Introduction

Freshdesk, a helpdesk system, allows the export of activity information of all tickets. The export takes the following form:

{

"metadata": {

"start_at": "20-04-2017 10:00:00 +0000",

"end_at": "21-04-2017 09:59:59 +0000",

"activities_count": 2

},

"activities_data": [

{

"performed_at": "21-04-2017 09:33:38 +0000",

"ticket_id": 600,

"performer_type": "user",

"performer_id": 149018,

"activity": {

"note": {

"id": 4025864,

"type": 4

}

}

},

{

"performed_at": "21-04-2017 09:38:24 +0000",

"ticket_id": 704,

"performer_type": "user",

"performer_id": 149018,

"activity": {

"shipping_address": "N/A",

"shipment_date": "21 Apr, 2017",

"category": "Phone",

"contacted_customer": **true**,

"issue_type": "Incident",

"source": 3,

"status": "Open",

"priority": 4,

"group": "refund",

"agent_id": 149018,

"requester": 145423,

"product": "mobile"

}

}

]

}

The status column can be any of the following values:

- "Open"
- "Closed"
- "Resolved"
- "Waiting for Customer"
- "Waiting for Third Party"
- "Pending"

Steps

1. Write a Python program which will randomly generate realistic ticket data based on the above JSON format and store the data in a JSON file on disk. It should generate a random activity distribution for a configurable number of tickets. The program will be checked for realism of data, and for the ability to handle large amounts of records.Example: ticket_gen -n 1000 -o activities.json to generate 1000 tickets with random activities into the activities.json file.
2. Write a program (in a language if your choice) to read the above generated JSON file and store the data into a SQLite database in a relational format. The program will be checked for relational modelling.
3. Write a SQL script that can be run on the database to generate the following attributes for each ticket:
    - Time spent Open
    - Time spent Waiting on Customer
    - Time spent waiting for response (Pending Status)
    - Time till resolution
    - Time to first response
4. Example:| ticket_id | time_spent_open | time_spent_waiting_on_customer | time_spent_waiting_for_response | time_till_resolution | time_to_first_response | | 704 | 12 | 90 | 1200 | 1300 | 10 |
5. Ensure all the above programs can be run in sequence using a bash script, Makefile, or equivalent.