Walmart API Homework

I have developed the maven java project in Eclipse IDE. The application allows the user to search for any item and will show recommendations for the first search item. The code is self explanatory and I have included comments on every place possible in the code to make it more readable.

Overview of Project

1) The application starts from RecommendProducts Class which has main()
2) It creates a Program Class object which has startApplication() which is driving the whole application.
3) I have created WalmartAPI class to deal with real WalmartAPI related stuff like getting Results, Recommendations or Reviews for an item search. This class also gets scores from review and add to recommendation objects.
4) URLs class deal with getting search, recommend or review urls and also for encoding string to be appended with url.
5) ProjectConfiguration class has API key required to make calls.
6) JsonObjectSortByScoreComparator class is just a comparator that sorts a list of JsonObjects based on their scores.
7) I created Product class incase we don't want the JsonObjects and want our clean custom objects. This is just optional implementation.
8) ProductSortByScoreComparator class is just a comparator that sorts a list of Product class objects based on their scores.
9) In the test folder you can find WalmartAPITest class which has unit tests for this application
10) I have tried to implement this application as good as possible but we can further optimize this in future.

Approach I used to get Score:

1) For each recommendation object I called the review api and get the reviewStatistics element out of it if available. If not then I gave a score 0 to that recommendation object. Inside the reviewStatistics element I get the averageOverallRating and overallRatingRange elements and the calculated score = overallRatingRange/ overallRatingRange and then inserted the score element in the recommendation object which is later used for sorting.
2) We can use third party API to get sentiment and calculate score based on review text but that will make application slow and highly dependent on response time of third party API.

Points that came to my notice

1) Walmart Labs API is also returning result for strings like "%^&* ()#$". It is the problem on the API side.
2) Some review objects didn't had reviewStatistics element. In those cases I gave a score 0 to the recommend item.

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Steps to run the code:

1) Open terminal and get inside the project folder that is ~/RecommendedProducts
2) Type **ls** command to make sure you can see pom.xml to make sure you are in the right folder. If you are not check the folder structure and move to right folder
3) Type **mvn compile** to compile the code
4) Type **mvn test** to run all test cases
5) Type **mvn exec:java -Dexec.mainClass="MyProject.RecommendProducts"** to start the application
6) You will see user friendly messages on terminal. Make selections as you need.
7) **Optional**: You can use **mvn clean** command anytime to clean the project, but once you do this you have to execute from step 3 – step 5 to start the application