



L I F E L E N Z
Live. Life. Better.

Data Assessment

LifeLenz App Usage (Store Type) 1

Xiuyuan Cai Quehe Feng Lingfeng Wu Haibo Yu Yifan Zhao

CONTENTS

- **Business Problem & High-level Objectives**
- **Data Source**
- **Data Cleansing & Preparation**
- **Model considerations & Feature Engineering**
- **Preliminary Findings**
- **Project Success Assessment**



LIFELENZ
Live. Life. Better.

Business Problem and Objectives

Problem:

Large amount of stores not using AOS to improve their efficiency

Objectives:

- Visualize model result on store efficiency improvement
- Use result to give specific suggestions to users
- Persuade non-AOS user to use AOS system

Data Source

Data from sponsor LIFELENZ:

1. Data derived from Google Analytics including basic information of users, behaviors and locations.
1. Supplemental data to identify corporate owned stores and AOS stores

Data Volume Summary (Original Version):

1273968 * 41 (804.5MB)

Page 10 of 10

Data Cleansing Performed: Extraction and Mapping on business ID and Location ID

Business ID

[illegible]

Mapping

Location ID

```

0      b1a9d404-8465-4545-a57a-3c06bd78a63b
1
2      b1a9d404-8465-4545-a57a-3c06bd78a63b
3
4      b1a9d404-8465-4545-a57a-3c06bd78a63b
5
6      ...
7
8      1273963      None
9      1273964      28ff0b58-c6df-4738-9152-b33ac9c8b442
10     1273965      28ff0b58-c6df-4738-9152-b33ac9c8b442
11     1273966      4571db27-311c-4044-a625-65dbe908ecf2
12     1273967      4571db27-311c-4044-a625-65dbe908ecf2

```

	AOS	corporate
	0	0
	0	0
	0	0
	0	0
	0	0
...
	0	0
	0	0
	0	0
	0	0
	0	0



Data Cleansing and Preparation

After dropping the rows we do not know the store types and unuseful rows, extracting the variables we needs, we got the data of 145274 rows x 29 columns.

