

RSSFeed Parser Application

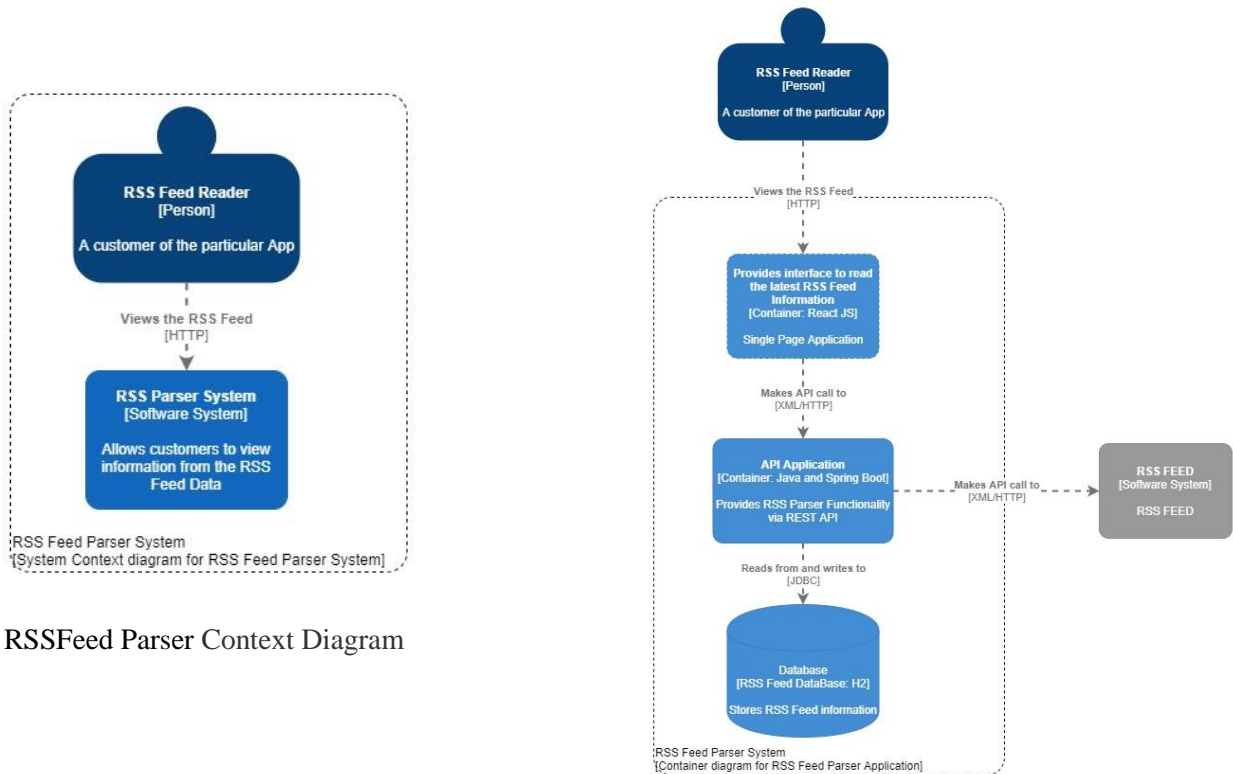
Version 1.0

Introduction

RSSFeed Parser application is a small RESTful web service that polls an RSS feed every 5 minutes and stores or updates RSS feeds in an in-memory H2 database.

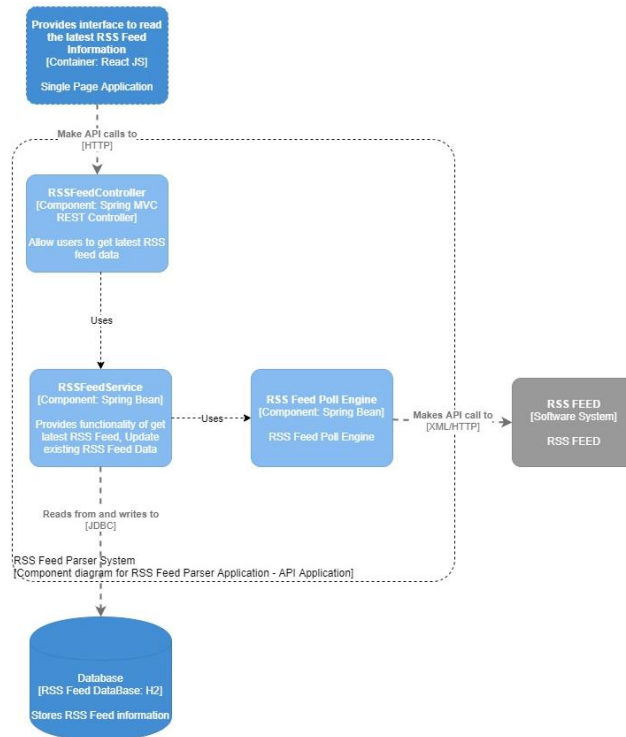
Architecture

C4 diagram of the RSSFeed Parser application as follows.

