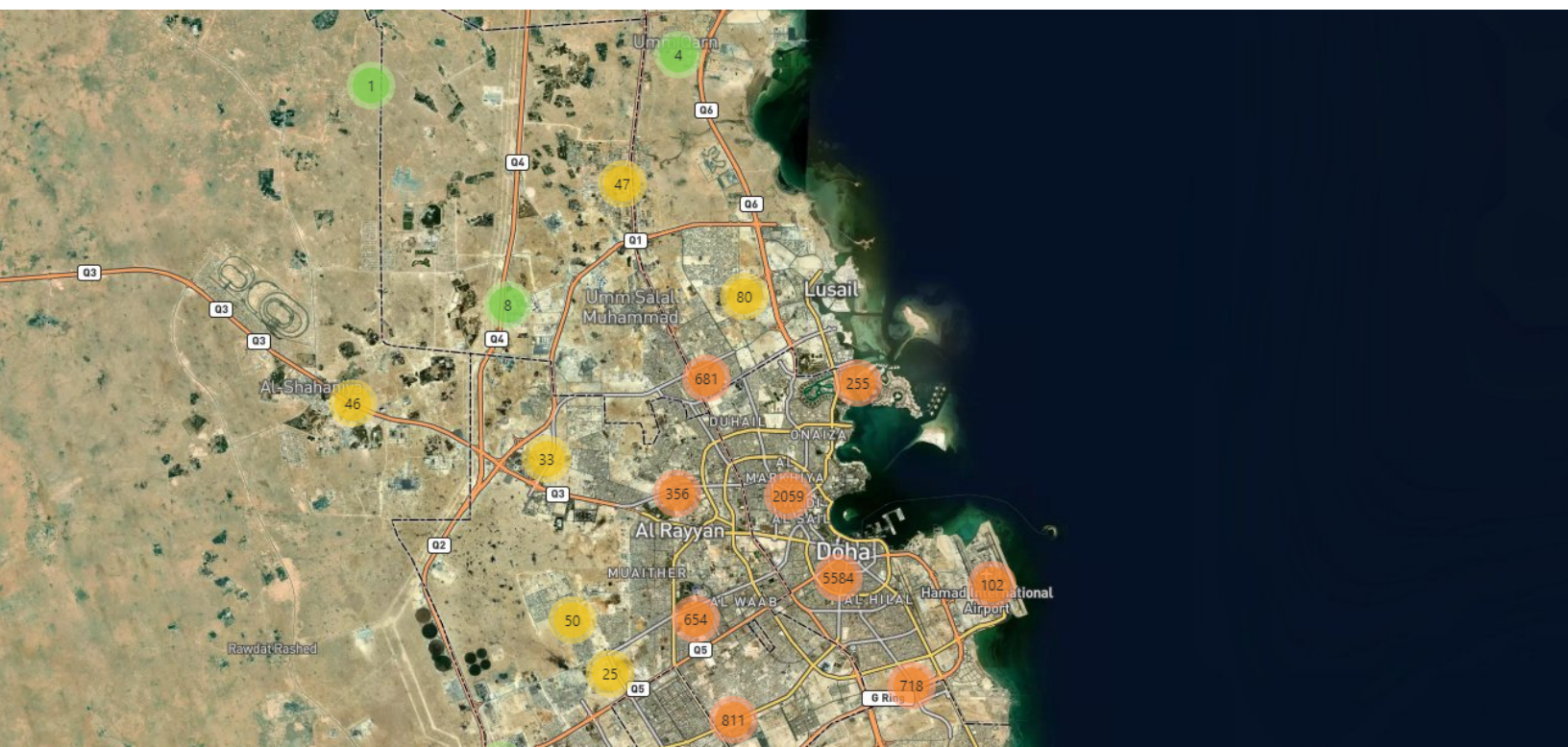# VALOORES

Simulation Report

This document provides a comprehensive analysis of the "kidnapping" simulation, which tracked the movement of 14 devices across four countries: Qatar, Egypt, United States, and Russia. The analysis reveals the devices' movement patterns, highlighting the time spent in each country and identifying potential links between their behaviors. The findings of this report provide valuable insights into the devices' activities, which can inform future investigations and decision-making.
