Simulation Report

This document provides a comprehensive analysis of the movement of five devices across different cities in Lebanon. The devices, labeled Device-001 to Device-005, were tracked over a period of seven days, generating a total of 12,083 records. The analysis reveals patterns and links between the behaviors of the devices, shedding light on their movement patterns and time spent in each city.

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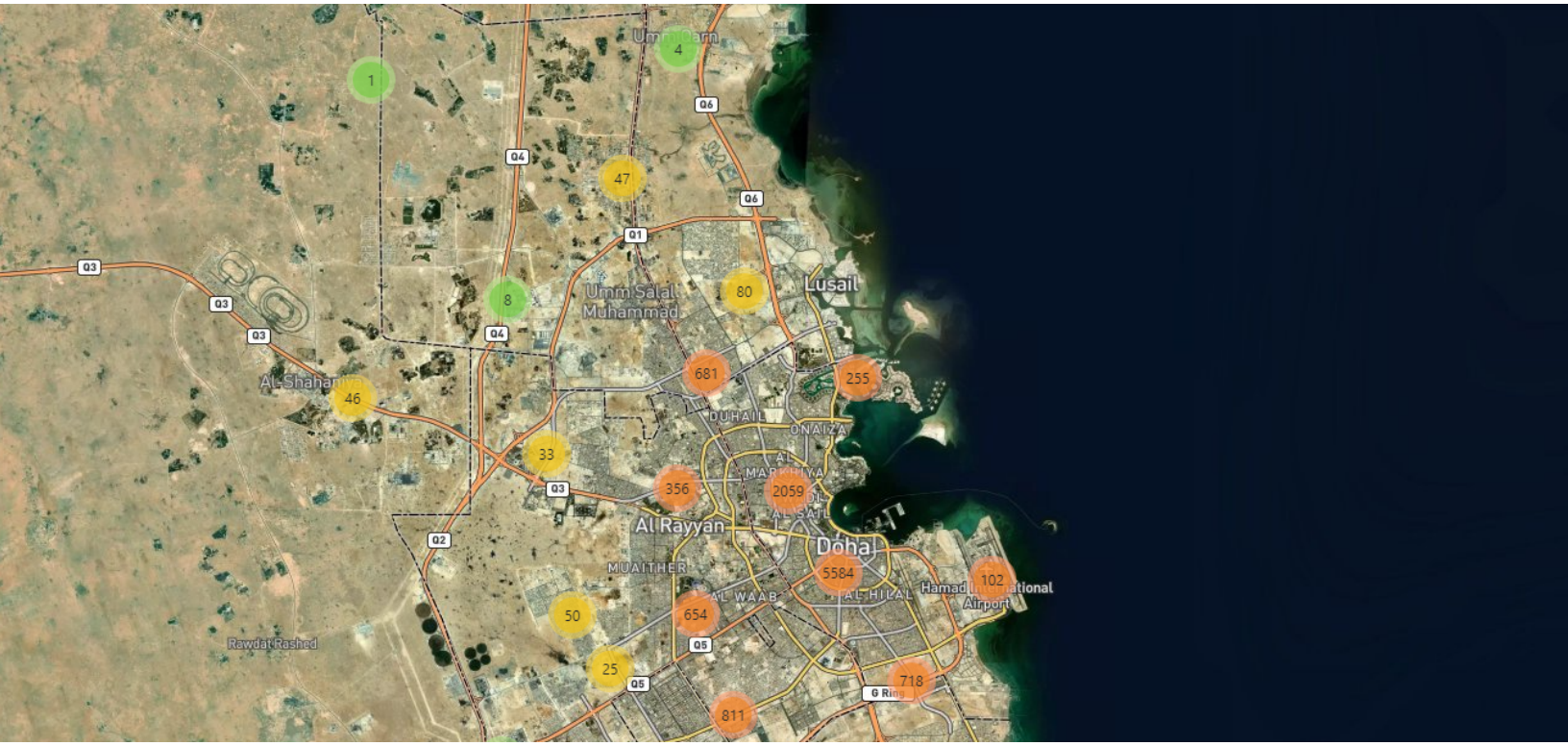


Introduction

The DHP type simulation provides a unique opportunity to analyze the movement patterns of devices across different cities. This document focuses on the analysis of five devices, which were tracked over a period of seven days, generating a total of 12,083 records. The objective of this analysis is to identify patterns and links between the behaviors of the devices, providing insights into their movement patterns and time spent in each city.

