

# Feature Engineering

Group 21 –Arbalest

## 1 USERS FEATURE

---

U1 – User frequency of use

U2 – User frequency of not use

U3 – User coupon use/non-use ratio

U4 – User coupon use rate (under coupon collection consumptions)

U5 – User coupon non-use rate (under coupon collection consumptions)

U6 – User frequency of ordinary consumption

U7 – User consumption count

U8 – User coupon use rate (under all consumption)

U9 – User consumption gap (all consumption)

U10 – User consumption gap (ordinary consumption)

U11 – User consumption gap(coupon consumption)

U12 – User full discount type coupon collection times

U13 – User discount type coupon collection times

## 2 MERCHANT FEATURE

---

M1 - The total number of purchases made by the user at each merchant

M2 – The number of coupons used per merchant

M3 - How many coupons are issued by each merchant

M4 - The average distance from the merchant to the merchant who used the voucher at each merchant

M5 - The maximum distance between users who use coupons at each merchant and the merchant

M6 - The minimum value of the minimum distance from a user who uses a coupon at each merchant to that merchant

M7 - Median distance from users who used coupons at each merchant to that merchant

M8 - The usage rate of the issued coupons at the merchant

M9 - Probability of using a coupon in each merchant sale

### 3 COUPON FEATURE

---

- C1 – Coupon type(full discount and direct discount)
- C2 – Coupon received historical number
- C3 – Coupon verified historical number
- C4 – Coupon verified rate
- C5 –Coupon verified interval
- C6 – Coupon received date of week
- C7 – Coupon verified date of week
- C8 – Coupon frequency received by different users
- C9 – Coupon frequency verified by different users
- C10 – Coupon verified rate by different users
- C11 – Coupon with full discount threshold
- C12 – Coupon with full discount rate (discount amount/ full discount threshold)

### 4 USER INTERACTION WITH MERCHANT FEATURE

---

- UM1 - The number of times the user receives the merchant's coupons
- UM2 - The number of times the user does not use after receiving the merchant's coupons
- UM3 - The number of times the user uses after receiving the merchant's coupons
- UM4 - Usage rate after users receive coupons from merchants (times of using/times of not using)
- UM5 - The ratio of users' non-use times for each merchant to the total number of users' non-use times
- UM6 - Total number of times the user has consumed in the store
- UM7 - Ordinary consumption times of users in the store
- UM8 - Times of users receiving coupons at each merchant
- UM9 - The number of merchants that a user has received coupons from
- UM10 - The number of merchants that a user has verified coupons
- UM11 - Ratio of the number of different merchants whose coupons have been written off by users to all different merchants
- UM12 - The average number of coupons written off by users for each merchant