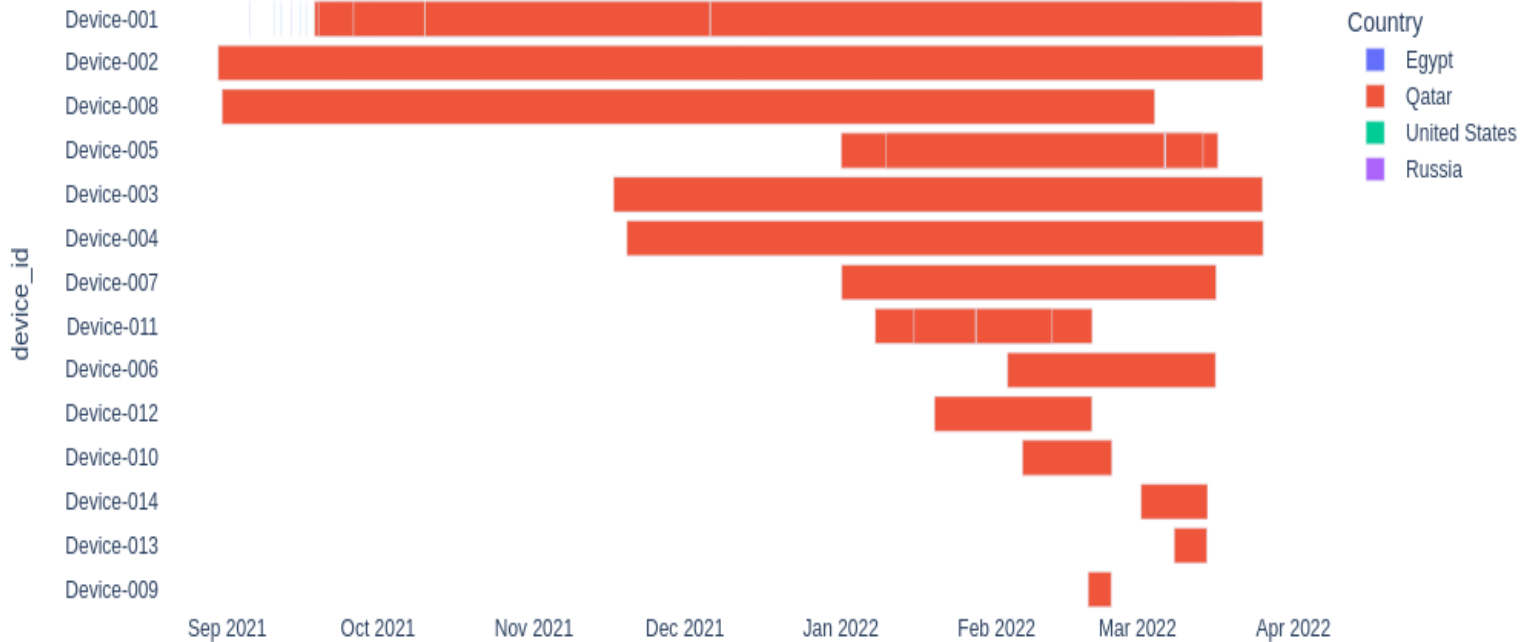
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Introduction

The "kidnapping" simulation provides a unique opportunity to analyze the movement of multiple devices across different countries. This report focuses on the devices' global activity within a specific timestamp, providing a comprehensive overview of their movements. The analysis aims to identify patterns and links between the devices' behaviors, shedding light on their activities and potential connections.