Statistic	Data
Number of Devices	5
Number of Records	12083
Number of Days	7
Countries	Lebanon
Cities Number	14

Analysis of Device Movement

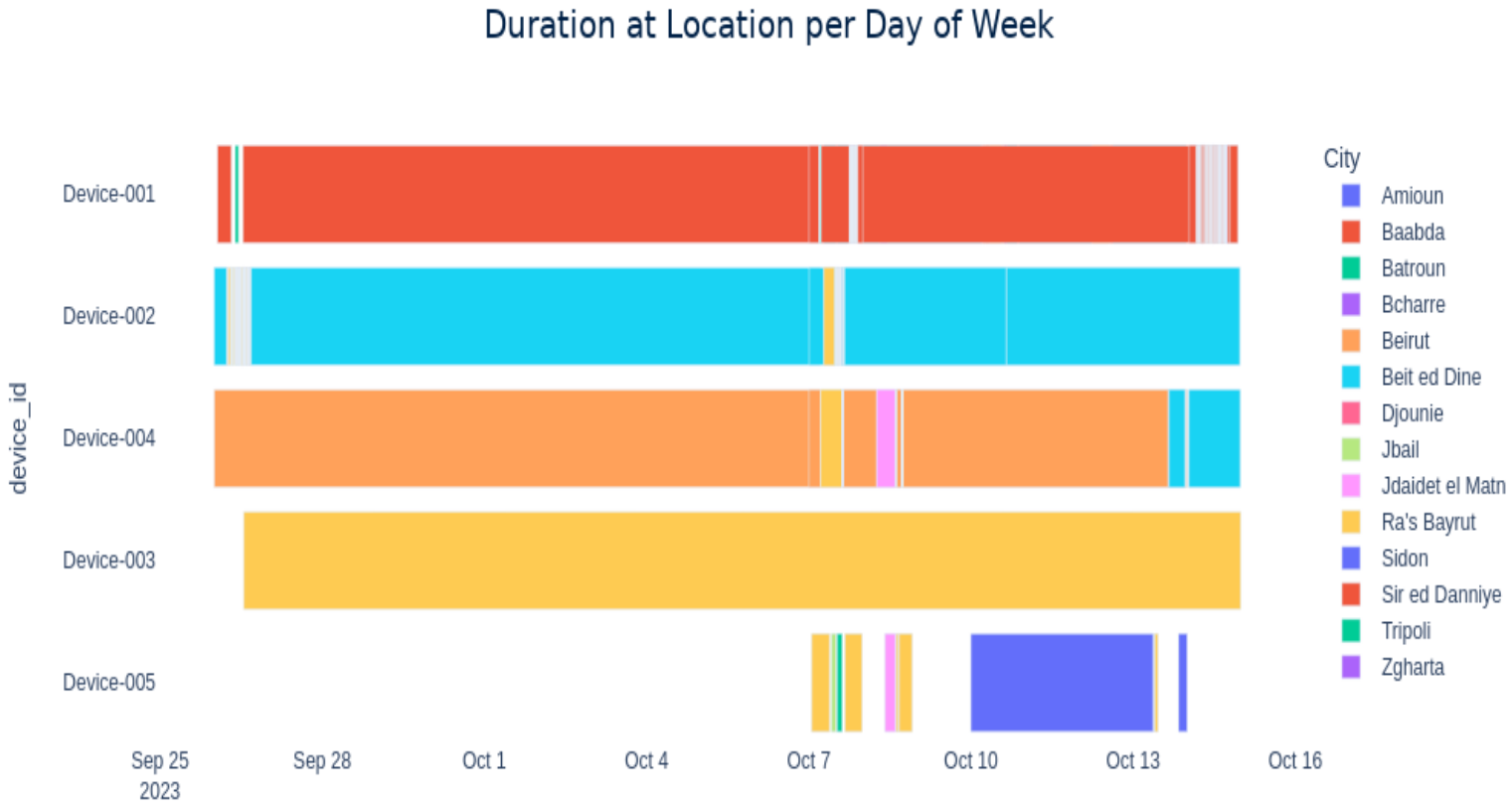
• 1. **Device-001** Device-001 moved between Amioun, Baabda, and Beirut, spending a total of 0 days 1 hour 47 minutes in Amioun and 0 days 2 hours 11 minutes in Baabda.

• 2. **Device-002** Device-002 moved between Baabda, spending a total of 0 days 1 hour 45 minutes in the city.

• 3. **Device-003** Device-003 moved between Ra's Bayrut, spending a total of 18 days 10 hours 36 minutes in the city.

• 4. **Device-004** Device-004 moved between Baabda, Beirut, and Baabda again, spending a total of 0 days 30 minutes in Baabda and 11 days 5 hours 10 minutes in Beirut.

• 5. **Device-005** Device-005 moved between Baabda, Batroun, and Beirut, spending a total of 0 days 17 minutes in Baabda, 0 days 2 hours 11 minutes in Batroun, and 0 days 16 minutes in Beirut.



• The analysis reveals that all devices spent a significant amount of time in Baabda, with Device-002 and Device-005 spending the most time in the city. Device-003 spent the longest time in Ra's Bayrut, while Device-004 spent the most time in Beirut. The movement patterns of the devices suggest that they may be related, with Device-002 and Device-005 following a similar pattern in Baabda.

