**Functional Requirements**

* Scrape Stock Item Data

Actors: Scrape Model.

Short Description: The scrape model retrieves data from mse.mk website.

* 1. The scrape model is triggered (manually)
  2. The scrape model sends a request to the stock website mse.mk
  3. The scrape model processes the response and extracts the necessary stock data
  4. The extracted data is stored in a temporary format
* Insert Stock Item Data to DB

Actors: Scrape Model

Short Description: The scrape model inserts scraped data into the database.

* 1. The scrape model formats the scraped data to match the stock item entity structure
  2. The scrape model connects to the database
  3. The scrape model inserts each stock item into the database
  4. The system logs the success or failure of the insertion process
  5. The connection to the database is closed
* Train AI Model

Actors: AI Model

Short Description: The ai model trains itself using existing data from the database.

* 1. The ai model is triggered by the admin
  2. The ai model queries the database for relevant stock item data
  3. The ai model processes the data and updates its internal model parameters
  4. The system logs the training results for future references
  5. The ai model saves the trained model state for future use in predictions
* Configure AI Model

Actors: Admin

Short Description: The admin configures the settings from the ai model.

* 1. The admin navigates to the ai model configuration page
  2. The admin updates parameters such as learning rate, training frequency, data range etc.
  3. The system validates the configuration changes
  4. The ai model saves the new configuration
  5. The system logs the change made by the admin
* User Registration

Actors: Client

Short Description: A client registers for an account on the platform.

* 1. The client navigates to the registration page
  2. The client enters their username, email and password
  3. The system validates the input and hashes the password
  4. The system creates a new **user** entity in the database
  5. The system sends a confirmation message to the client
  6. The client is redirected to the login page after successful registration
* User Login

Actors: Client, Admin

Short Description: A user logs in to access the platform.

* 1. The user navigates to the login page.
  2. The user inputs their username/email and password.
  3. The system verifies the credentials by checking the hashed password against the stored password\_hash.
  4. If valid, the user is granted access, and a session is created.
  5. The user is redirected to their dashboard.
* Authentication and Session Management:

Actors: User

Short Description: Users authenticate to access the platform securely

* 1. The user enters their credentials.
  2. The system verifies the credentials using Spring Security.
  3. If verified, a JWT or session token is generated for the user.
  4. The user session is maintained for further interactions.
* Predict Stock Item

Actors: Client, AI Model

Short Description: The client requests the AI Model to predict the best time to buy a specific stock item.

* 1. The client navigates to the prediction page.
  2. The client selects a specific stock item or chooses the overall statistics option.
  3. The system triggers the ai model to use its training results to predict the best time to buy.
  4. The ai model runs the prediction algorithm and returns the result.
  5. The system displays the prediction result to the client.
* Log System Activities

Actors: System (Internal Process)

Short Description: The system logs activities related to scraping, training and user actions.

* 1. The system logs activities such as data scraping, data insertion, model training, and user interactions.
  2. Logs are stored in the database for audit purposes.
  3. Admins can access these logs for monitoring.
* Update User Information

Actors: Client

Short Description: A client updates their profile information.

* 1. The client navigates to the profile settings page.
  2. The client updates information such as email or password.
  3. The system verifies and validates the changes.
  4. The system updates the user entity in the database.
  5. The system confirms the update to the client.