|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 顧客  (u) | 關懷通話日期(bdate) | 推銷通話日期(sdate) | 交易日期(date) | 購買商品名稱 | 金額(money) | 產品狀態(state) |
|  |  |  |  |  |  |  |

T.紀錄表

D = {all the dates in the training period}

1.

B(user) = count(user), T.bdate ≠ NULL

2.

正直(user) =

sum{

3.

能力(user) =

sum{

4.

預測(user) =

4

5.

Recency(user) = max(d, )-max(T.date, T.u=user)

6.

Frequency(user) = count(T.money, T.u=user)

7.

Money(user) = sum(T.money, T.u=user)

Example(一期為例)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 顧客(c) | 關懷通話日期(bdate) | 推銷通話日期(sdate) | 交易日期(date) | 購買商品名稱 | 金額(money) | 產品狀態(state) |
| Jheng | 2015/4/3 | 2015/3/15 |  |  |  |  |
|  | 2015/5/9 | 2015/6/2 | 2015/6/2 | 葉黃素 | 3500 | old |
|  |  | 2015/6/6 | 2015/6/6 | B群 | 2000 | new |
|  | 2015/6/10 | 2015/6/10 | 2015/6/10 | B群 | 1000 | old |

T.紀錄表

D = {2015/1/1~2015/6/30中任一天}

PS:1.過往有購買過的商品 產品狀態(state)為(old)，

2.過往沒有購買過的商品 產品狀態(state)為(new)

3.交易日期通常也包含推銷通話

4.因要取完整的BICP循環，所以有效日期皆取大於min(t.bdate)

B(Jheng) = 關懷通話次數 = 2

I(Jheng) = sum(購買新產品總金額/新產品交易日期-當期第一個關懷通話日期)

= 2000/(2015/6/6-2015/4/3) =2000/64 = 31.25

C(Jheng) = sum(購買舊產品總金額/舊產品交易日期-當期第一個關懷通話日期)

= 3500/(2015/6/2-2015/4/3) + 1000/(2015/6/10-2015/4/3)

= 3500/60 + 1000/68 = 58.3 + 14.71 = 73.01

P(Jheng) = 購買次數/推銷通話次數 = 3/3= 1

(因2015.3.15<2015.4.3所以2015.3.15不納入考慮)

R(Jheng) = 當期的最後一天 扣 當期最後一次的購買日期

=2015/6/30 – 2015/6/10 = 20

F(Jheng) = 當期購買次數 = 3

M(Jheng) = 當期購買總金額 = 3500 + 2000 + 1000 = 6500

最後把BICPRFM七個構面取log做標準化

->B = 2 -> log 2 = 0.3

I = 31.25-> log31.25= 1.49

C = 73.01->log73.01=1.86

P = 1->log1 = 0

R = 20->log20 =1.3

F = 3 -> log3 =0.477

M = 6500 -> log6500 = 3.81

Algorithms

(1)

Training Process

= 四期關懷

= 四期的正直

= 四期的能力

= 四期的預測

= 四期的Recency

= 四期的Frequency

= 四期的Money

YN: label

k: all of data

My CNN(,,,,, YN):

**for** i= 1 **to** k **do**

← training data經過第一層filter(size7\*4) 產生出7個feature maps

Relu

= maxpooling() 經過第一層pooling縮小(slide filter size(1\*2))

← 經過第二層filter(size:7\*2)產生出14個 feature maps

Relu

=maxpooling() 經過第二層pooling縮小(slide filter size(1\*2))

Reshape() 把二維的data(7\*1)轉換為一維data(1\*7)

full connected

Softmax

Classification

**end**