

PISS project - News searcher

Emilian Spasov, 62617; Daniel Bumbalov, 62534

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2. Introduction

- a. The project that we have developed consists of a client-server application, which allows searching through a large number of international news aggregators through the API of [NewsAPI](#). The said architecture is realized through HTTP, as is the integration with the external API. Users can interact with the server's functionalities through a simplistic Desktop application, implemented with Java Swing

3. Design

- a. As said the application is split into 2 parts - server (backend) and client (frontend). The server consists of a few major components, adapter of the NewsAPI's response, HTTP handler and middleware for handling the raw data. Backend also features advanced concepts such as multithreaded processing of the API's responses, verification and validation of data, custom error handling, logging. Design patterns such as Adapter and Builder are leveraged to guarantee code quality and reliability.
- b. The frontend application has a straight-forward design - a single panel that shows search criteria at the top (filled and/or selected by user) as well as the list of the news titles that correspond to the search parameters. With every press of the search button, a new GET request is send to the server, which process the parameters and makes a call to the API, the server then returns a response to the client and the client processes it and retrieves the articles which then visualizes.

4. Development

- a. Development of the application was split equally between team members - Emilian was tasked with the NewsAPI integration and backend and Daniel created the client and was dealing with handling the frontend.

5. Deployment and settings

- a. Backend deployment - For the backend we used maven as a build tool and pom.xml for configuration and dependency management of the project. As

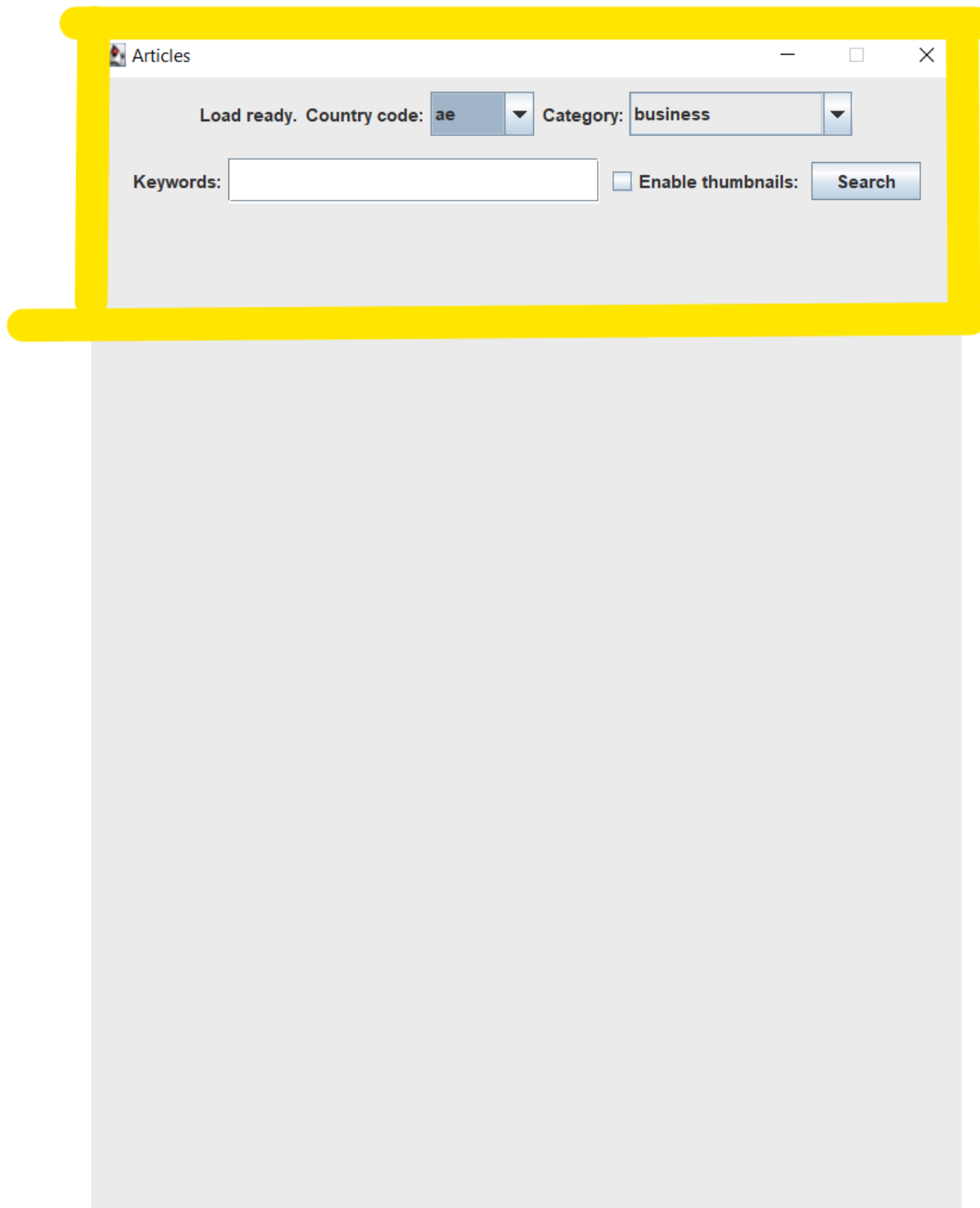
dependencies we needed a few external libraries such as mockito and junit for testing, `maven-assembly-plugin` for easier packaging of the backend and gson for proper handling of the JSON data transmitted through http. As described in the README.md for running the server we need to or run `mvn clean compile exec:java` and for packaging it `mvn package` or `mvn clean compile assembly:single`. Additionally, we can run all tests (unit, integration) for the backend with `mvn clean test -Dnet.bytebuddy.experimental=true`.