Common Location

Description

• sis of the behaviors of geolocation devices at important locations where they share the same location and are close in time:

• Common Location Description

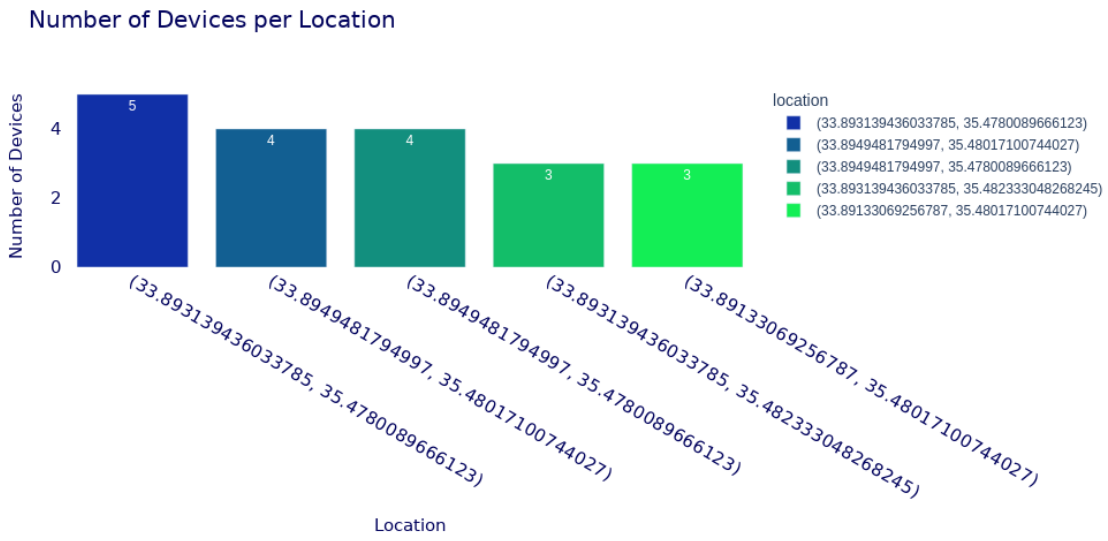
• At grid location (33.893139436033785, 35.4780089666123), there are 5 devices with IDs: Device-002, Device-003, Device-001, Device-005, Device-004.

• At grid location (33.8949481794997, 35.48017100744027), there are 4 devices with IDs: Device-002, Device-005, Device-003, Device-004.

• At grid location (33.8949481794997, 35.4780089666123), there are 4 devices with IDs: Device-002, Device-001, Device-005, Device-003.

• At grid location (33.893139436033785, 35.482333048268245), there are 3 devices with IDs: Device-005, Device-003, Device-004.

• At grid location (33.89133069256787, 35.48017100744027), there are 3 devices with IDs: Device-005, Device-003, Device-004.



Device Co-location Analysis

Upon analyzing the data, it is evident that Devices 002, 003, 004, and 005 frequently co-locate at multiple grid locations. Specifically: * Devices 002, 003, and 005 co-locate at three different grid locations, indicating a strong pattern of interaction between these devices. * Devices 003 and 005 co-locate at four different grid locations, suggesting a high level of affinity between these devices. * Device 004 tends to co-locate with Devices 003 and 005, but less frequently with Device 002. * Device 001 only co-locates with Devices 002, 003, and 005 at a single grid location, indicating a relatively isolated behavior. The frequency of co-location and duration of stays suggest that these devices are likely to be used by individuals who frequently interact with each other, possibly as part of a group or organization.

Significance of Locations

The grid locations where these devices co-locate may be significant in understanding the activities and behaviors of the device users. For instance: * The frequent co-location of devices at grid location (33.893139436033785, 35.4780089666123) may indicate a common meeting point or hub for the device users. * The presence of multiple devices at grid location (33.8949481794997, 35.48017100744027) could suggest a point of interest or a popular destination for the device users. * The recurring pattern of co-location at grid location (33.8949481794997, 35.4780089666123) may imply a routine or regular activity among the device users. These findings have significant implications for understanding the behaviors and interactions of the device users, and may be relevant in a legal or investigative context

Conclusion

This analysis provides valuable insights into the movement patterns of the five devices. The results suggest that the devices may be related, with similar movement patterns observed in Baabda and Beirut. The analysis highlights the importance of analyzing device movement patterns to uncover potential links and patterns between devices

DeviceID Mapping Table

Original ID	Simplified ID
5d11a2bf-ac0e-42dc-addf-3a799fe5891b	Device-001
03ea24d8-20c9-4c39-afc3-c94fdeee097e	Device-002
9B2EC0F8-292A-47B7-A139-EDA1B1E5D9F4	Device-003
92929e9d-517e-4395-abbf-f4b814132b00	Device-004
f09c4248-ecf3-4f10-a1f5-97e118ee321d	Device-005