

Exercises

Implement a Java application for analyzing the behavior of a person recorded by a set of sensors installed in its house using functional programming with lambda expressions and stream processing. The historical log of the person's activity is stored as tuples (start_time, end_time, activity_label), where start_time and end_time represent the date and time when each activity has started and ended while the activity label represents the type of activity performed by the person: Leaving, Toileting, Showering, Sleeping, Breakfast, Lunch, Dinner, Snack, Spare_Time/TV, Grooming. The data is spread over several days as many entries in the log Activities.txt, downloadable at <https://dsrl.eu/courses/pt/materials/Activities.txt> . For each requirement print the result in the console.

Requirement

- a) Define a class MonitoredData with 3 fields: start time, end time and activity as string. Read the data from the file Activity.txt using streams and split each line in 3 parts: start_time, end_time and activity_label, and create a list of objects of type MonitoredData.
- b) Count the distinct days that appear in the monitoring data.
- c) Count how many times each activity has appeared over the entire monitoring period. Return a structure of type Map<String, Integer> representing the mapping of each distinct activity to the number of occurrences in the log; therefore the key of the Map will represent a String object corresponding to the activity name, and the value will represent an Integer object corresponding to the number of times the activity has appeared over the monitoring period.