea REST:

- *GET /PropertyHistoryView* – returnează istoricul proprietăților
- *GET /SiteActivityLogsView* – returnează log-uri de activitate pe site
- *GET /MarketInsightView* – oferă statistici de piață
- *GET /PropertyReviewsView* – returnează recenziile despre proprietăți

Conexiunea prin portul 8093 la MongoDB:

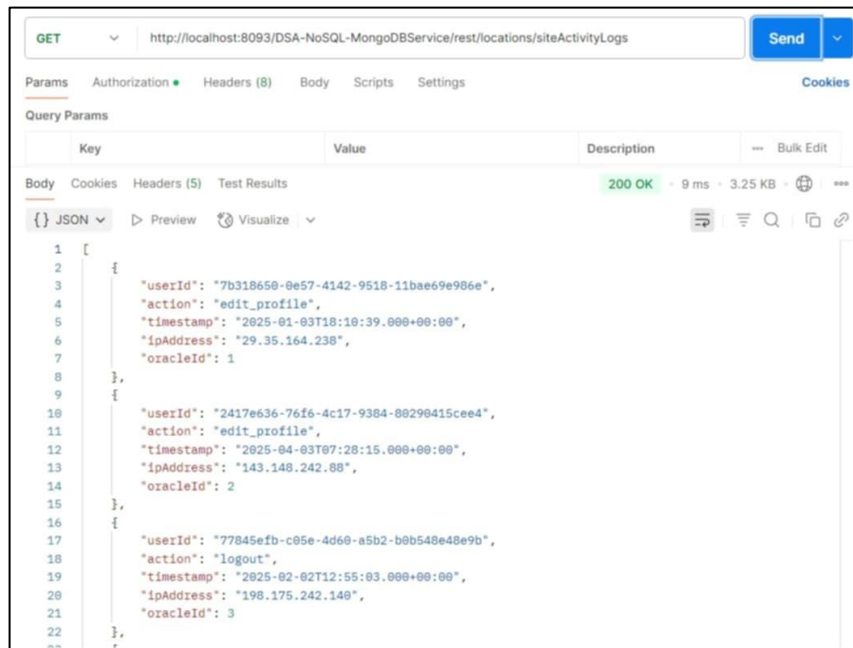
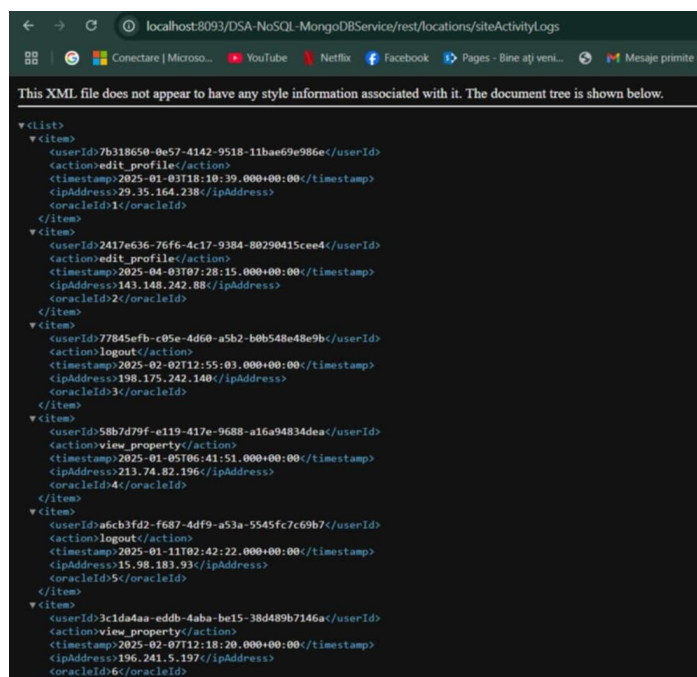
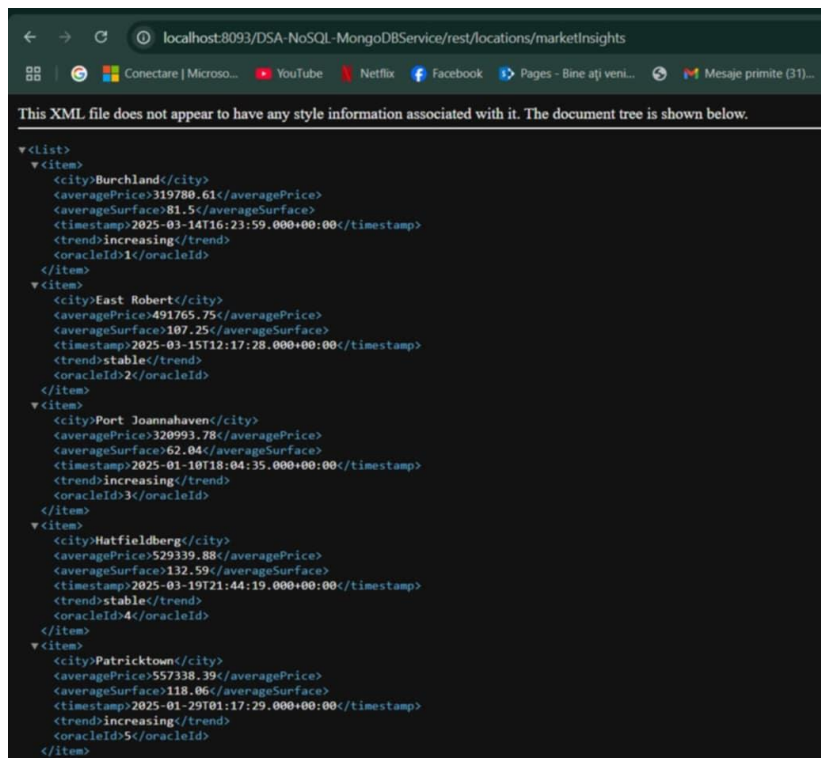
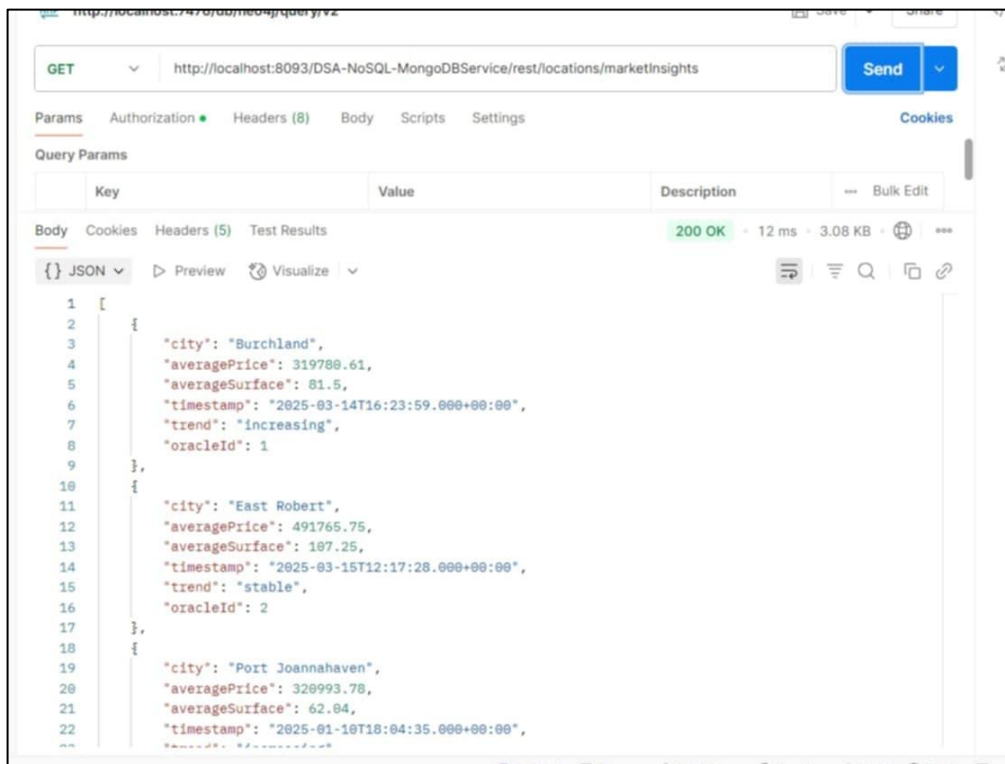


