

Read json extract data write extracted data to csv



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Resources:

1. Task description
2. input.json
3. expected result file

Task:

Implement a small python script, that reads a json file (input.json see attached zip-archive). The script shall extract some data points from the json file and export these data points to a csv (comma separated values file).

Please report the time it took to implement the script.

Acceptance criteria:

1. input.json is read from the hardrive
2. The data from the file shall be parsed.
 - a. From each frame all data corresponding to the given output file shall be extracted and written to a new output file.
3. the name of the output file is generated from the script.
 - a. Pattern: %machineId_%startdate_%starttime_%endtime.csv
 - b. %startdate is the date of the earliest frame
 - c. %starttime is the earliest time in any frame that belongs to %startdate
 - d. %endtime is the latest time of any frame that belongs to %startdate

Hint: In this case only 1 day is considered, no date change.

4. The script shall be executable without errors
5. The result shall look like the given output file (8154711_20230314_0530_1533_.csv)
6. The csv file shall be readable with MS office excel

Stretch:

Write a second file that shows statistics like:

SessionId Session Start – Session End – #Frames for Session

Additional info concerning a "frame":

A frame within the file is shaped like this:

```
{
  "@timestamp": "2023-03-14 05:30:41.980",
  "mdc.ContentType": "405",
  "mdc.SessionGuid": "b2fa61a1-86f9-4302-9d21-73012eb13fd7",
  "@message": {
    "timestamp": "2023-03-14T05:30:41.98Z",
    "sequence": 12573,
    "loggerClassName": "org.slf4j.impl.Slf4jLogger",
    "loggerName": "com.deere.construction.streaming.service.impl.WorkContributionService",
    "level": "INFO",
    "message": "Inserted WorkContribution key orgs/365214/sites/f8b24285-4709-4ecb-a7e5-31ffc83276e5/machines/8154711/workContributions/1678724649,
31ffc83276e5/machines/8154711/workContributions/1678724649,
WorkContribution={\"machineId\":\"8154711\", \"contributionId\":1678724649, \"orgId\":\"365214\", \"worksiteld\":\"f8b24285-4709-4ecb-a7e5-31ffc83276e5\", \"startDate\":\"1678724649\", \"endDate\":\"1678771810\", \"lastUpdated\":\"1678771841978\", \"productivityTotals\":[{\"value\":{\"valueAsDouble\":61.0, \"unit\":\"sec\", \"vrDomainId\":\"vrTotalEngineOperatingTime\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"t\", \"vrDomainId\":\"vrTotalMilledWeight\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m\", \"vrDomainId\":\"vrTotalMilledDistance\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m2\", \"vrDomainId\":\"vrTotalMilledArea\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m\", \"vrDomainId\":\"vrTotalMilledDifficultyDistance\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m2\", \"vrDomainId\":\"vrTotalMilledRefinishArea\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"\", \"vrDomainId\":\"vrTotalWaterConsumption\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m3\", \"vrDomainId\":\"vrTotalMilledVolume\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":61.0, \"unit\":\"sec\", \"vrDomainId\":\"vrTotalJobDuration\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m2\", \"vrDomainId\":\"vrTotalMilledAdditionalArea\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"sec\", \"vrDomainId\":\"vrTotalMilledDuration\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":30.0, \"unit\":\"sec\", \"vrDomainId\":\"vrTotalJobDuration\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m\", \"vrDomainId\":\"vrTotalMilledDifficultyDistance\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"sec\", \"vrDomainId\":\"vrTotalMilledDuration\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"\", \"vrDomainId\":\"vrTotalWaterConsumption\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"t\", \"vrDomainId\":\"vrTotalMilledWeight\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m2\", \"vrDomainId\":\"vrTotalMilledRefinishArea\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m\", \"vrDomainId\":\"vrTotalMilledDistance\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m2\", \"vrDomainId\":\"vrTotalMilledAdditionalArea\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":30.0, \"unit\":\"sec\", \"vrDomainId\":\"vrTotalEngineOperatingTime\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m3\", \"vrDomainId\":\"vrTotalMilledVolume\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}, {\"value\":{\"valueAsDouble\":0.0, \"unit\":\"m2\", \"vrDomainId\":\"vrTotalMilledArea\", \"scaleFactor\":1}, \"operationType\":\"WF_CONSTRUCTION_MILLING\"}], \"latestTimestampId\":\"1678771810396\", \"oldestTimestampId\":\"1678724649689\", \"sessionId\":\"f61218d1-bcf0-4e63-8409-7838c21e1de4\", \"source\":\"STS\"},
    "threadName": "main",
    "threadId": 1,
    "mdc": {
```

```

    "SessionGuid": "b2fa61a1-86f9-4302-9d21-73012eb13fd7",
    "OrgId": "365214",
    "AwsRequestId": "f06cc6b4-1960-4d99-b4dd-8c202feaa30a",
    "JobsiteId": "3cac54b1-de51-443a-8609-8c489330dc37",
    "EventId": "shardId-000000000000:49631938916389691394783801275475818729616929548100698114",
    "MachineId": "8154711",
    "SequenceNumber": "49631938916389691394783801275475818729616929548100698114",
    "ContentType": "405",
    "frequency": "STS"
  },
  "ndc": "",
  "hostName": "unknown-host.unknown-domain",
  "processName": "lambdainternal.AWSLambda",
  "processId": 8
}
}

```

A frame consists of different data, and many data points that are not of interest. We want to know how the total values stored under the keys starting with "vr" like "vrTotalMilledVolume" develop over time. The most data is retrieved from the "message" segment. This segment consists of 2 main parts. The first part has the total actual values, the second part starting after **productivityTotalStartValues** are the start values of the current session, identified by the sessionId.

Happy coding! 😊

VERSION HISTORY

Read json extract data write extracted data to csv

Version number	Implemented by	Revision date	Description of change
1.0	Florian Rosenthal	27/03/23	Initial revision