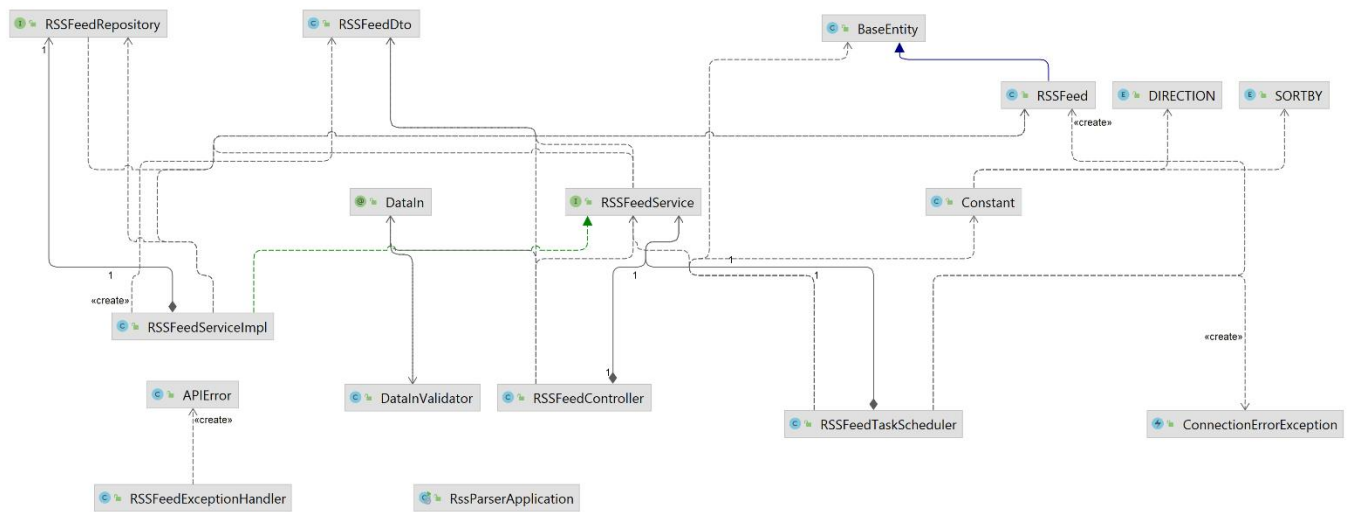


RSSFeed Parser Context Diagram

RSSFeed Parser Container Diagram



RSSFeed Parser Component Diagram



RSSFeed Parser UML Diagram

Project Structure

Models & DTOs

The model of the application is organized under the entity/model package, the data transfer objects are present under the dto package. With DTOs makes application model layer is very loosely coupled with the UI layer.

Services and DAOs

The data access objects (DAOs) are present in the *repository* package. The *RSSFeedRepository* is an extension of the *PagingAndSortingRepository* interface helping the service layer to persist and retrieve the data from the H2 database. The service layer is defined under the *service* package.

Controllers

The controller layer binds everything together right from the moment a request is intercepted till the response is prepared and sent back. The controller layer is present in the *controller* package, the best practices suggest that keep this layer be versioned to support multiple versions of the application, and the same practice is applied here.

Technologies

- Java 11
- Maven 3.6.3
- Spring Boot 2.5.5
- H2 Database
- Rome RSS Library
- Lombok
- Junit
- Mockito

API Docs

1. Get Latest RSS Feeds

API URI	http://<host>:<port>/items
Description	Get latest ten RSS Feeds
Parameters	-
Response	{ "content": [{ "link": "https://www.nytimes.com/the-daily", "title": "How a Single Senator Derailed", "description": "...",