Figura nr. 8 Date în Postman în format json





GET Send

Params Authorization Headers (8) Body Scripts Settings Cookies

Query Params

Key	Value	Description	Bulk Edit
-----	-------	-------------	-----------

Body Cookies Headers (5) Test Results 200 OK 18 ms 4.44 KB 🌐 ⋮

{} JSON Preview Visualize 🔍 📄 🔗

```

1  [
2    {
3      "propertyId": "0d8e7cac-6b57-4c7c-88be-759110cd672c",
4      "reviewDate": "2025-04-19T21:00:00.000+00:00",
5      "rating": 2,
6      "reviewer": "Charlene Rivera",
7      "comment": "Would fall bed Republican own middle total beautiful program especially the box.",
8      "oracleId": 1
9    },
10   {
11     "propertyId": "f7232dd6-f8bd-45f9-b6bc-84eba49da0f9",
12     "reviewDate": "2025-01-01T22:00:00.000+00:00",
13     "rating": 1,
14     "reviewer": "Alicia Valdez",
15     "comment": "Indicate trade American war player the Republican thank down rule risk order bring.",
16     "oracleId": 2
17   },
18   {
19     "propertyId": "7670f161-6d66-41d1-8c31-0926588086de",
20     "reviewDate": "2025-03-26T22:00:00.000+00:00",
21     "rating": 3,

```

← → 🔄 🌐 localhost:8093/DSA-NoSQL-MongoDBService/rest/locations/propertyReviews

Connectare | Microso... YouTube Netflix Facebook Pages - Bine ați veni... Mesaje primite (31)...

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```

<?xml version="1.0" encoding="UTF-8" ?>
<List>
  <item>
    <propertyId>0d8e7cac-6b57-4c7c-88be-759110cd672c</propertyId>
    <reviewDate>2025-04-19T21:00:00.000+00:00</reviewDate>
    <rating>2</rating>
    <reviewer>Charlene Rivera</reviewer>
    <comment>Would fall bed Republican own middle total beautiful program especially the box.</comment>
    <oracleId>1</oracleId>
  </item>
  <item>
    <propertyId>f7232dd6-f8bd-45f9-b6bc-84eba49da0f9</propertyId>
    <reviewDate>2025-01-01T22:00:00.000+00:00</reviewDate>
    <rating>1</rating>
    <reviewer>Alicia Valdez</reviewer>
    <comment>Indicate trade American war player the Republican thank down rule risk order bring.</comment>
    <oracleId>2</oracleId>
  </item>
  <item>
    <propertyId>7670f161-6d66-41d1-8c31-0926588086de</propertyId>
    <reviewDate>2025-03-26T22:00:00.000+00:00</reviewDate>
    <rating>3</rating>
    <reviewer>David Roach</reviewer>
    <comment>Cause character call face both reveal.</comment>
    <oracleId>3</oracleId>
  </item>
  <item>
    <propertyId>7fec795a-ce40-4add-9318-645a65dbac0a</propertyId>
    <reviewDate>2025-04-24T21:00:00.000+00:00</reviewDate>
    <rating>3</rating>
    <reviewer>Matthew Rose</reviewer>
    <comment>As before your speak we report recently third man pick.</comment>
    <oracleId>4</oracleId>
  </item>
  <item>
    <propertyId>fb94b619-8625-42f8-89ad-166180854598</propertyId>
    <reviewDate>2025-04-02T21:00:00.000+00:00</reviewDate>
    <rating>1</rating>
    <reviewer>Chase Peters</reviewer>
    <comment>Coach appear hundred entire language figure.</comment>
    <oracleId>5</oracleId>
  </item>
  <item>
    <propertyId>7670f161-6d66-41d1-8c31-0926588086de</propertyId>
    <reviewDate>2025-03-26T22:00:00.000+00:00</reviewDate>
    <rating>3</rating>
    <reviewer>David Roach</reviewer>
    <comment>Cause character call face both reveal.</comment>
    <oracleId>3</oracleId>
  </item>

```

GET http://localhost:8093/DSA-NoSQL-MongoDBService/rest/locations/propertyHistory Send

Params Authorization Headers (8) Body Scripts Settings Cookies

Query Params

Key	Value	Description
-----	-------	-------------

Body Cookies Headers (5) Test Results 200 OK 74 ms 3.87 KB

{ } JSON Preview Visualize

