# Task 4

Summary:

In this assignment, you will develop a Foreign Affairs Ministry API, where users can interact with the application by accessing information about foreign affairs policies and news. The application will be implemented as a Spring Boot project, utilizing RESTful APIs and JPA for data persistence. The assignment should be completed individually within 2 working days.

Functional Requirements:

Policy Management: Implement API endpoints to enable ministry officials to manage foreign affairs policies, including the ability to add, edit, and delete policies.

News Management: Implement API endpoints to enable ministry officials to manage foreign affairs news, including the ability to add, edit, and delete news items.

Policy Retrieval: Implement API endpoints to enable users to view foreign affairs policies, including the ability to search policies by country, region, or topic.

News Retrieval: Implement API endpoints to enable users to view foreign affairs news items, including the ability to search news by country, region, or topic.

Non-Functional Requirements:

Security: Implement authentication and authorization mechanisms to ensure that only authorized users can manage policies and news items.

Performance: Optimize the API implementation to handle multiple concurrent requests efficiently, ensuring minimal response times.

User-Friendly Interface: Design the API endpoints and response structures to be intuitive and easily understandable by client applications.

Data Integrity: Use JPA for data persistence, ensuring data consistency and reliability when creating, updating, and deleting policies and news items.

Unit Testing: Use Junit to write effective unit tests.

CRON Job: Implement a CRON job to run at midnight every day to update the news and policies in the Foreign Affairs Ministry API, based on the latest information available. The job should fetch the latest news and policies from external sources, update the existing ones in the database, and add any new news or policies to the system.

Jasper Reports: Implement Jasper reports to allow ministry officials to generate reports on the usage of the Foreign Affairs Ministry API. The reports should show the number of requests made to each endpoint, the response times, and any errors encountered. The reports should also allow users to filter the data by time range, endpoint, or user.

Examples of API Usage:

Policy Management:

Endpoint: POST /api/policies

Request Payload: { "country": "USA", "region": "North America", "topic": "Trade", "details": "The USA is committed to free and fair trade with all nations." }

Response: 201 Created

Policy Retrieval:

Endpoint: GET /api/policies?country=USA

Response: 200 OK

Response Payload: { "policies": [{ "id": 1, "country": "USA", "region": "North America", "topic": "Trade", "details": "The USA is committed to free and fair trade with all nations." }] }

News Management:

Endpoint: PUT /api/news/{newsId}

Request Payload: { "title": "USA and Canada sign new trade agreement", "country": "Canada", "region": "North America", "details": "The USA and Canada have signed a new trade agreement, promoting greater economic cooperation." }

Response: 200 OK

News Retrieval:

Endpoint: GET /api/news?region=Europe

Response: 200 OK

Response Payload: { "news": [{ "id": 1, "title": "Germany and France to hold joint summit", "country": "Germany", "region": "Europe", "details": "German Chancellor Angela Merkel and French President Emmanuel Macron will hold a joint summit to discuss economic and political issues." }] }

CRON Job:

Endpoint: POST /api/cron/updateNewsAndPolicies

Response: 200 OK

Jasper Reports:

Endpoint: GET /api/reports/usage?start\_date=2023-05-01&end\_date=2023-05-15

Response: 200 OK

Response Payload: { "data": [{ "endpoint": "/api/policies", "total\_requests": 100, "total\_errors": 2, "average\_response\_time": 50 }, { "endpoint": "/api/news", "total\_requests": 50, "total\_errors": 1, "average\_response\_time": 100 }] }

Note: The above examples demonstrate the usage of the Foreign Affairs Ministry API endpoints. You should implement these API endpoints as part of the assignment, along with any additional endpoints required to fulfill the functional requirements.