pagePath	pageTitle	secondPagePath	M_timeOnPage	eventCategory	eventAction	eventLabel	M_eventValue	AOS	corporate	swap	drop	absent
ym/schedule/week/60a19d58-1d0cc4db6/64e9e054-2880-1d-608e1e1f57dc/2020-07-14	Schedule LifeLenz	/https://admin.lifelenz.com/settings/schedule/60a19d58-6205-4b45-b23d-e041d0cc4db6/64e9e054-2880-4780-a20d-608e1e1f57dc/people-list	0.0	calendar-view-navigation	navigate	(not set)	0.0	1	0	0	0	0
ym/schedule/week/60a19d58-1d0cc4db6/64e9e054-2880-1d-608e1e1f57dc/2020-07-14	Schedule LifeLenz	/https://admin.lifelenz.com/settings/schedule/60a19d58-6205-4b45-b23d-e041d0cc4db6/64e9e054-2880-4780-a20d-608e1e1f57dc/people-list	0.0	schedule-menu	quick-publish	Week	0.0	1	0	0	0	0
ym/schedule/week/60a19d58-1d0cc4db6/64e9e054-2880-1d-608e1e1f57dc/2020-07-20	Schedule LifeLenz	/https://admin.lifelenz.com/settings/schedule/60a19d58-6205-4b45-b23d-e041d0cc4db6/64e9e054-2880-4780-a20d-608e1e1f57dc/people-list	0.0	calendar-view-navigation	navigate	Day	0.0	1	0	0	0	0
ym/schedule/week/0822be31-ac1730a/600fca12-f77-4701-9dce-6a8f4656384b	Schedule LifeLenz	/https://admin.lifelenz.com/schedule/week/0822be31-0815-47ee-ae5-25f41ac1730a/600fca12-f77-4701-9dce-6a8f4656384b	0.0	top-nav	logout	(not set)	0.0	0	1	0	0	0
'settings/schedule/0822be31-1730a/b29574ae-25c1-422a-c1-3d5cc762b3ca/people-list	People List Settings LifeLenz	/https://admin.lifelenz.com/settings/schedule/0822be31-0815-47ee-ae5-25f41ac1730a/b29574ae-25c1-422a-b6c1-3d5cc762b3ca/people-list	0.0	employee-details	toggle-invite-details	(not set)	0.0	0	1	0	0	0
...
com/schedule/day/60a19d58-1d0cc4db6/c34b0881-4ce3-9-3ac23efcdc4a/2020-09-30	Schedule LifeLenz	/https://admin.lifelenz.com/schedule/day/60a19d58-6205-4b45-b23d-e041d0cc4db6/c34b0881-4ce3-496d-b1a9-3ac23efcdc4a/2020-09-14	0.0	schedule	view-print-friendly	(not set)	0.0	1	0	0	0	0
com/schedule/day/60a19d58-1d0cc4db6/c34b0881-4ce3-9-3ac23efcdc4a/2020-10-01	Schedule LifeLenz	/https://admin.lifelenz.com/schedule/day/60a19d58-6205-4b45-b23d-e041d0cc4db6/c34b0881-4ce3-496d-b1a9-3ac23efcdc4a/2020-09-14	0.0	schedule	view-print-friendly	(not set)	0.0	1	0	0	0	0
com/schedule/day/60a19d58-1d0cc4db6/c34b0881-4ce3-9-3ac23efcdc4a/2020-10-02	Schedule LifeLenz	/https://admin.lifelenz.com/schedule/day/60a19d58-6205-4b45-b23d-e041d0cc4db6/c34b0881-4ce3-496d-b1a9-3ac23efcdc4a/2020-09-14	0.0	schedule	view-print-friendly	(not set)	0.0	1	0	0	0	0
com/schedule/day/60a19d58-1d0cc4db6/c34b0881-4ce3-9-3ac23efcdc4a/2020-10-03	Schedule LifeLenz	/https://admin.lifelenz.com/schedule/day/60a19d58-6205-4b45-b23d-e041d0cc4db6/c34b0881-4ce3-496d-b1a9-3ac23efcdc4a/2020-09-14	0.0	schedule	view-print-friendly	(not set)	0.0	1	0	0	0	0
com/schedule/day/60a19d58-1d0cc4db6/c34b0881-4ce3-9-3ac23efcdc4a/2020-10-04	Schedule LifeLenz	/https://admin.lifelenz.com/schedule/day/60a19d58-6205-4b45-b23d-e041d0cc4db6/c34b0881-4ce3-496d-b1a9-3ac23efcdc4a/2020-09-14	0.0	schedule	view-print-friendly	(not set)	0.0	1	0	0	0	0

Model considerations

Feature Engineering

Every recording represents an action of a store

Previous

	date	location_id	business_id	corporate	AOS	eventAction	eventCategory
0	2020-07-01	64e9e054-2880-4780-a20d-608e1e1f57dc	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	navigate	calendar-view-navigation
1	2020-07-01	64e9e054-2880-4780-a20d-608e1e1f57dc	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	quick-publish	schedule-menu
2	2020-07-01	64e9e054-2880-4780-a20d-608e1e1f57dc	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	navigate	calendar-view-navigation
3	2020-07-01	600fca12-ff77-4701-9dce-6a8f4656384b	0822be31-0815-47ee-ae5-25f41ac1730a	1	0	logout	top-nav
4	2020-07-01	b29574ae-25c1-422a-b6c1-3d5cc762b3ca	0822be31-0815-47ee-ae5-25f41ac1730a	1	0	toggle-invite-details	employee-details
...
136606	2020-09-06	c34b0881-4ce3-496d-b1a9-3ac23efcdc4a	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	view-print-friendly	schedule
136607	2020-09-06	c34b0881-4ce3-496d-b1a9-3ac23efcdc4a	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	view-print-friendly	schedule
136608	2020-09-06	c34b0881-4ce3-496d-b1a9-3ac23efcdc4a	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	view-print-friendly	schedule
136609	2020-09-06	c34b0881-4ce3-496d-b1a9-3ac23efcdc4a	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	view-print-friendly	schedule
		id-b1a9-3ac23efcdc4a	60a19d58-6205-4b45-b23d-e041d0cc4db6	0	1	view-print-friendly	schedule