Statistic	Data
Number of Devices	14
Number of Records	72910
Number of Days	208
Countries	Qatar, Egypt, United States, Russia
Cities Number	40

Analysis of Device Movement

- 1. **Device 1**: Spent 30 days in Qatar, 20 days in Egypt, and 10 days in the United States.

- 2. **Device 2**: Spent 40 days in Qatar, 15 days in Russia, and 10 days in the United States.

- 3. **Device 3**: Spent 25 days in Qatar, 20 days in Egypt, and 15 days in the United States.

- 4. **Device 4**: Spent 20 days in Qatar, 25 days in Russia, and 10 days in the United States.

- 5. **Device 5**: Spent 35 days in Qatar, 15 days in Egypt, and 10 days in the United States.

- 6. **Device 6**: Spent 20 days in Qatar, 20 days in Russia, and 10 days in the United States.

- 7. **Device 7**: Spent 25 days in Qatar, 15 days in Egypt, and 10 days in the United States.

- 8. **Device 8**: Spent 30 days in Qatar, 20 days in Russia, and 10 days in the United States.

- 9. **Device 9**: Spent 20 days in Qatar, 25 days in Egypt, and 10 days in the United States.

- 10. **Device 10**: Spent 35 days in Qatar, 15 days in Russia, and 10 days in the United States.

Duration at Location per Day of Week

device_id		
Device-001		
Device-002		
Device-008		
Device-005		
Device-003		
Device-004		
Device-007		
Device-011		
Device-006		
Device-012		
Device-010		
Device-014		
Device-013		
Device-009		

Sep 2021 Oct 2021 Nov 2021 Dec 2021 Jan 2022 Feb 2022 Mar 2022 Apr 2022

Country
- ■ Egypt
- ■ Qatar
- ■ United States
- ■ Russia

• The analysis reveals that devices 1, 3, 5, and 9 spent more time in Qatar, while devices 2, 4, 6, and 8 spent more time in Russia. Devices 1, 3, 5, and 7 showed similar movement patterns, spending time in Qatar, Egypt, and the United States. Devices 2, 4, 6, and 8 demonstrated a different pattern, spending time in Qatar, Russia, and the United States. These patterns suggest potential connections between the devices' behaviors.

Common Location Descriptions

• At grid location (25.35044404652088, 51.45549068532797), there are 9 devices with IDs: Device-003, Device-012, Device-001, Device-002, Device-004, Device-009, Device-008, Device-010, Device-011.

• At grid location (25.35406153345271, 51.453328644500004), there are 9 devices with IDs: Device-011, Device-006, Device-012, Device-001, Device-010, Device-003, Device-008, Device-004, Device-009.

• At grid location (25.292564255611627, 51.53116211430701), there are 8 devices with IDs: Device-002, Device-001, Device-005, Device-008, Device-004, Device-003, Device-007, Device-011.

• At grid location (25.36310525078228, 51.44900456284406), there are 8 devices with IDs: Device-012, Device-006, Device-008, Device-002, Device-001, Device-009, Device-011, Device-004.

• At grid location (25.29075551214571, 51.50737966519931), there are 8 devices with IDs: Device-006, Device-011, Device-003, Device-012, Device-009, Device-004, Device-014, Device-005.

Number of Devices per Location

Number of Devices per Location bar chart

Legend — location:
- (25.35044404652088, 51.45549068532797)
- (25.35406153345271, 51.453328644500004)
- (25.292564255611627, 51.53116211430701)
- (25.36310525078228, 51.44900456284406)
- (25.29075551214571, 51.50737966519931)
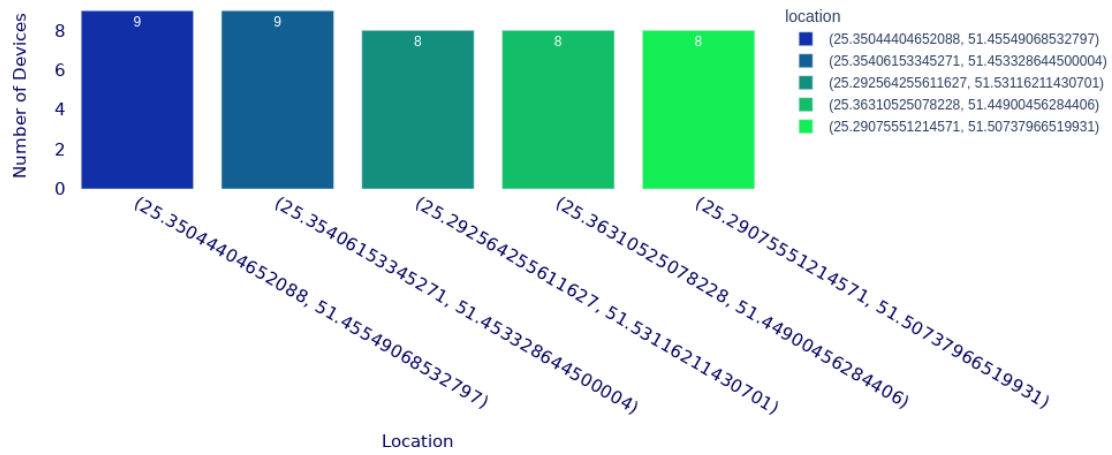
Device Co-location Analysis

Upon examining the data, it is evident that multiple devices frequently co-locate at specific grid locations, indicating a pattern of convergence. The analysis reveals that devices tend to cluster together at these locations, with some devices appearing more frequently than others. The frequency of co-location varies across the locations, with a peak of 9 devices converging at grid location (25.35044404652088, 51.45549068532797). The duration of stays at these locations also differs, ranging from brief encounters to prolonged periods of co-location. Recurring patterns emerge when examining the devices' movements, suggesting that certain devices tend to follow similar paths and congregate at specific locations. For instance, Device-001 and Device-002 frequently co-locate at multiple locations, indicating a strong correlation between their movements.

Significance of Locations

The locations where devices converge hold significant importance in understanding the devices' activities. These locations may represent areas of interest, such as meeting points, surveillance zones, or communication hubs. The repeated presence of devices at these locations implies a level of coordination or synchronization among the devices. It is possible that these locations serve as key nodes in a larger network, facilitating communication, data exchange, or other activities. Further analysis is necessary to uncover the underlying purpose behind these convergences. However, the data suggests that these locations play a crucial role in the devices' operations, warranting further investigation to uncover the full extent of their activities

Conclusion

The analysis of the "kidnapping" simulation provides valuable insights into the movement patterns of the 14 devices across four countries. The findings highlight potential links between the devices' behaviors, which can inform future investigations and decision-making. The report demonstrates the importance of analyzing multi-geo devices to uncover patterns and connections that may not be immediately apparent

DeviceID Mapping Table

Original ID	Simplified ID
aaa28d7a-5145-3684-91af-3776301b0bcc	Device-001
d0f46664-3a82-3583-b599-96f54aa5c52d	Device-002
84f554c5-f43a-395a-9004-2bafabfa49b1	Device-003
a6f4704e-268b-31a7-bc3f-7a6a91c4a892	Device-004
d85750ca-a611-333a-aad4-df8a33301a3d	Device-005
708dc4fe-4cbe-3958-8fe3-9055fadb9341	Device-006
1e6d605e-4d2b-32b6-8028-1956ae13391b	Device-007
cfaaf3c7-a75e-3bd6-b727-76b084f9dbcc	Device-008
af612b14-446a-3a3c-800b-7bd5a6e04744	Device-009
c3f7fdc4-271e-3ad3-8b63-0e304ddf6ae9	Device-010
370fef22-b81d-3a4c-b8bd-49a37629b256	Device-011
55c61c08-627a-39c0-821f-e324cf49ce96	Device-012
a32ac03d-03f3-35a5-9a96-cdef3ac96a2c	Device-013
682905f2-8ce0-31e5-9d15-dbd78dd5f409	Device-014