	<pre> "publicationDate": "2021-10-20T09:45:00.000+00:00", "updatedAt": "2021-10-20T09:45:00.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "The Life and Career of Colin Powell", "description": "...", "publicationDate": "2021-10-19T09:50:00.000+00:00", "updatedAt": "2021-10-19T09:50:00.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "Why Are All Eyes on the Virginia Governor's Race?", "description": "...", "publicationDate": "2021-10-18T09:55:00.000+00:00", "updatedAt": "2021-10-18T09:55:00.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "The Sunday Read: 'Laurie Anderson Has a Message for Us Humans'", "description": "...", "publicationDate": "2021-10-17T10:00:00.000+00:00", "updatedAt": "2021-10-17T10:00:00.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "The Great Supply Chain Disruption", "description": "...", "publicationDate": "2021-10-15T09:50:00.000+00:00", "updatedAt": "2021-10-15T09:50:00.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "'No Crime Is Worth That'", "description": "...", "publicationDate": "2021-10-14T09:45:00.000+00:00", "updatedAt": "2021-10-14T09:45:00.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "'The Decision of My Life'", "description": "...", "publicationDate": "2021-10-13T09:45:00.000+00:00", "updatedAt": "2021-10-13T09:45:00.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "Is Child Care a Public Responsibility?", "description": "...", "publicationDate": "2021-10-12T09:45:00.000+00:00", "updatedAt": "2021-10-12T09:45:00.000+00:00" </pre>
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	<pre> }, { "link": "https://www.nytimes.com/the-daily", "title": "Which Towns Are Worth Saving?", "description": "...", "publicationDate": "2021-10-11T09:50:42.000+00:00", "updatedAt": "2021-10-11T09:50:42.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "The Sunday Read: ‘He Was the “Perfect Villain” for Voting Conspiracists’", "description": "...", "publicationDate": "2021-10-10T10:00:00.000+00:00", "updatedAt": "2021-10-10T10:00:00.000+00:00" }], "pageable": { "sort": { "empty": false, "sorted": true, "unsorted": false }, "offset": 0, "pageNumber": 0, "pageSize": 10, "unpaged": false, "paged": true }, "last": false, "totalElements": 1354, "totalPages": 136, "size": 10, "number": 0, "sort": { "empty": false, "sorted": true, "unsorted": false }, "first": true, "numberOfElements": 10, "empty": false } </pre>
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2. Get Paginated RSS Feeds

API URI	http://<host>:<port>/items?page=0&size=5&sort=updated_date&direction=desc
Description	Get paginated RSS Feeds
Parameters	“page” – The page number

	<p>“size” – Number of RSS Feeds per page</p> <p>“sort” – Sorting column name for RSS Feeds (id/link/title/description/publication_date/updated_date)</p> <p>“direction” – Direction of the sorting (asc/desc)</p>
Response	<pre>{ "content": [{ "link": "https://www.nytimes.com/the-daily", "title": "Coming Soon: “The Daily”", "description": "..", "publicationDate": "2017-01-17T21:19:47.000+00:00", "updatedAt": "2017-01-17T21:19:47.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "Wednesday, Feb. 1, 2017", "description": "..", "publicationDate": "2017-02-01T10:18:28.000+00:00", "updatedAt": "2017-02-01T10:18:28.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "Thursday, Feb. 2, 2017", "description": "..", "publicationDate": "2017-02-02T10:40:19.000+00:00", "updatedAt": "2017-02-02T10:40:19.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "Friday, Feb. 3, 2017", "description": "..", "publicationDate": "2017-02-03T10:31:13.000+00:00", "updatedAt": "2017-02-03T10:31:13.000+00:00" }, { "link": "https://www.nytimes.com/the-daily", "title": "Monday, Feb. 6, 2017", "description": "..", "publicationDate": "2017-02-06T10:21:45.000+00:00", "updatedAt": "2017-02-06T10:21:45.000+00:00" }], "pageable": { "sort": { "empty": false, "sorted": true, "unsorted": false }, "offset": 0, "pageNumber": 0, "pageSize": 5, } }</pre>

	<pre> "paged": true, "unpaged": false }, "last": false, "totalPages": 271, "totalElements": 1354, "size": 5, "number": 0, "sort": { "empty": false, "sorted": true, "unsorted": false }, "first": true, "numberOfElements": 5, "empty": false } </pre>
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Deployment

RSSFeed Parser is a Spring Boot application built using Maven. To deploy the application in a docker container, use the following commands.

```
$> git clone https://github.com/sampathsl/rss-parser.git
```

```
$> cd rss-parser
```

```
$> ./mvnw package
```

```
$> docker-compose up
```

To deploy in production use docker-compose-scale.yml file with following commands.

This command will spin up a single message-server and a single product-server.

```
$> docker-compose --file docker-compose-scale.yml up -d --build --scale message-server=1 product-server=1
```

To scale the services, run the following command.

```
$> docker-compose --file docker-compose-scale.yml up -d --build --scale message-server=3 product-server=2
```

NOTE: Before running docker-compose command first you need to build the application. To run the docker container for RSSParser application you need to install docker in your machine. Sometimes Windows OS users may not able to run dockerize RSSParser application.

Improvements

1. Change the structure of RSSFeedTaskScheduler implementation and add improvements
2. Add swagger documentation
3. Add database migration and versioning implementation
4. Add more unit tests

References

<https://spring.io/guides/gs/spring-boot/>

<https://start.spring.io/>

<https://projects.spring.io/spring-petclinic/>

<https://www.baeldung.com/spring-boot-start>

<https://www.baeldung.com/dockerizing-spring-boot-application>

<https://c4model.com/>