# SentimentAnalyser

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@version Java 21

## Description

The application provides a user-friendly interface for analysing sentiment of Twitter/X poster using lexicon analysis and SaS (Score and Sum) approach for defining sentiment.

## To Run

Application is run from console at .jar file directory:
java --enable-preview -cp .:./sentiment.jar ie.atu.sw.Runner
Then navigate through console options (1 and 2) to configure desired lexicon and then analyse the text with the lexicon provided in step 1. Option 3 can be used to exit the application.

## Features

- Lexicon configuration
    - Lexicon path shall follow valid format for filesystem (e.g. /Users/anastasiia/Documents/ATU/lexicons/vader.txt)
    - Lexicon processing methods implemented in LexiconHandler.java class
    - Words and scores are saved to concurrent HashMap
    - processLexiconFromFile method reads lexicon data from a file and processes it using virtual threads.
    - processLexicon method processes lexicon data provided as a string using virtual threads.
    - Both methods utilise the Executors.newVirtualThreadPerTaskExecutor() to create a virtual thread pool for parallel execution.
- Analyse sentiment of Twitter/X poster from text file
    - File Path shall follow valid format for filesystem (e.g. /Users/anastasiia/Documents/ATU/100-twitter-users/AceMas21.txt)
    - Sentiment analysis functionality is implemented  in SentimentCalculator class
    - Constructor SentimentCalculator(ConcurrentMap<String, Double> lexicon) assigns the provided lexicon to the instance variable.
    - analyseSentiment method analyses sentiment for a specified file using the provided lexicon and utilises virtual threads
    - reportSentiment method generates a sentiment report based on the calculated score
- Process overview
    - Sentiment analysis is done sequentially
    - First lexicon shall be configured
    - Then text sentiment may be analysed as per provided lexicon
    - Definition of positive and negative sentiment was based on that the negative words have negative score so if overall score is negative is indicates the negative sentiment