- b. Frontend deployment also uses maven as a build tool with pom.xml configuration and dependency management. The README.md for the client project describes the commands to run the project in a similar fashion to the backend project. To establish a proper connection, the client project should be run while running the server side. Command `mvn clean compile exec:java` on the folder of the project.

6. Testing

- a. Testing of the application is guaranteed on a few levels on both frontend and backend
 - i. Unit tests methods and classes
 - ii. Integration tests of the client, server and API integration
 - iii. End-to-end tests of server and client flows
 - iv. Manual testing of the application

7. Demo (Windows)

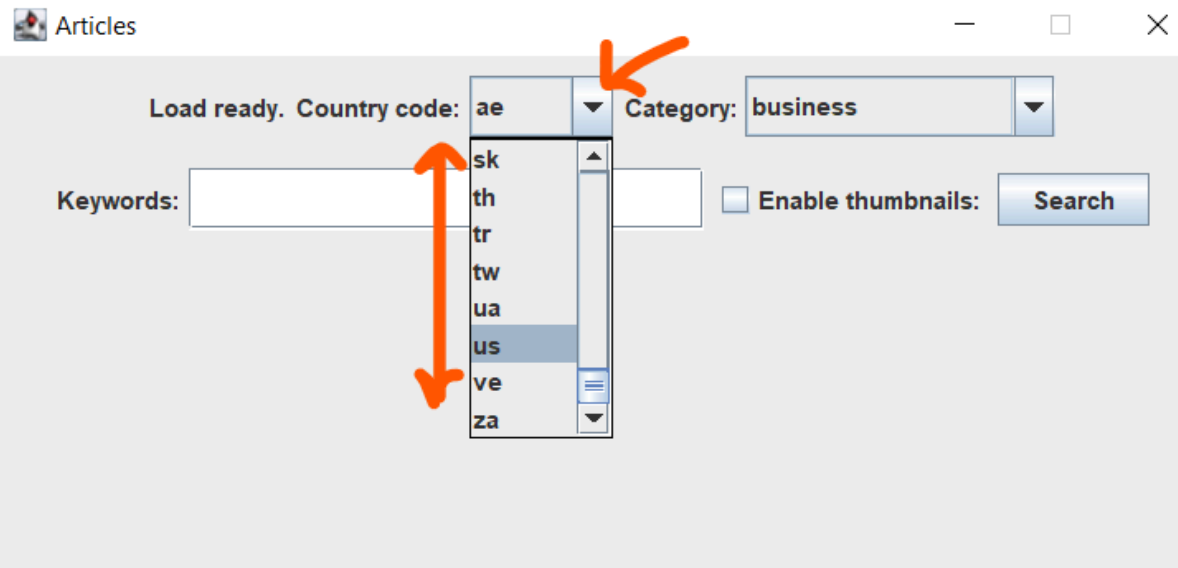


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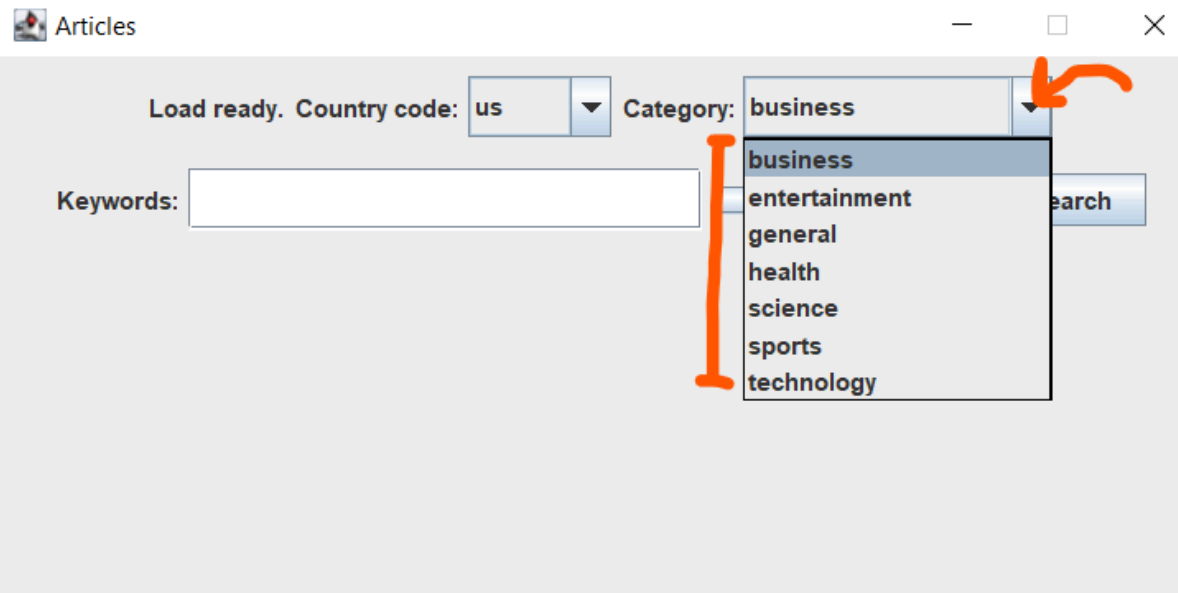
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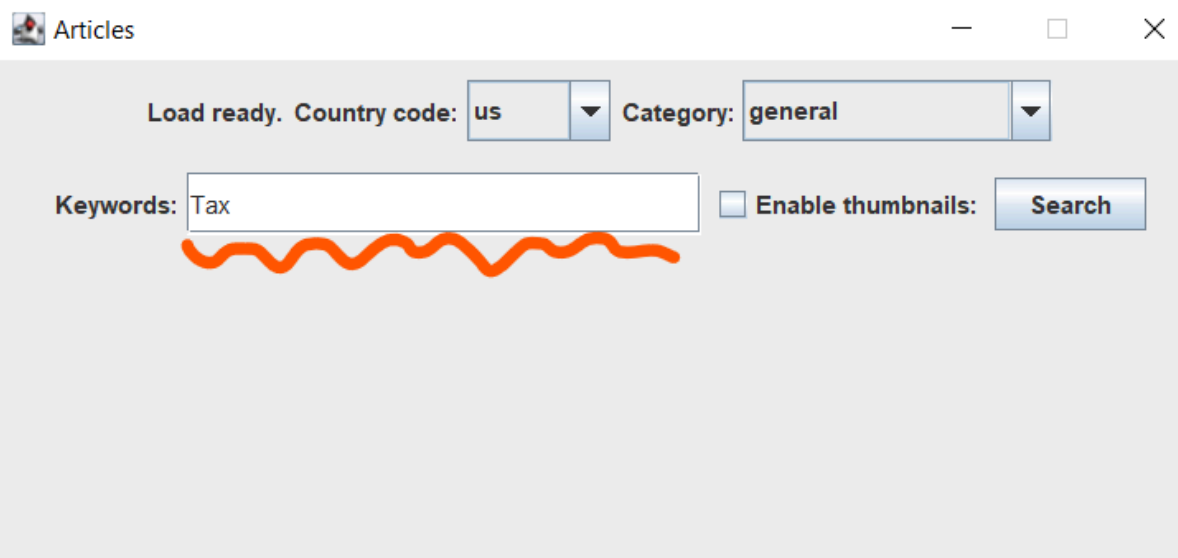
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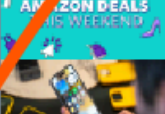
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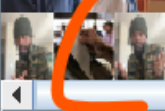
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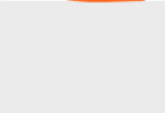