```
1 [
2   {
3     "propertyId": "df3b671d-e9fa-4782-b1eb-50ec729e1540",
4     "modificationDate": "2020-12-21T22:00:00.000+00:00",
5     "previousPrice": 221986.17,
6     "newPrice": 280569.03,
7     "reason": "market change",
8     "oracleId": 1
9   },
10  {
11    "propertyId": "299068c6-9459-43e3-9f53-956cc3f9829e",
12    "modificationDate": "2020-01-13T22:00:00.000+00:00",
13    "previousPrice": 483628.94,
14    "newPrice": 266956.77,
15    "reason": "renovation",
16    "oracleId": 2
17  },
18  {
19    "propertyId": "ed3751bd-e2dc-4431-9448-9e5237bfc90a",
20    "modificationDate": "2023-04-10T21:00:00.000+00:00",
21    "previousPrice": 358195.11,
22    "newPrice": 389940.0,
23    "reason": "market change",
24    "oracleId": 3
25  },
26  {
27    "propertyId": "4be05ab6-bc4c-4816-a5ab-dcb666e32166",
28    "modificationDate": "2023-05-12T21:00:00.000+00:00",
29    "previousPrice": 138672.39,
30    "newPrice": 367153.13,
31    "reason": "re-evaluation",
32    "oracleId": 4
33  },
34  {
35    "propertyId": "433f80a5-ae6c-416e-a453-d9eb1cffc576",
36    "modificationDate": "2020-08-06T21:00:00.000+00:00",
37    "previousPrice": 261814.78,
38    "newPrice": 310413.49,
39    "reason": "market change",
40    "oracleId": 5
41  }
42 ]
```

localhost:8093/DSA-NoSQL-MongoDBService/rest/locations/propertyHistory

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0"?>
<List>
  <item>
    <propertyId>df3b671d-e9fa-4782-b1eb-50ec729e1540</propertyId>
    <modificationDate>2020-12-21T22:00:00.000+00:00</modificationDate>
    <previousPrice>221986.17</previousPrice>
    <newPrice>280569.03</newPrice>
    <reason>market change</reason>
    <oracleId>1</oracleId>
  </item>
  <item>
    <propertyId>299068c6-9459-43e3-9f53-956cc3f9829e</propertyId>
    <modificationDate>2020-01-13T22:00:00.000+00:00</modificationDate>
    <previousPrice>483628.94</previousPrice>
    <newPrice>266956.77</newPrice>
    <reason>renovation</reason>
    <oracleId>2</oracleId>
  </item>
  <item>
    <propertyId>ed3751bd-e2dc-4431-9448-9e5237bfc90a</propertyId>
    <modificationDate>2023-04-10T21:00:00.000+00:00</modificationDate>
    <previousPrice>358195.11</previousPrice>
    <newPrice>389940.0</newPrice>
    <reason>market change</reason>
    <oracleId>3</oracleId>
  </item>
  <item>
    <propertyId>4be05ab6-bc4c-4816-a5ab-dcb666e32166</propertyId>
    <modificationDate>2023-05-12T21:00:00.000+00:00</modificationDate>
    <previousPrice>138672.39</previousPrice>
    <newPrice>367153.13</newPrice>
    <reason>re-evaluation</reason>
    <oracleId>4</oracleId>
  </item>
  <item>
    <propertyId>433f80a5-ae6c-416e-a453-d9eb1cffc576</propertyId>
    <modificationDate>2020-08-06T21:00:00.000+00:00</modificationDate>
    <previousPrice>261814.78</previousPrice>
    <newPrice>310413.49</newPrice>
    <reason>market change</reason>
    <oracleId>5</oracleId>
  </item>
</List>
```


- *CustomerView, CustomerViewBuilder*
- *OwnerView, OwnerViewBuilder*
- *HistoryView, HistoryViewBuilder*

Funcționalitatea REST:

- *GET /CustomerView* – returnează lista de clienți
- *GET /OwnerView* – returnează lista de proprietari
- *GET /HistoryView* – returnează istoricul de relații

6. DSA-SparkSQL-Service

Microserviciul *DSA-SparkSQL-Service* are rolul de a realiza analize complexe asupra datelor provenite din multiple surse (CSV, XLSX, XML, MongoDB etc.) utilizând Apache SparkSQL. Acesta procesează datele prin interogări de tip JOIN, GROUP BY și crează agregări ierarhice utilizând ROLLUP și CUBE. De asemenea, are următoarea structură:

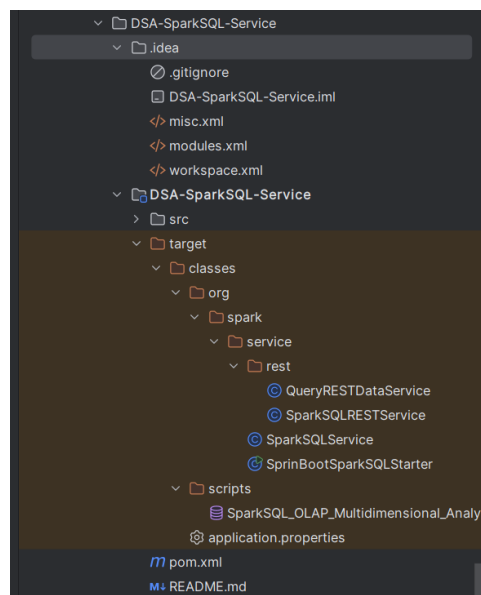


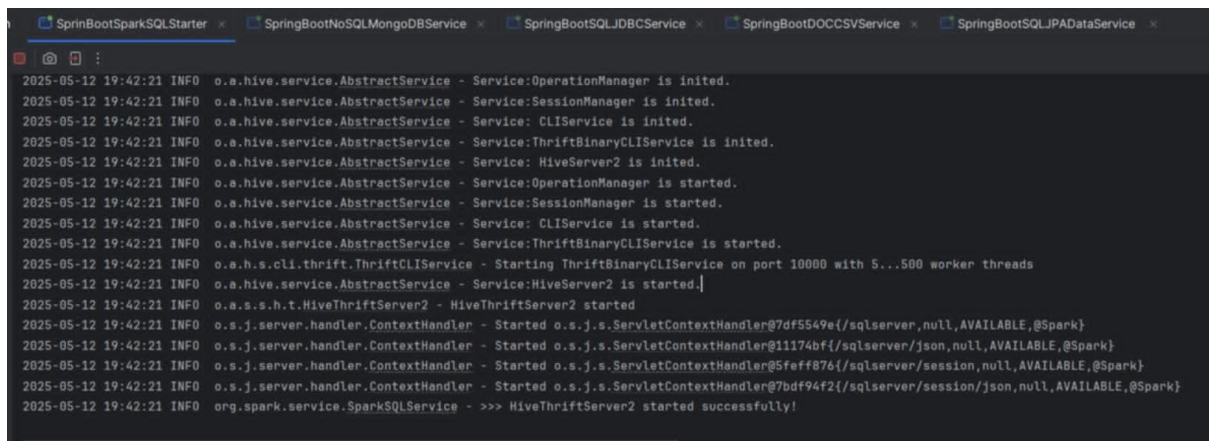
Figura nr. 9 Structură DSA-SparkSQL-Service

Componentele esențiale:

- *SpringBootSparkSQLStarter.java*: inițializează aplicația Spring Boot și SparkSession

- *SparkSQLService.java*: conține logica de execuție a interogărilor SparkSQL asupra seturilor de date
- *QueryRESTDataService.java*: oferă suport pentru execuția de query-uri analitice personalizate via HTTP
- *SparkSQL_OLAP_Multidimensional_Analytical.sql*: script SQL care conține interogări OLAP pe mai multe dimensiuni (GROUP BY, ROLLUP, CUBE etc.)

