

**Given a dataset with users features and emails sent/open times:**

<https://drive.google.com/file/d/18qenbF2j0S0UMj8nxfYqPjdvYYQ0IAZr/view?usp=sharing>  
tps

N users ( $N=100.000$ ), every user data lays in separate row (i.e. you have 100K rows for 100K users)

$X[i]$  - features of i-th user,  $i$  in  $[1..N]$

$X[i][0]$  - feature 1 (numerical)

$X[i][1]$  - feature 2 (numerical)

$X[i][2]$  - feature 3 (categorical)

$M[i]$  - number of emails sent to i-th user ( $1 \leq M[i] \leq 15$ ),  $M_i$  is not the same for every user  $i$ , (for instance  $M[1]$  could be 10,  $M[2]$  could be 5)

$TS[i][j]$  - time of j-th email sending to i-th user,  $j$  in  $[1..M[i]]$

$TO[i][j]$  - time of j-th email opening by i-th user,  $j$  in  $[1..M[i]]$

*NOTE: If  $TS[i][j] > TO[i][j]$ , then  $TO[i][j]$  belongs to the next day (for instance if sending time is 14:00 and opening time is 10:00, then it's 10:00 of the next day)*

**Goal:** given features of new user  $X$  predict the sending time  $TS$  so that opening time  $TO$  will be as early as possible, i.e  
( $TO-TS$ )  $\rightarrow$  min

**Hint:** Users can open emails immediately or some time during a day (like some users prefer to read their email after lunch, some of them do it mornings, some do both)

**Task:**

- 1) Build and train your model
- 2) Discuss how your model can be improved
- 3) Publish your results on GitHub