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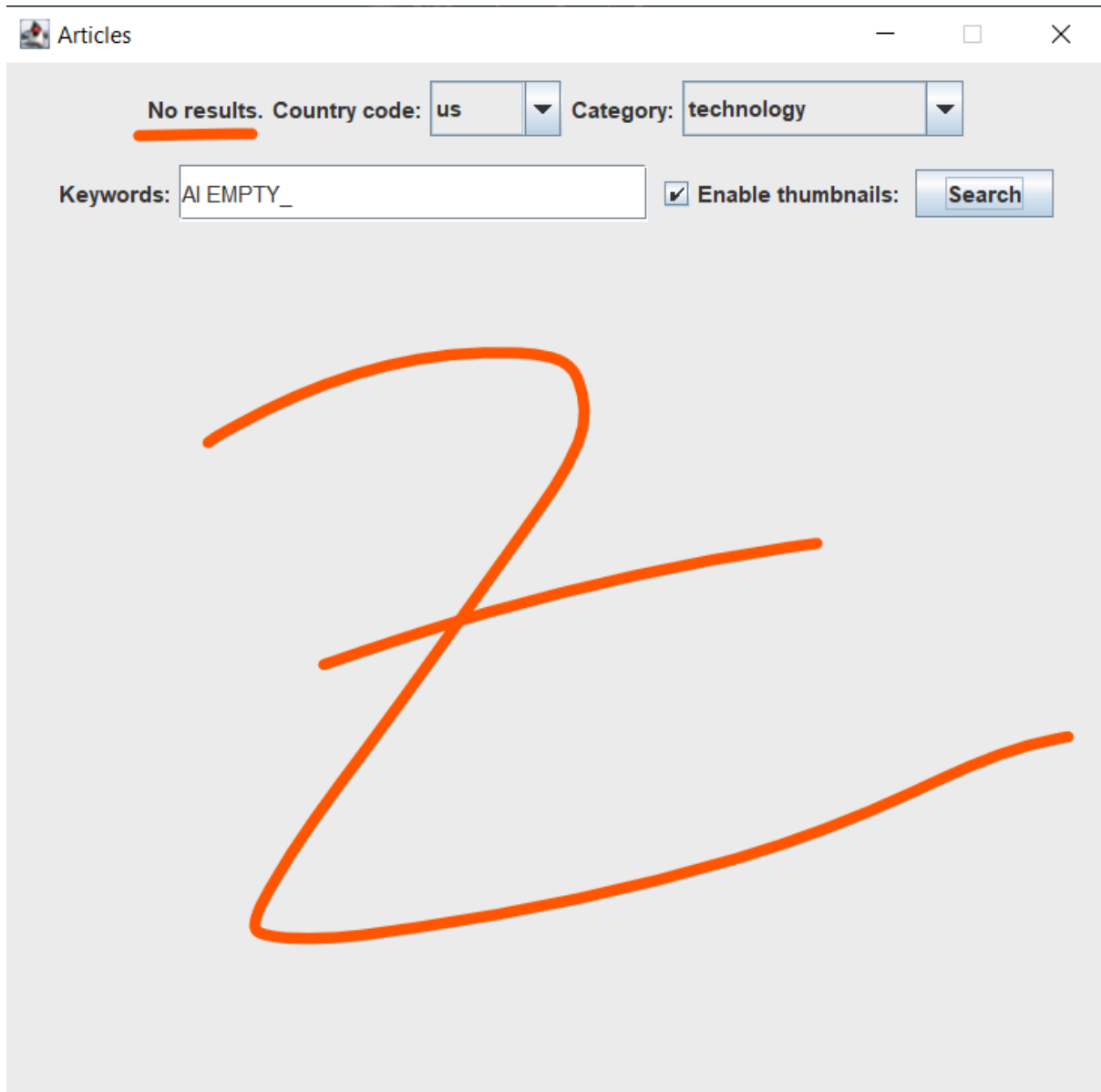
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8. Conclusion

- a. The project is a nice tool for more visual and more human representation of the interaction with the NewsAPI. Some nice potential additions to it may include further interaction with the results, saving history of searches, extending the functionality to search through more than 1 API, ranking the news in some way, caching results from different APIs for improved latency/response time and many others.