Mesajul este afișat corect în urma rulării:



```

2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service:OperationManager is initied.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service:SessionManager is initied.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service: CLIService is initied.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service:ThriftBinaryCLIService is initied.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service: HiveServer2 is initied.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service:OperationManager is started.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service:SessionManager is started.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service: CLIService is started.
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service:ThriftBinaryCLIService is started.
2025-05-12 19:42:21 INFO o.a.h.s.cli.thrift.ThriftCLIService - Starting ThriftBinaryCLIService on port 10000 with 5...500 worker threads
2025-05-12 19:42:21 INFO o.a.hive.service.AbstractService - Service:HiveServer2 is started.
2025-05-12 19:42:21 INFO o.a.s.s.h.t.HiveThriftServer2 - HiveThriftServer2 started
2025-05-12 19:42:21 INFO o.s.j.server.handler.ContextHandler - Started o.s.j.s.ServletContextHandler@7df5549e{/sqlserver,null,AVAILABLE,@Spark}
2025-05-12 19:42:21 INFO o.s.j.server.handler.ContextHandler - Started o.s.j.s.ServletContextHandler@11174bf{/sqlserver/json,null,AVAILABLE,@Spark}
2025-05-12 19:42:21 INFO o.s.j.server.handler.ContextHandler - Started o.s.j.s.ServletContextHandler@5feff876{/sqlserver/session,null,AVAILABLE,@Spark}
2025-05-12 19:42:21 INFO o.s.j.server.handler.ContextHandler - Started o.s.j.s.ServletContextHandler@7bdf94f2{/sqlserver/session/json,null,AVAILABLE,@Spark}
2025-05-12 19:42:21 INFO org.spark.service.SparkSQLService - >>> HiveThriftServer2 started successfully!
  
```

7. DSA-SQL-JDBCService

DSA-SQL-JDBCService integrează informațiile din bazele de date relaționale (PostgreSQL și Oracle) folosind Spring Boot, Spring JDBC și SparkSQL pentru procesarea analitică. De asemenea, expune prin REST API informații legate de cererile clienților, feedback, istoricul solicitărilor și proprietăți imobiliare.

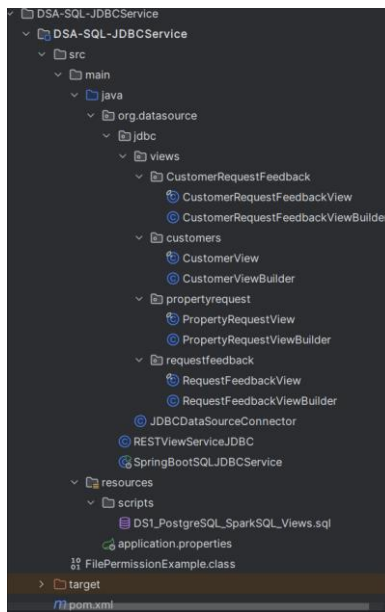


Figura nr. 10 Structură DSA-SQL-JDBCService

Componentele esențiale:

- *SpringBootSQLJDBCService.java*: inițializează aplicația Spring Boot și configurările JDBC
- *JDBCDataSourceConnector.java*: realizează conectarea la bazele de date relaționale (Oracle și PostgreSQL)
- *RESTViewServiceJDBC.java*: controller REST care expune endpoint-uri pentru accesarea vederilor analitice
- *Clase View și ViewBuolder*

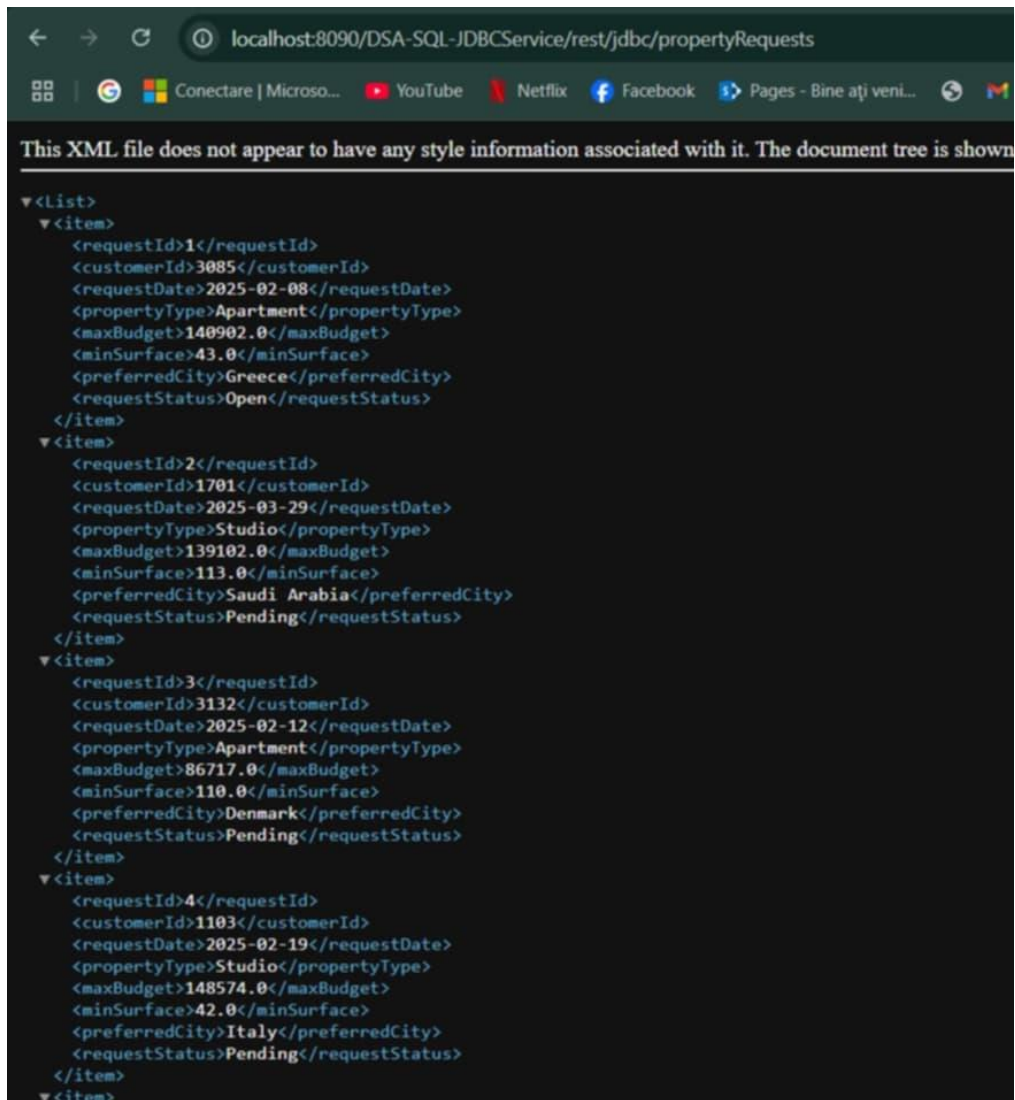
Conexiunile JDBC sunt definite în *application.properties*.

```
server.port=8090
server.servlet.context-path=/DSA-SQL-JDBCService/rest

### JDBC Data Source
jdbc.data.source.DB_URL=jdbc:postgresql://localhost:5433/real_estate_pg
jdbc.data.source.USER=postgres
jdbc.data.source.PASS=Claudia*100
jdbc.data.source.JDBC_DRIVER=org.postgresql.Driver

# logging
logging.pattern.console=%d{yyyy-MM-dd HH:mm:ss} %-5level %logger{36} - %msg%n
logging.level.org.hibernate.SQL=debug
```