Model considerations

Feature Engineering

Every recording is an action count list for each store on each day

Transformed

	location_id	date	Business config	[object Object]	analytics-action	analytics-menu	analytics-summary	auto-create-breaks	auto-scheduling-menu	availabilities-filter
0	09cdf26e-403f-44ab-9573-62dfbb3cc147	2020-07-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	09cdf26e-403f-44ab-9573-62dfbb3cc147	2020-07-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	09cdf26e-403f-44ab-9573-62dfbb3cc147	2020-07-03	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
3	09cdf26e-403f-44ab-9573-62dfbb3cc147	2020-07-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	09cdf26e-403f-44ab-9573-62dfbb3cc147	2020-07-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Model considerations

Models

K-means Clustering

Hierarchical cluster method



Find patterns of AOS stores and
Non-Aos stores

Supervised learning method:

Logistic, XGB, ...

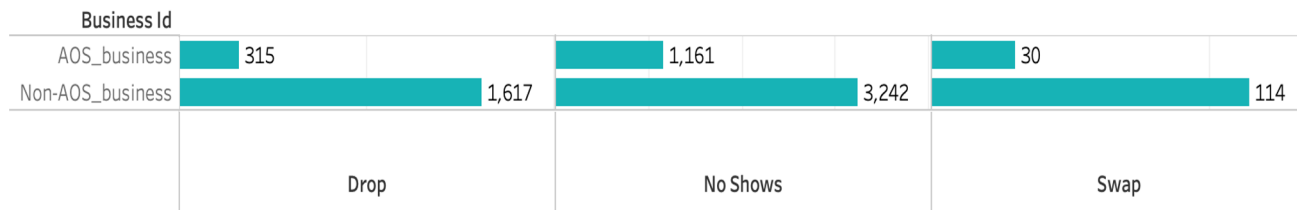


Build models to analyze the
advantages of using AOS

Preliminary Findings

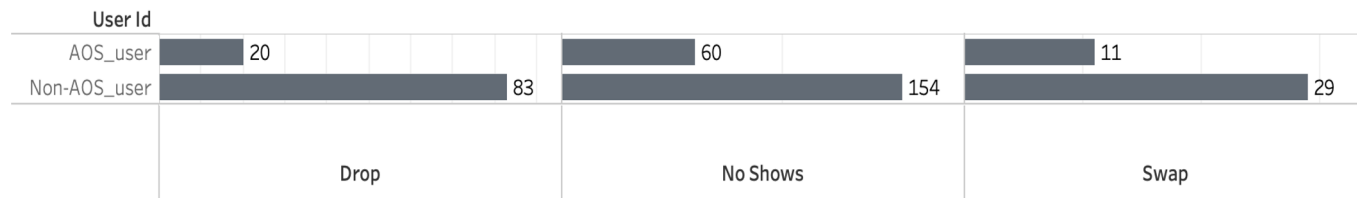
Stores that have run AOS schedules are more efficiently and productive

In particular using variables **Drops**, **No shows** and **Swaps** to measure



Compared by
total times of actions of
different stores types

Compared by employees
numbers of actions of
different store types



Project Success Assessment



Successfully build model to find behavior patterns on different user groups



Successfully visualize the model result



Present the visualized result and give suggestions to each user group



User behavior pattern highly mixed or unclear.



LIFELENZ

Live. Life. Better.

THAN K YOU

LifeLenz App Usage (Store Type) 1



LIFELENZ
Live. Life. Better.