

# Analysis Report

## 1. Introduction

The provided data shows records of actions performed by the users of *Unloc* mobile application. The data is for the month of May 2021. A total of 114,852 entries for a set of 21 attributes are available in the dataset. The objective of this study is to analyze the data and produce insights that can be useful from business point of view.

## 2. Analysis

### 2.1. User actions

There are three different types of user actions recorded in the dataset viz. *unlocked*, *locked* and *viewedCode*. Over 90% of the recorded actions were *unlocked*, 9.7% was *locked*, and the remaining were *viewedCode*.

### 2.2. Users, keys and locks

The data shows that 8,616 users used the service in May 2021 and a total of 17,079 unique keys were used on 2,998 different locks. The users belong to various countries (17 in total), however, ~ 98% of the users whose user info is available are from Norway. It may be noted that user info of 1,062 users is missing in the dataset.

### 2.3. App usage statistics

The busiest day in terms of *Unloc* app usage is 31 May 2021 which recorded a total of 6,395 actions by the users. Between 21 – 26 May 2021, there are only 41 recorded actions in total (Fig 1a). This is probably because of public holiday on Monday, 24 May 2021 (Pentecost) and the users may be away for holidays. We choose to treat these as outliers and drop them from our analysis (Fig 1b) because they do not represent the normal app usage behavior and will likely introduce a bias in our analysis if included.

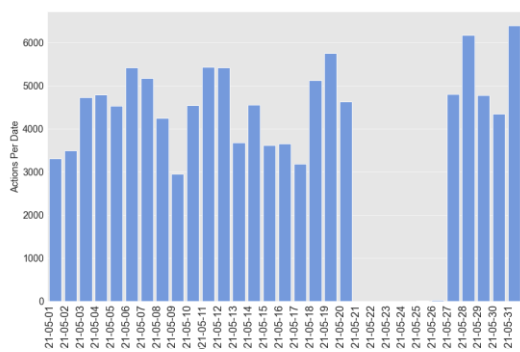


Fig 1a: Daily app usage for May 2021

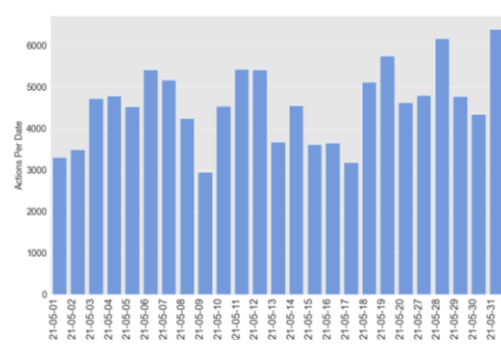
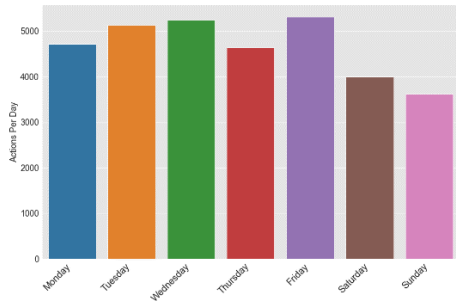
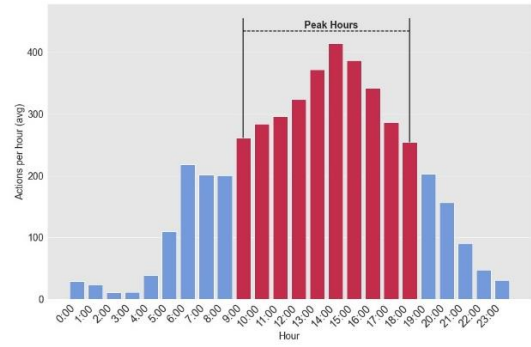


Fig 1b: Daily app usage for May 2021 (without outliers)

Furthermore, Saturday and Sunday are the least busy days (Fig 2) maybe because of the weekend. Time period between 9:00 – 18:00 appear to the peak hours which accounts for a greater fraction of user activity (Fig 3). This is further supported by the fact that this time period is the normal working hours.



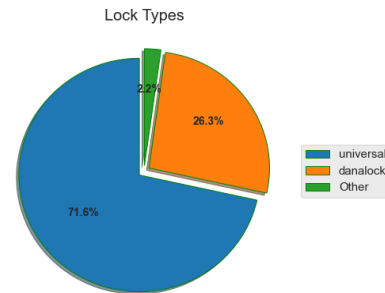
**Fig 2: User actions with respect to days of the week**



**Fig 3: Hourly activity levels**

## 2.4. Lock type

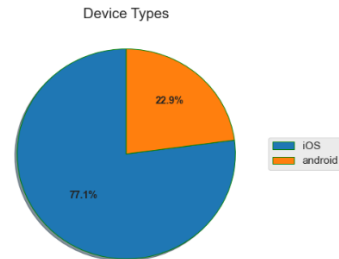
A total of 2,981 lock type records were missing in the data. Approximately 72% of the lock type used was *universal* and 26% were *danalock*. Other lock types comprise just over 2% of the data (Fig 4).



**Fig 4: Distribution of lock types**

## 2.5. Device info

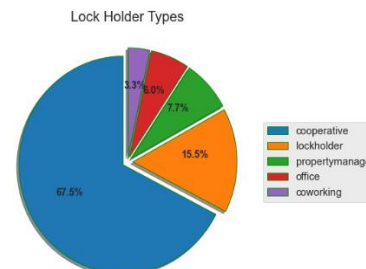
1,062 records did not contain device info. This is the same number as missing users. From the available data, it is noted that ~77% of the users are iOS users while the rest use Android (Fig 5).



**Fig 5: Distribution of user device types**

## 2.6. Lock holders

There are five different types of lock holders (Fig 6), out of which *cooperative* stands out as the lock holder type with most users/activity (~67%).



**Fig 6: Distribution of types of lock holders**