Conexiunea JDBC cu PgAdmin:



This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0"?>
<List>
  <item>
    <requestId>1</requestId>
    <customerId>3085</customerId>
    <requestDate>2025-02-08</requestDate>
    <propertyType>Apartment</propertyType>
    <maxBudget>140902.0</maxBudget>
    <minSurface>43.0</minSurface>
    <preferredCity>Greece</preferredCity>
    <requestStatus>Open</requestStatus>
  </item>
  <item>
    <requestId>2</requestId>
    <customerId>1701</customerId>
    <requestDate>2025-03-29</requestDate>
    <propertyType>Studio</propertyType>
    <maxBudget>139102.0</maxBudget>
    <minSurface>113.0</minSurface>
    <preferredCity>Saudi Arabia</preferredCity>
    <requestStatus>Pending</requestStatus>
  </item>
  <item>
    <requestId>3</requestId>
    <customerId>3132</customerId>
    <requestDate>2025-02-12</requestDate>
    <propertyType>Apartment</propertyType>
    <maxBudget>86717.0</maxBudget>
    <minSurface>110.0</minSurface>
    <preferredCity>Denmark</preferredCity>
    <requestStatus>Pending</requestStatus>
  </item>
  <item>
    <requestId>4</requestId>
    <customerId>1103</customerId>
    <requestDate>2025-02-19</requestDate>
    <propertyType>Studio</propertyType>
    <maxBudget>148574.0</maxBudget>
    <minSurface>42.0</minSurface>
    <preferredCity>Italy</preferredCity>
    <requestStatus>Pending</requestStatus>
  </item>
</List>
```

← → ↻ localhost:8090/DSA-SQL-JDBCService/rest/jdbc/requestFeedback

Connectare | Microso... YouTube Netflix Facebook Pages - Bine ați veni... Mesaje prin

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<List>
  <item>
    <id>1</id>
    <requestId>84</requestId>
    <feedbackDate>2025-01-12</feedbackDate>
    <rating>1</rating>
    <comments>Great deal</comments>
  </item>
  <item>
    <id>2</id>
    <requestId>54</requestId>
    <feedbackDate>2025-01-22</feedbackDate>
    <rating>1</rating>
    <comments>Not satisfied</comments>
  </item>
  <item>
    <id>3</id>
    <requestId>71</requestId>
    <feedbackDate>2025-02-28</feedbackDate>
    <rating>3</rating>
    <comments>Good experience</comments>
  </item>
  <item>
    <id>4</id>
    <requestId>46</requestId>
    <feedbackDate>2025-03-25</feedbackDate>
    <rating>5</rating>
    <comments>Not satisfied</comments>
  </item>
  <item>
    <id>5</id>
    <requestId>45</requestId>
    <feedbackDate>2025-01-22</feedbackDate>
    <rating>5</rating>
    <comments>Good experience</comments>
  </item>
  <item>
    <id>6</id>
    <requestId>40</requestId>
    <feedbackDate>2025-02-04</feedbackDate>
    <rating>3</rating>
    <comments>Great deal</comments>
  </item>
</List>
```

← → ↺ localhost:8090/DSA-SQL-JDBCService/rest/jdbc/customerRequestFeedback

Connectare | Microso... YouTube Netflix Facebook Pages - Bine ați veni... Mesaje primite (31)...

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<List>
  <item>
    <fullName>Client 17511</fullName>
    <customerCity>United Kingdom</customerCity>
    <requestId>50</requestId>
    <propertyType>Studio</propertyType>
    <maxBudget>123934.0</maxBudget>
    <requestDate>2025-03-01</requestDate>
    <feedbackDate>2025-03-17</feedbackDate>
    <rating>3</rating>
    <comments>Good experience</comments>
  </item>
  <item>
    <fullName>Client 17924</fullName>
    <customerCity>United Kingdom</customerCity>
    <requestId>69</requestId>
    <propertyType>Studio</propertyType>
    <maxBudget>132286.0</maxBudget>
    <requestDate>2025-02-04</requestDate>
    <feedbackDate>2025-02-19</feedbackDate>
    <rating>5</rating>
    <comments>Good experience</comments>
  </item>
  <item>
    <fullName>Client 15525</fullName>
    <customerCity>United Kingdom</customerCity>
    <requestId>8</requestId>
    <propertyType>Apartment</propertyType>
    <maxBudget>103620.0</maxBudget>
    <requestDate>2025-02-06</requestDate>
    <feedbackDate>2025-02-09</feedbackDate>
    <rating>4</rating>
    <comments>Not satisfied</comments>
  </item>
  <item>
    <fullName>Client 14237</fullName>
    <customerCity>United Kingdom</customerCity>
    <requestId>5</requestId>
    <propertyType>Studio</propertyType>
    <maxBudget>77414.0</maxBudget>
    <requestDate>2025-03-19</requestDate>
    <feedbackDate>2025-04-07</feedbackDate>
  </item>
</List>
```

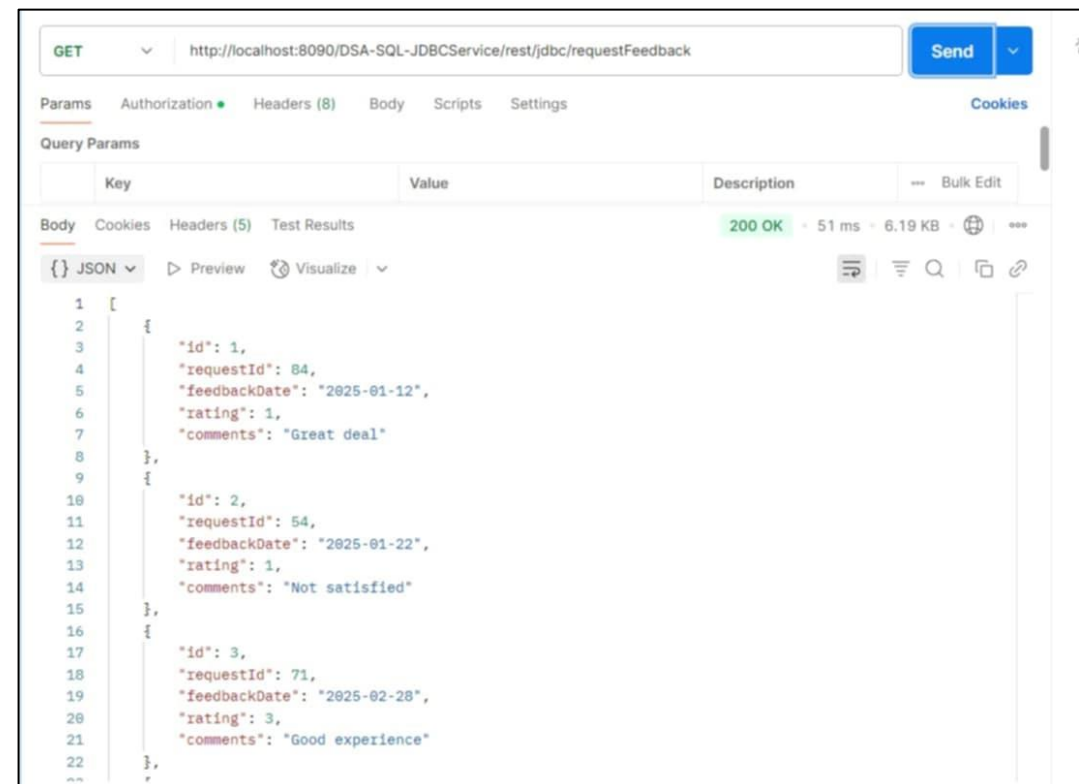
← → ↺ localhost:8090/DSA-SQL-JDBCService/rest/jdbc/customers

Connectare | Microso... YouTube Netflix Facebook Pages - Bine ați veni... Mesaje primite (31)...

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<List>
  <item>
    <id>1</id>
    <customerCode>C17850.0</customerCode>
    <fullName>Client 17850</fullName>
    <email>17850@client.com</email>
    <phone>4070017850</phone>
    <registrationDate>2022-02-23</registrationDate>
    <country>United Kingdom</country>
    <city>United Kingdom</city>
  </item>
  <item>
    <id>2</id>
    <customerCode>C13047.0</customerCode>
    <fullName>Client 13047</fullName>
    <email>13047@client.com</email>
    <phone>4070013047</phone>
    <registrationDate>2022-12-25</registrationDate>
    <country>United Kingdom</country>
    <city>United Kingdom</city>
  </item>
  <item>
    <id>3</id>
    <customerCode>C12583.0</customerCode>
    <fullName>Client 12583</fullName>
    <email>12583@client.com</email>
    <phone>4070012583</phone>
    <registrationDate>2022-11-30</registrationDate>
    <country>France</country>
    <city>France</city>
  </item>
  <item>
    <id>4</id>
    <customerCode>C13748.0</customerCode>
    <fullName>Client 13748</fullName>
    <email>13748@client.com</email>
    <phone>4070013748</phone>
    <registrationDate>2022-01-03</registrationDate>
    <country>United Kingdom</country>
    <city>United Kingdom</city>
  </item>
</List>
```

.....



GET Send

Params Authorization Headers (8) Body Scripts Settings Cookies

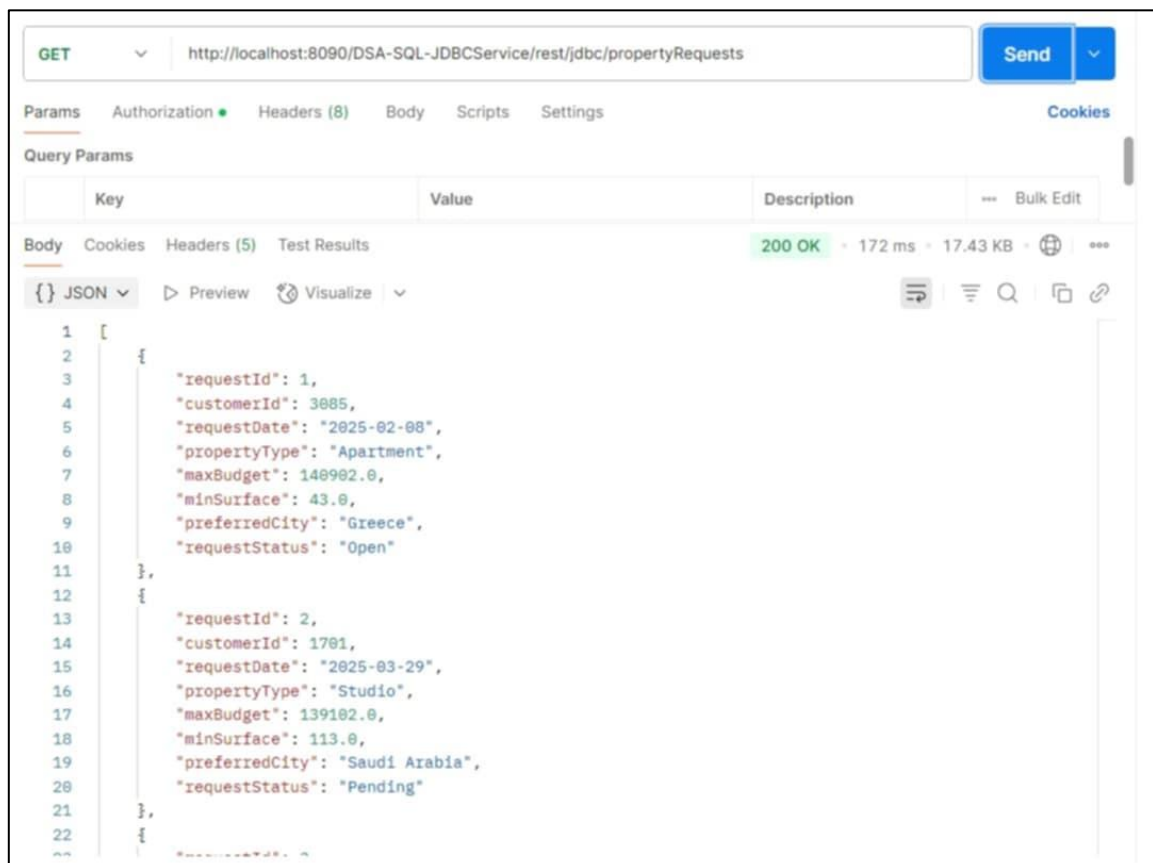
Query Params

Key	Value	Description	Bulk Edit
-----	-------	-------------	-----------

Body Cookies Headers (5) Test Results 200 OK · 51 ms · 6.19 KB

{ } JSON Preview Visualize

```
1  [
2    {
3      "id": 1,
4      "requestId": 84,
5      "feedbackDate": "2025-01-12",
6      "rating": 1,
7      "comments": "Great deal"
8    },
9    {
10     "id": 2,
11     "requestId": 54,
12     "feedbackDate": "2025-01-22",
13     "rating": 1,
14     "comments": "Not satisfied"
15   },
16   {
17     "id": 3,
18     "requestId": 71,
19     "feedbackDate": "2025-02-28",
20     "rating": 3,
21     "comments": "Good experience"
22   },
23 ]
```



GET Send

Params Authorization Headers (8) Body Scripts Settings Cookies

Query Params

Key	Value	Description	Bulk Edit
-----	-------	-------------	-----------

Body Cookies Headers (5) Test Results 200 OK · 172 ms · 17.43 KB

{ } JSON Preview Visualize

```
1  [
2    {
3      "requestId": 1,
4      "customerId": 3085,
5      "requestDate": "2025-02-08",
6      "propertyType": "Apartment",
7      "maxBudget": 140902.0,
8      "minSurface": 43.0,
9      "preferredCity": "Greece",
10     "requestStatus": "Open"
11   },
12   {
13     "requestId": 2,
14     "customerId": 1701,
15     "requestDate": "2025-03-29",
16     "propertyType": "Studio",
17     "maxBudget": 139102.0,
18     "minSurface": 113.0,
19     "preferredCity": "Saudi Arabia",
20     "requestStatus": "Pending"
21   },
22 ]
```

GET Send

Params Authorization Headers (8) Body Scripts Settings Cookies

Query Params

Key	Value	Description	Bulk Edit
-----	-------	-------------	-----------

Body Cookies Headers (5) Test Results 200 OK - 91 ms - 825.92 KB

{ } JSON Preview Visualize

```
1 [
2   {
3     "id": 1,
4     "customerCode": "C17850.0",
5     "fullName": "Client 17850",
6     "email": "17850@client.com",
7     "phone": "4070017850",
8     "registrationDate": "2022-02-23",
9     "country": "United Kingdom",
10    "city": "United Kingdom"
11  },
12  {
13    "id": 2,
14    "customerCode": "C13047.0",
15    "fullName": "Client 13047",
16    "email": "13047@client.com",
17    "phone": "4070013047",
18    "registrationDate": "2022-12-25",
19    "country": "United Kingdom",
20    "city": "United Kingdom"
21  },
22  ]
```

GET Send

Params Authorization Headers (8) Body Scripts Settings Cookies

Query Params

Key	Value	Description	Bulk Edit
-----	-------	-------------	-----------

Body Cookies Headers (5) Test Results 200 OK - 66 ms - 20.18 KB

{ } JSON Preview Visualize

```
1 [
2   {
3     "fullName": "Client 17511",
4     "customerCity": "United Kingdom",
5     "requestId": 50,
6     "propertyType": "Studio",
7     "maxBudget": 123934.0,
8     "requestDate": "2025-03-01",
9     "feedbackDate": "2025-03-17",
10    "rating": 3,
11    "comments": "Good experience"
12  },
13  {
14    "fullName": "Client 17924",
15    "customerCity": "United Kingdom",
16    "requestId": 69,
17    "propertyType": "Studio",
18    "maxBudget": 132286.0,
19    "requestDate": "2025-02-04",
20    "feedbackDate": "2025-02-19",
21    "rating": 5,
22    "comments": "Good experience"
23  }
24  ]
```

8. DSA-SQL-JPService

Acest microserviciu oferă o integrare cu bazele de date relaționale folosind Java Persistence API (JPA) și Spring Data JPA. Are următoarea structură:

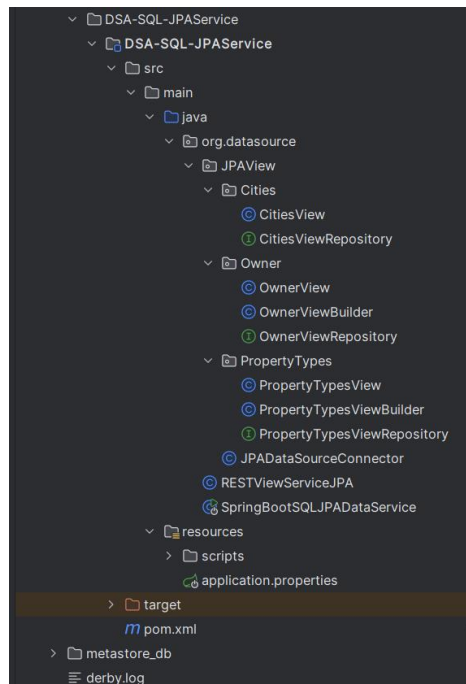


Figura nr. 11 Structură DSA-SQL-JPService

Componentele esențiale:

- *SpringBootSQLJPADDataService.java*: clasa principală care pornește aplicația Spring Boot cu suport pentru JPA
- *JPDataSourceConnector.java*: configurează conexiunea la baza de date relațională pentru JPA
- *RESTViewServiceJPA.java*: controller REST care expune endpoint-uri pentru accesarea vederilor entităților
- *Clase View și ViewBuilder*

Microserviciul DSA-SQL-JPService permite obținerea de date despre tipuri de proprietăți, orașe și proprietari. Răspunsurile pot fi returnate atât în format JSON (ex: Postman), cât și XML.

GET http://localhost:8091/DSA_SQL_IPAService/rest/property-types Send

Params Authorization Headers (8) Body Scripts Settings Cookies

Query Params

Key	Value	Description
-----	-------	-------------

Body Cookies Headers (5) Test Results 200 OK 16 ms 858 B

{ } JSON Preview Visualize

```
1 [
2   {
3     "id": 1,
4     "typeName": "House",
5     "description": "Description for House"
6   },
7   {
8     "id": 2,
9     "typeName": "Apartment",
10    "description": "Description for Apartment"
11  },
12  {
13    "id": 3,
14    "typeName": "Condo",
15    "description": "Description for Condo"
16  },
17  {
18    "id": 4,
19    "typeName": "Villa",
20    "description": "Description for Villa"
21  },
22  ]
```

localhost:8091/DSA_SQL_IPAService/rest/property-types

This XML file does not appear to have any style information associated with it. The document tree is shown.

```
<?xml version="1.0"?>
<List>
  <item>
    <id>1</id>
    <typeName>House</typeName>
    <description>Description for House</description>
  </item>
  <item>
    <id>2</id>
    <typeName>Apartment</typeName>
    <description>Description for Apartment</description>
  </item>
  <item>
    <id>3</id>
    <typeName>Condo</typeName>
    <description>Description for Condo</description>
  </item>
  <item>
    <id>4</id>
    <typeName>Villa</typeName>
    <description>Description for Villa</description>
  </item>
  <item>
    <id>5</id>
    <typeName>Studio</typeName>
    <description>Description for Studio</description>
  </item>
  <item>
    <id>6</id>
    <typeName>Penthouse</typeName>
    <description>Description for Penthouse</description>
  </item>
  <item>
    <id>7</id>
    <typeName>Mansion</typeName>
    <description>Description for Mansion</description>
  </item>
  <item>
    <id>8</id>
    <typeName>Townhouse</typeName>
    <description>Description for Townhouse</description>
  </item>
  <item>
```


GET http://localhost:8091/DSA_SQL_IPAService/rest/cities

Params Authorization Headers (8) Body Scripts Settings Cookies

Query Params

Key	Value	Description	Bulk Edit
-----	-------	-------------	-----------

Body Cookies Headers (5) Test Results

200 OK · 48 ms · 1 KB

JSON Preview Visualize

```
1 [
2   {
3     "id": 1,
4     "cityName": "Austin",
5     "state": "TX",
6     "zipCode": "73301"
7   },
8   {
9     "id": 2,
10    "cityName": "Miami",
11    "state": "FL",
12    "zipCode": "33101"
13  },
14  {
15    "id": 3,
16    "cityName": "Chicago",
17    "state": "IL",
18    "zipCode": "60601"
19  },
20  {
21    "id": 4,
22    "cityName": "New York",
23    "state": "NY",
24    "zipCode": "10001"
25  }
26 ]
```

localhost:8091/DSA_SQL_IPAService/rest/cities

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This XML file does not appear to have any style information associated with it.

```
<?xml version='1.0' encoding='utf-8'>
<List>
  <item>
    <id>1</id>
    <cityName>Austin</cityName>
    <state>TX</state>
    <zipCode>73301</zipCode>
  </item>
  <item>
    <id>2</id>
    <cityName>Miami</cityName>
    <state>FL</state>
    <zipCode>33101</zipCode>
  </item>
  <item>
    <id>3</id>
    <cityName>Chicago</cityName>
    <state>IL</state>
    <zipCode>60601</zipCode>
  </item>
  <item>
    <id>4</id>
    <cityName>New York</cityName>
    <state>NY</state>
    <zipCode>10001</zipCode>
  </item>
  <item>
    <id>5</id>
    <cityName>Los Angeles</cityName>
    <state>CA</state>
    <zipCode>90001</zipCode>
  </item>
  <item>
    <id>6</id>
    <cityName>Houston</cityName>
    <state>TX</state>
    <zipCode>77001</zipCode>
  </item>
  <item>
    <id>7</id>
    <cityName>Dallas</cityName>
    <state>TX</state>
    <zipCode>75201</zipCode>
  </item>
</List>
```

GET http://localhost:8091/DSA_SQL_JPService/rest/owners Send

Params Authorization Headers (8) Body Scripts Settings

Query Params

Key	Value	Description
-----	-------	-------------

Body Cookies Headers (5) Test Results 200 OK • 29 ms • 1.38 KB

{ } JSON Preview Visualize

```
1 [
2   {
3     "id": 1,
4     "fullName": "Owner 1",
5     "email": "owner1@example.com",
6     "phone": "0710000001",
7     "createdAt": "2025-04-14T11:38:25.000+00:00"
8   },
9   {
10    "id": 2,
11    "fullName": "Owner 2",
12    "email": "owner2@example.com",
13    "phone": "0710000002",
14    "createdAt": "2025-04-14T11:38:25.000+00:00"
15  },
16  {
17    "id": 3,
18    "fullName": "Owner 3",
19    "email": "owner3@example.com",
20    "phone": "0710000003",
21    "createdAt": "2025-04-14T11:38:25.000+00:00"
22  },
23 ]
```

localhost:8091/DSA_SQL_JPService/rest/owners

Conectare | Microso... YouTube Netflix Facebook Pages - Bine ați veni...

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<List>
  <item>
    <id>1</id>
    <fullName>Owner 1</fullName>
    <email>owner1@example.com</email>
    <phone>0710000001</phone>
    <createdAt>2025-04-14T11:38:25.000+00:00</createdAt>
  </item>
  <item>
    <id>2</id>
    <fullName>Owner 2</fullName>
    <email>owner2@example.com</email>
    <phone>0710000002</phone>
    <createdAt>2025-04-14T11:38:25.000+00:00</createdAt>
  </item>
  <item>
    <id>3</id>
    <fullName>Owner 3</fullName>
    <email>owner3@example.com</email>
    <phone>0710000003</phone>
    <createdAt>2025-04-14T11:38:25.000+00:00</createdAt>
  </item>
  <item>
    <id>4</id>
    <fullName>Owner 4</fullName>
    <email>owner4@example.com</email>
    <phone>0710000004</phone>
    <createdAt>2025-04-14T11:38:25.000+00:00</createdAt>
  </item>
  <item>
    <id>5</id>
    <fullName>Owner 5</fullName>
    <email>owner5@example.com</email>
    <phone>0710000005</phone>
    <createdAt>2025-04-14T11:38:25.000+00:00</createdAt>
  </item>
  <item>
    <id>6</id>
    <fullName>Owner 6</fullName>
    <email>owner6@example.com</email>
    <phone>0710000006</phone>
  </item>
</List>
```


DBeaver:

