Critical Thinking Group 4 - HW5 - Wine

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Overview

The objective of this assignment is to predict the number of cases of wine that will be sold based on the properties of the wine. A count regression model will be used to predict wine sales.

Dataset
Wine - Training data
Wine - Evaluation Data

Data Exploration

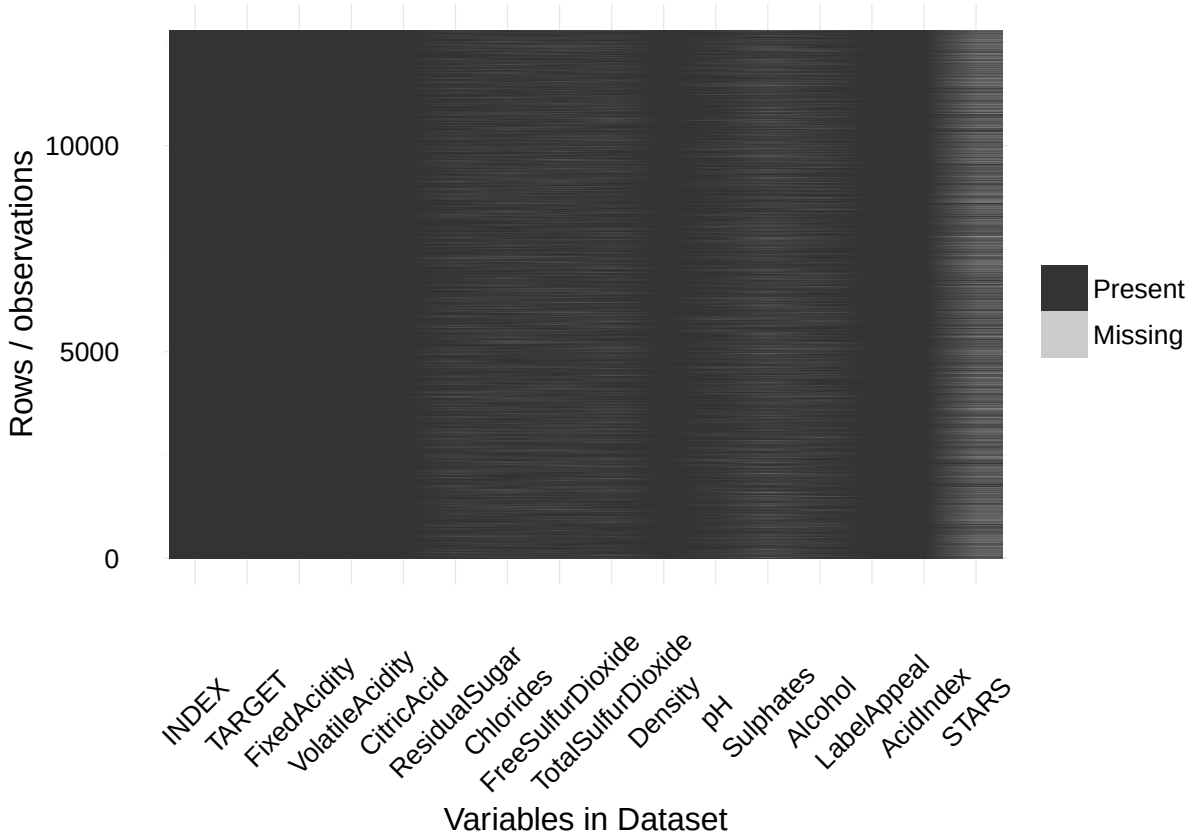
Looks like the INDEX column name need to be corrected.

Missing Data

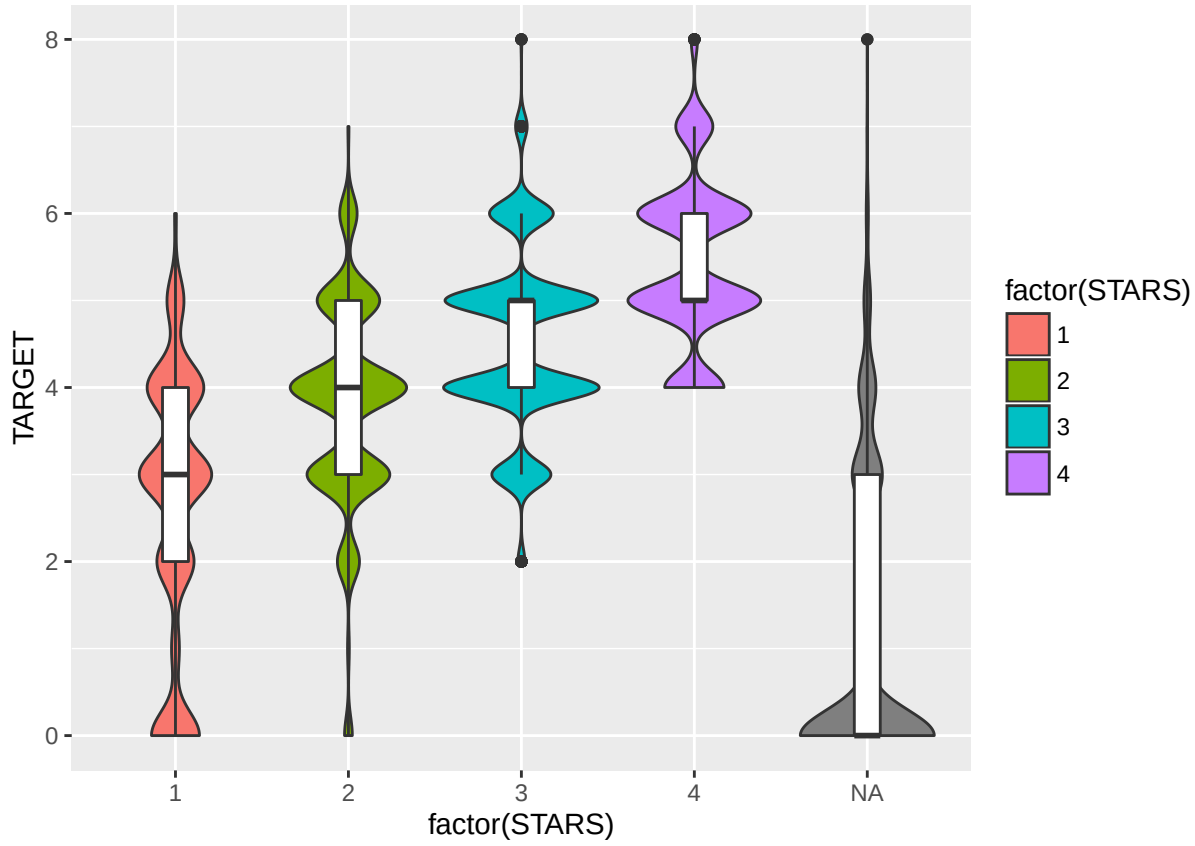
Eight of the variables have missing data.

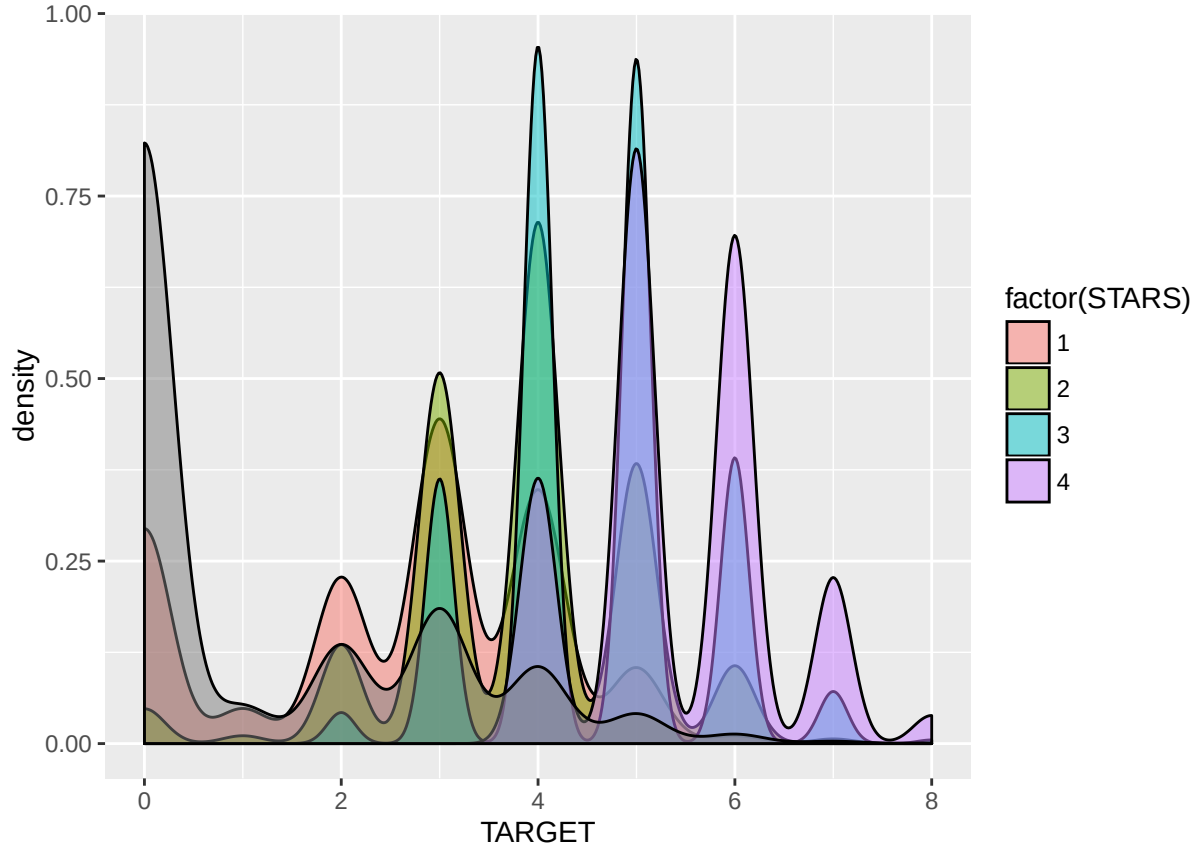
ColName	NA_Count	NA_Percent
ResidualSugar	616	4.81
Chlorides	638	4.99
FreeSulfurDioxide	647	5.06
TotalSulfurDioxide	682	5.33
pH	395	3.09
Sulphates	1210	9.46
Alcohol	653	5.10
STARS	3359	26.25

Lets explore more on the missing values here:



Though there are lot of missing values, we could not see a definite pattern here, but we difinitely notice that there are highest number of missing values for $STARS$ variable.

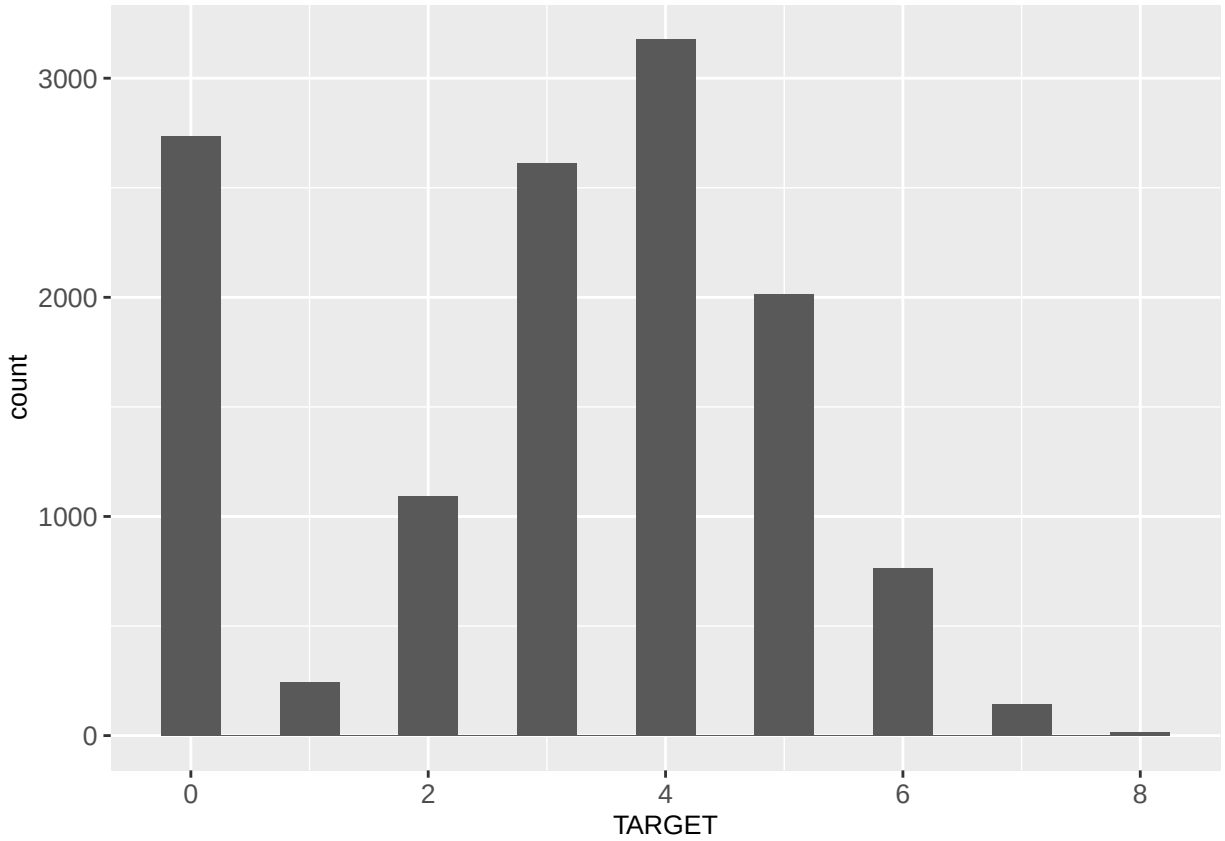

8
6
4
2
0
TARGET
1
2
3
4
NA
factor(STARS)
factor(STARS)
1
2
3
4



From the above diagrams, we notice that the NAs for STARS showing us a different distribution. So, we have to take care of this in the data preparation.

Data Distributions

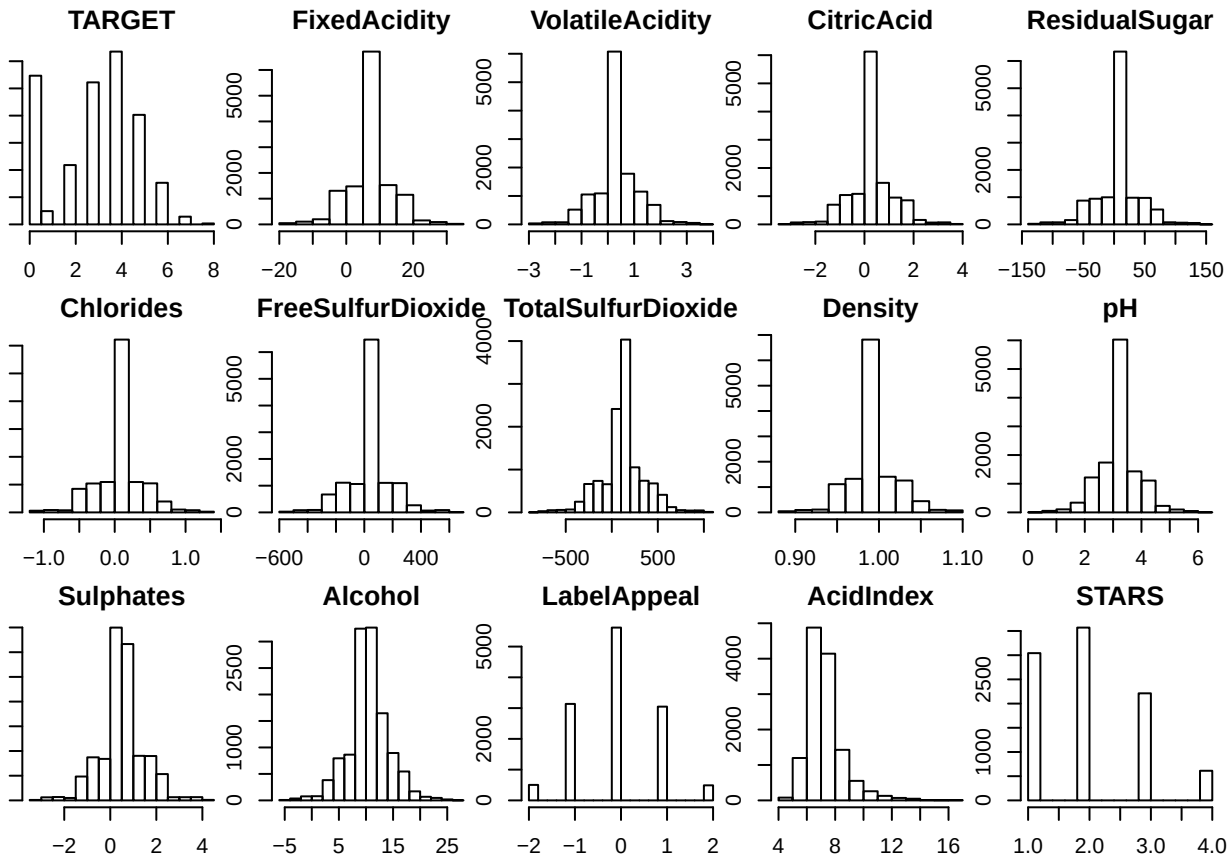
Lets check the overall distribution of the TAGET variable (which is a *count variable* indicating the number of sample cases):

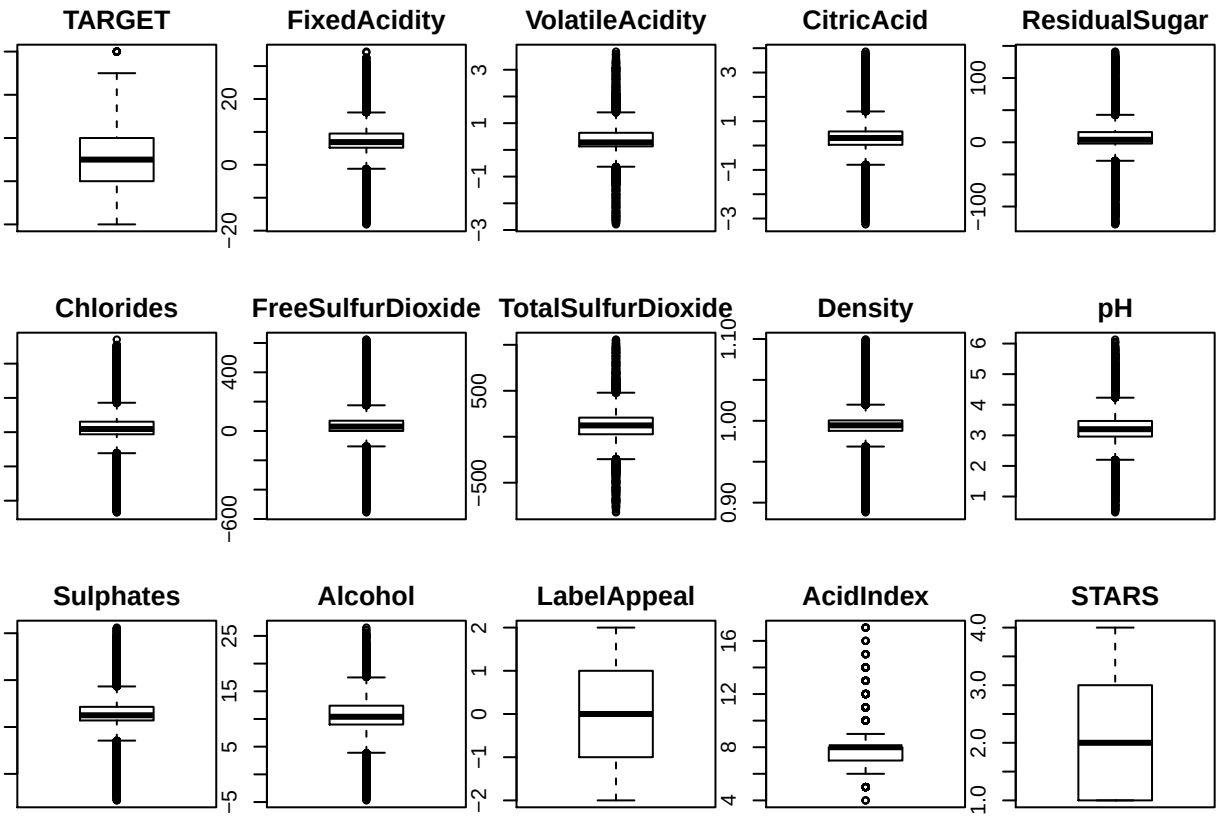


The above *TARGET* distribution has lot of *ZERO* values, which would indicate the *no sample cases purchased*, which could be due to NA values presence Or, some business reasons. But overall this appears close to *Poisson* distribution.

Lets check other variables distributions:

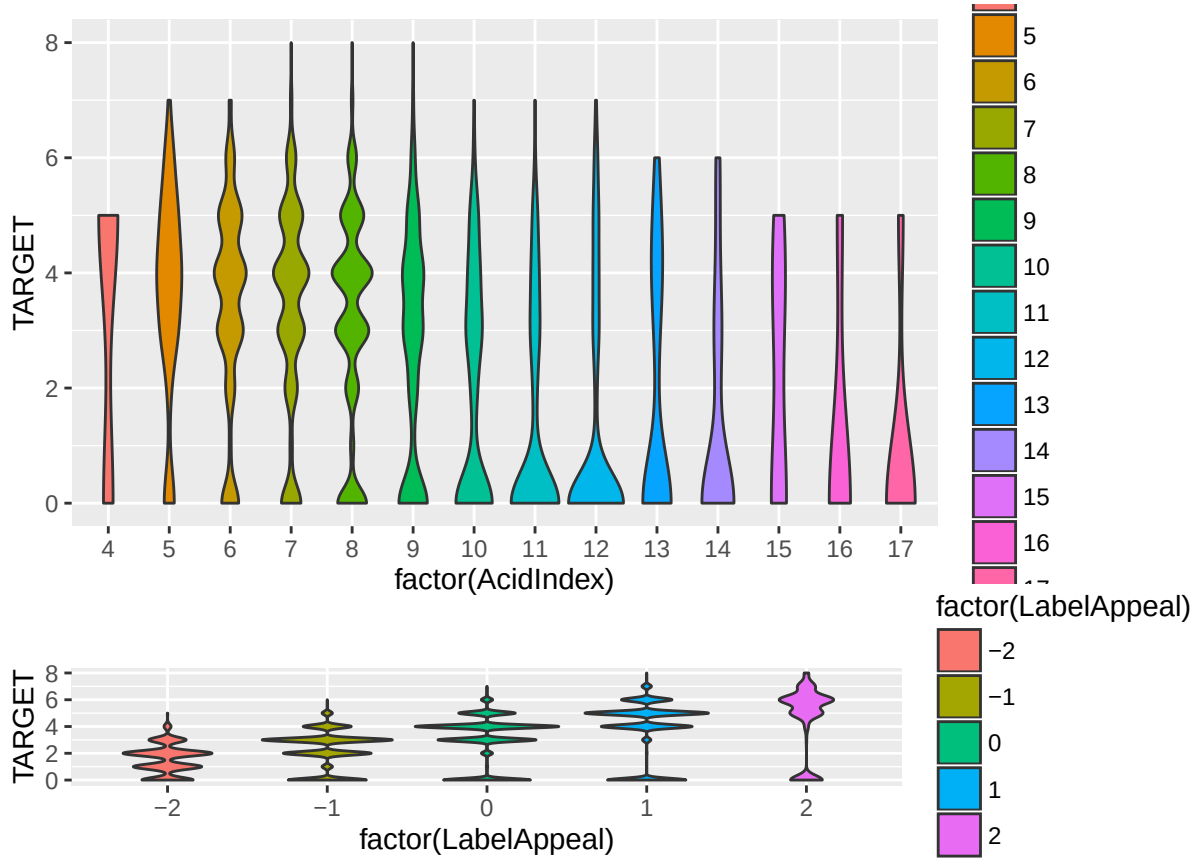
```
##  [1] "INDEX"             "TARGET"             "FixedAcidity"
##  [4] "VolatileAcidity"   "CitricAcid"         "ResidualSugar"
##  [7] "Chlorides"         "FreeSulfurDioxide"  "TotalSulfurDioxide"
## [10] "Density"           "pH"                 "Sulphates"
## [13] "Alcohol"           "LabelAppeal"        "AcidIndex"
## [16] "STARS"
```


TARGET
FixedAcidity
VolatileAcidity
CitricAcid
ResidualSugar
Chlorides
FreeSulfurDioxide
TotalSulfurDioxide
Density
pH
Sulphates
Alcohol
LabelAppeal
AcidIndex
STARS



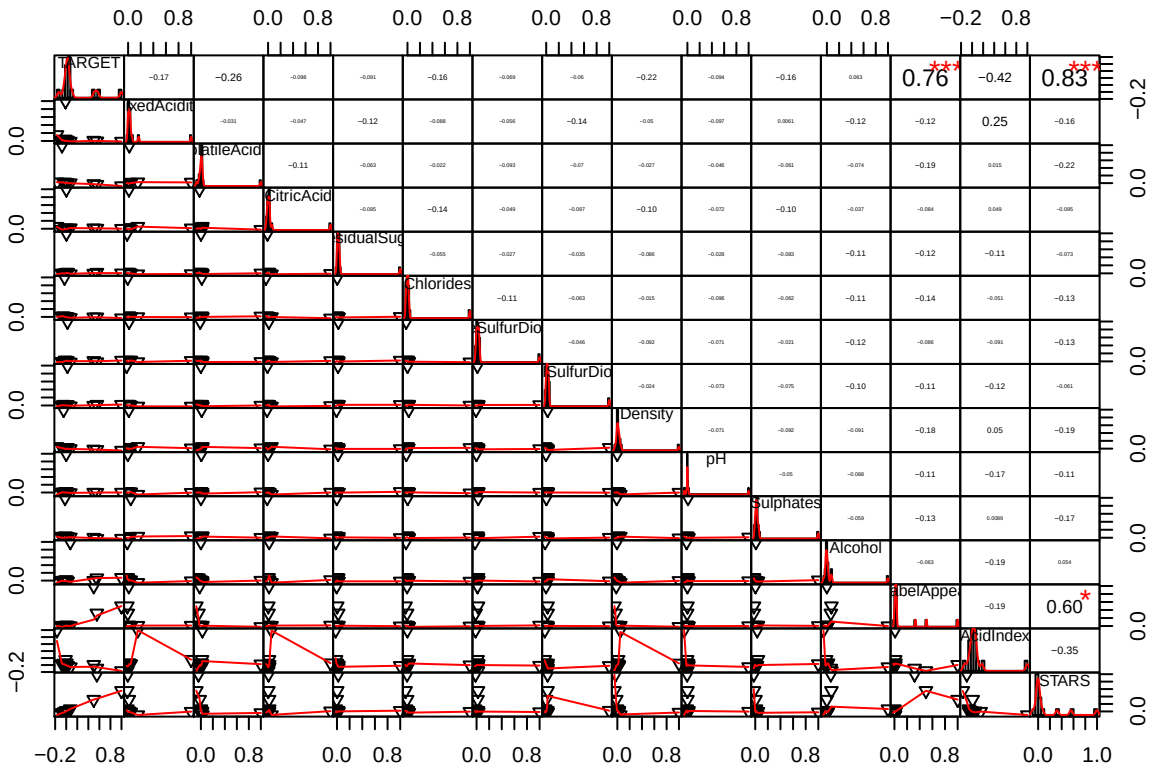
Majority of the variables appears to be numerical and normally distributed.Lets review the Ordinal variables here:

We have seen the *STARS* distribution previosly in *Missing Data* section, lets now review the *Acid Index*, and *LabelAppeal*, which can be treated as categorical similar to *STARS*:



Correlations

Lets visualize the correlation graph:



The above indicates the *STARS* and *LabelAppeal* are significant variables from correlation perspective. And *AcidIndex* and *VolatileAcidity* also got moderately correlated with the TARGET variable.

Data Preparation

Transform NAs

We will be modeling on 2 different dataframes. One with AcidIndex and LabelAppeal as numeric variables and the second one with factorizrd AcidIndex and LabelAppeal

Factorize

lets take complete cases only, as we have got sufficient number of observations after we took care of the NAs for STARS and Alcohol variables.

```
## Observations: 9,133
## Variables: 15
## $ TARGET             <int> 3, 5, 3, 0, 0, 6, 0, 3, 4, 0, 4, 5, 4, 3, 2...
## $ FixedAcidity       <dbl> 4.5, 7.1, 5.7, 11.3, 7.7, 5.5, -17.2, 6.0, ...
## $ VolatileAcidity    <dbl> 0.160, 2.640, 0.385, 0.320, 0.290, -0.220, ...
## $ CitricAcid         <dbl> -0.81, -0.88, 0.04, 0.59, -0.40, 0.39, 0.15...
## $ ResidualSugar      <dbl> 26.10, 14.80, 18.80, 2.20, 21.50, 1.80, -33...
## $ Chlorides          <dbl> -0.425, 0.037, -0.425, 0.556, 0.060, -0.277...
## $ FreeSulfurDioxide  <dbl> 15, 214, 22, -37, 287, 62, 551, 5, -49, 15,...
```

```
## $ TotalSulfurDioxide <dbl> -327, 142, 115, 15, 156, 180, 65, 378, 45, ...
## $ Density            <dbl> 1.02792, 0.99518, 0.99640, 0.99940, 0.99572...
## $ pH                 <dbl> 3.38, 3.12, 2.24, 3.20, 3.49, 3.09, 4.31, 3...
## $ Sulphates          <dbl> 0.70, 0.48, 1.83, 1.29, 1.21, 0.75, 0.56, -...
## $ Alcohol            <dbl> 0.0, 22.0, 6.2, 15.4, 10.3, 12.6, 13.1, 3.9...
## $ LabelAppeal        <fctr> -1, -1, -1, 0, 0, 0, 1, 1, 0, 1, 0, 1, -1,...
## $ AcidIndex          <fctr> 7, 8, 6, 11, 8, 8, 5, 7, 9, 9, 8, 11, 8, 6...
## $ STARS              <fctr> 3, 3, 1, 0, 0, 4, 1, 2, 0, 0, 3, 2, 2, 1, ...
```

Multicollinearity

Lets check for Multicollinearity in the predictors:

	sort(vifFit1.numeric, decreasing = T)
STARS1	0.8910983
STARS2	0.8596886
STARS3	0.6821156
AcidIndex	0.4697698
LabelAppeal	0.3788666
FixedAcidity	0.3423291
STARS4	0.3376683
VolatileAcidity	0.3354500
Alcohol	0.3347811
TotalSulfurDioxide	0.3345273
Chlorides	0.3343219
ResidualSugar	0.3340220
pH	0.3339136
Sulphates	0.3333092
Density	0.3330000
FreeSulfurDioxide	0.3321442
CitricAcid	0.3306037

	Multicolinearity score
AcidIndex7	216.4659703
AcidIndex8	201.6610282
AcidIndex9	92.2911942
AcidIndex6	77.1844205
AcidIndex10	39.3035671
AcidIndex11	19.5030397
AcidIndex12	10.5988711
AcidIndex5	5.5846113
AcidIndex13	5.2930521
AcidIndex14	4.5463148
LabelAppeal0	4.2704399
LabelAppeal-1	3.3390954
LabelAppeal1	3.2363811
AcidIndex17	1.5074415
AcidIndex16	1.2042507
AcidIndex15	1.1046126
STARS1	0.8934462
STARS2	0.8645223

	Multicolinearity score
LabelAppeal2	0.8417245
STARS3	0.6851982
FixedAcidity	0.3430885
STARS4	0.3388301
VolatileAcidity	0.3361709
TotalSulfurDioxide	0.3355376
Alcohol	0.3353972
ResidualSugar	0.3353051
Chlorides	0.3347751
pH	0.3346397
Sulphates	0.3338405
Density	0.3331687
FreeSulfurDioxide	0.3319512
CitricAcid	0.3305677

Multicollinearity noticed for AcidIndex dummy variables AcidIndex values 6, 7 , 8, 9, 10, 11, 12.

Lets try consolidating those rows and retry the vif again.

But there is no Multicollinearity noticed for any of the variables in wine.trn1.numeric.omit.na dataframe. There for we will keep all the variables for modelling.

	Multicolinearity score
AcidIndex5	10.1576511
AcidIndex13	5.2928877
AcidIndex14	4.5462571
LabelAppeal0	4.2669710
LabelAppeal-1	3.3370975
LabelAppeal1	3.2315314
AcidIndex17	1.5074156
AcidIndex16	1.2042184
AcidIndex15	1.1046116
STARS1	0.8876861
STARS2	0.8534218
LabelAppeal2	0.8404632
STARS3	0.6715474
VolatileAcidity	0.3363584
FixedAcidity	0.3359405
Alcohol	0.3348208
ResidualSugar	0.3344179
TotalSulfurDioxide	0.3342609
STARS4	0.3340824
Chlorides	0.3339860
pH	0.3332575
Sulphates	0.3327584
FreeSulfurDioxide	0.3318813
Density	0.3317041
CitricAcid	0.3299254

The above variables looks good enough to proceed with model building.

Split the dataset into training and test:

We will randomly split our dataset into training (80%) and test (20%).

```
set.seed(3)

s0 = sample(1:nrow(wine.trn1.numeric.omit.na), 0.8 * nrow(wine.trn1.numeric.omit.na))
wine.training0 = wine.trn1.numeric.omit.na[s0, ]
wine.test0 = wine.trn1.numeric.omit.na[-s0, ]

s = sample(1:nrow(wine.trn.omit.na), 0.8 * nrow(wine.trn.omit.na))
wine.training = wine.trn.omit.na[s, ]
wine.test = wine.trn.omit.na[-s, ]
```

Number of observations in *training* dataset is 7306

Number of observations in *test* dataset is 1827

Build Models

Poisson Model - Stepwise Backward

First, Include all variables and build the model. And then use the stepwise backward.

```
##                    Estimate Std. Error z value Pr(>|z|)
## (Intercept)            0.25       0.51    0.49     0.62
## FixedAcidity           0.00       0.00   -1.75     0.08
## VolatileAcidity       -0.03       0.01   -3.31     0.00
## Chlorides             -0.05       0.02   -2.33     0.02
## FreeSulfurDioxide      0.00       0.00    2.74     0.01
## TotalSulfurDioxide     0.00       0.00    3.72     0.00
## Density               -0.58       0.25   -2.28     0.02
## Sulphates             -0.02       0.01   -2.29     0.02
## Alcohol                0.00       0.00    1.45     0.15
## LabelAppeal-1          0.24       0.05    4.88     0.00
## LabelAppeal0           0.42       0.05    8.84     0.00
## LabelAppeal1           0.55       0.05   11.24     0.00
## LabelAppeal2           0.68       0.06   12.23     0.00
## AcidIndex5             0.11       0.45    0.25     0.80
## AcidIndex13           -0.44       0.47   -0.94     0.35
## AcidIndex14           -0.20       0.47   -0.43     0.67
## AcidIndex15            0.11       0.53    0.21     0.83
## AcidIndex16          -12.73     162.49   -0.08     0.94
## AcidIndex17           -0.28       0.63   -0.44     0.66
## STARS1                 0.79       0.03   30.48     0.00
## STARS2                 1.12       0.02   46.37     0.00
## STARS3                 1.24       0.03   49.06     0.00
## STARS4                 1.37       0.03   42.43     0.00
```

```
## TARGET ~ FixedAcidity + VolatileAcidity + Chlorides + FreeSulfurDioxide +
##     TotalSulfurDioxide + Density + Sulphates + Alcohol + LabelAppeal +
##     AcidIndex + STARS
```

```
##                     Estimate Std. Error z value Pr(>|z|)
## (Intercept)             1.21       0.26    4.69     0.00
## VolatileAcidity        -0.03       0.01   -3.61     0.00
## Chlorides              -0.04       0.02   -1.96     0.05
## FreeSulfurDioxide       0.00       0.00    2.03     0.04
## TotalSulfurDioxide      0.00       0.00    3.27     0.00
## Density                -0.40       0.26   -1.57     0.12
## Sulphates              -0.01       0.01   -1.87     0.06
## LabelAppeal             0.16       0.01   19.69     0.00
## AcidIndex              -0.08       0.01  -12.97     0.00
## STARS1                  0.78       0.03   29.98     0.00
## STARS2                  1.09       0.02   45.04     0.00
## STARS3                  1.21       0.03   47.68     0.00
## STARS4                  1.33       0.03   40.74     0.00
```

```
## TARGET ~ VolatileAcidity + Chlorides + FreeSulfurDioxide + TotalSulfurDioxide +
##     Density + Sulphates + LabelAppeal + AcidIndex + STARS
```

```
##                     Estimate Std. Error z value Pr(>|z|)
## (Intercept)             0.25       0.51    0.49     0.62
## FixedAcidity            0.00       0.00   -1.75     0.08
## VolatileAcidity        -0.03       0.01   -3.31     0.00
## Chlorides              -0.05       0.02   -2.33     0.02
## FreeSulfurDioxide       0.00       0.00    2.74     0.01
## TotalSulfurDioxide      0.00       0.00    3.72     0.00
## Density                -0.58       0.25   -2.28     0.02
## Sulphates              -0.02       0.01   -2.29     0.02
## Alcohol                 0.00       0.00    1.45     0.15
## LabelAppeal-1           0.24       0.05    4.88     0.00
## LabelAppeal0            0.42       0.05    8.84     0.00
## LabelAppeal1            0.55       0.05   11.24     0.00
## LabelAppeal2            0.68       0.06   12.23     0.00
## AcidIndex5              0.11       0.45    0.25     0.80
## AcidIndex13            -0.44       0.47   -0.94     0.35
## AcidIndex14            -0.20       0.47   -0.43     0.67
## AcidIndex15             0.11       0.53    0.21     0.83
## AcidIndex16           -12.73     162.49   -0.08     0.94
## AcidIndex17            -0.28       0.63   -0.44     0.66
## STARS1                  0.79       0.03   30.48     0.00
## STARS2                  1.12       0.02   46.37     0.00
## STARS3                  1.24       0.03   49.06     0.00
## STARS4                  1.37       0.03   42.43     0.00
```

```
## TARGET ~ FixedAcidity + VolatileAcidity + Chlorides + FreeSulfurDioxide +
##     TotalSulfurDioxide + Density + Sulphates + Alcohol + LabelAppeal +
##     AcidIndex + STARS
```

We can notice that *STARS*, *LableAppeal*, *AcidIndex*, *VolatileAcidity* and *TotalSulfurDioxide* are the significant variables.

For example, for each one-unit increase in VolatileAcidity, the expected log count of the number of sample units sold is decreases by 0.03.

The factor variable shown as STARS4 is the expected difference in log count between group 4 and the reference group zero (/NA).

Lets check if there is overdispersion (c-hat, to check if mean exceeding the variance) here, (Residual Deviance)/(Residual df). (If c-hat is 1, then no overdispersion occur)

c-hat for overdispersion check is 1.0730764

Poisson Model - Stepwise Forward

```
##                     Estimate Std. Error z value Pr(>|z|)
## (Intercept)             0.25       0.51    0.49     0.62
## STARS1                  0.79       0.03   30.48     0.00
## STARS2                  1.12       0.02   46.37     0.00
## STARS3                  1.24       0.03   49.06     0.00
## STARS4                  1.37       0.03   42.43     0.00
## LabelAppeal-1           0.24       0.05    4.88     0.00
## LabelAppeal0            0.42       0.05    8.84     0.00
## LabelAppeal1            0.55       0.05   11.24     0.00
## LabelAppeal2            0.68       0.06   12.23     0.00
## AcidIndex5              0.11       0.45    0.25     0.80
## AcidIndex13            -0.44       0.47   -0.94     0.35
## AcidIndex14            -0.20       0.47   -0.43     0.67
## AcidIndex15             0.11       0.53    0.21     0.83
## AcidIndex16           -12.73     162.49   -0.08     0.94
## AcidIndex17            -0.28       0.63   -0.44     0.66
## TotalSulfurDioxide      0.00       0.00    3.72     0.00
## VolatileAcidity        -0.03       0.01   -3.31     0.00
## FreeSulfurDioxide       0.00       0.00    2.74     0.01
## Chlorides              -0.05       0.02   -2.33     0.02
## Sulphates              -0.02       0.01   -2.29     0.02
## Density                -0.58       0.25   -2.28     0.02
## FixedAcidity            0.00       0.00   -1.75     0.08
## Alcohol                 0.00       0.00    1.45     0.15
```

```
## TARGET ~ STARS + LabelAppeal + AcidIndex + TotalSulfurDioxide +
##     VolatileAcidity + FreeSulfurDioxide + Chlorides + Sulphates +
##     Density + FixedAcidity + Alcohol
```

c-hat for overdispersion check is 1.0730764

We notice the very similar results here. (Similar to Stepwise Backward), Hence the same interpretation applies here.

Poisson Model - Manual

Lets include only significant predictors noticed from the data exploration section.

```
##                     Estimate Std. Error z value Pr(>|z|)
## (Intercept)             0.28       0.51    0.55     0.58
## VolatileAcidity        -0.03       0.01   -3.30     0.00
## Chlorides              -0.05       0.02   -2.38     0.02
## FreeSulfurDioxide       0.00       0.00    2.67     0.01
## TotalSulfurDioxide      0.00       0.00    3.78     0.00
## Density                -0.59       0.25   -2.31     0.02
## Sulphates              -0.02       0.01   -2.36     0.02
```

```
## LabelAppeal-1          0.24       0.05    4.89     0.00
## LabelAppeal0           0.42       0.05    8.85     0.00
## LabelAppeal1           0.55       0.05   11.23     0.00
## LabelAppeal2           0.68       0.06   12.22     0.00
## AcidIndex5             0.10       0.45    0.22     0.82
## AcidIndex13           -0.46       0.47   -0.99     0.32
## AcidIndex14           -0.23       0.47   -0.48     0.63
## AcidIndex15            0.09       0.53    0.16     0.87
## AcidIndex16          -12.78     162.36   -0.08     0.94
## AcidIndex17           -0.31       0.63   -0.49     0.63
## STARS1                 0.79       0.03   30.53     0.00
## STARS2                 1.12       0.02   46.47     0.00
## STARS3                 1.25       0.03   49.23     0.00
## STARS4                 1.38       0.03   42.62     0.00
```

```
## TARGET ~ VolatileAcidity + Chlorides + FreeSulfurDioxide + TotalSulfurDioxide +
##     Density + Sulphates + LabelAppeal + AcidIndex + STARS
```

```
##                 Estimate Std. Error z value Pr(>|z|)
## (Intercept)        -0.32       0.45   -0.71     0.48
## STARS1              0.80       0.03   30.71     0.00
## STARS2              1.13       0.02   46.63     0.00
## STARS3              1.25       0.03   49.57     0.00
## STARS4              1.38       0.03   42.82     0.00
## LabelAppeal-1       0.24       0.05    4.93     0.00
## LabelAppeal0        0.43       0.05    8.91     0.00
## LabelAppeal1        0.55       0.05   11.28     0.00
## LabelAppeal2        0.68       0.06   12.22     0.00
## AcidIndex5          0.12       0.45    0.26     0.80
## AcidIndex13        -0.46       0.47   -0.97     0.33
## AcidIndex14        -0.22       0.47   -0.47     0.64
## AcidIndex15         0.12       0.53    0.23     0.82
## AcidIndex16       -12.76     162.29   -0.08     0.94
## AcidIndex17        -0.37       0.63   -0.58     0.56
## VolatileAcidity    -0.03       0.01   -3.37     0.00
```

```
## TARGET ~ STARS + LabelAppeal + AcidIndex + VolatileAcidity
```

We only included the above significant variables we noticed from our correlation here, so this model has got few co-efficients compared with the above.

c-hat for overdispersion check is 1.0779548

Negative Binomial Model - Stepwise Backward

Lets now try with Negative Binomial modeling, which fits greately for over-dispersed count outcome variables.

First, Include all variables and build the model. And then use the stepwise backward.

```
##                   Estimate Std. Error z value Pr(>|z|)
## (Intercept)           1.21       0.26    4.69     0.00
## VolatileAcidity      -0.03       0.01   -3.61     0.00
## Chlorides            -0.04       0.02   -1.96     0.05
```

```
## FreeSulfurDioxide      0.00       0.00    2.03     0.04
## TotalSulfurDioxide     0.00       0.00    3.27     0.00
## Density               -0.40       0.26   -1.57     0.12
## Sulphates             -0.01       0.01   -1.87     0.06
## LabelAppeal            0.16       0.01   19.69     0.00
## AcidIndex             -0.08       0.01  -12.97     0.00
## STARS1                 0.78       0.03   29.98     0.00
## STARS2                 1.09       0.02   45.04     0.00
## STARS3                 1.21       0.03   47.67     0.00
## STARS4                 1.33       0.03   40.74     0.00
```

```
## TARGET ~ VolatileAcidity + Chlorides + FreeSulfurDioxide + TotalSulfurDioxide +
##     Density + Sulphates + LabelAppeal + AcidIndex + STARS
```

```
## [1] 26064.46
```

```
##                     Estimate  Std. Error z value Pr(>|z|)
## (Intercept)            0.25        0.51    0.49     0.62
## FixedAcidity           0.00        0.00   -1.75     0.08
## VolatileAcidity       -0.03        0.01   -3.31     0.00
## Chlorides             -0.05        0.02   -2.33     0.02
## FreeSulfurDioxide      0.00        0.00    2.74     0.01
## TotalSulfurDioxide     0.00        0.00    3.72     0.00
## Density               -0.58        0.25   -2.28     0.02
## Sulphates             -0.02        0.01   -2.29     0.02
## Alcohol                0.00        0.00    1.45     0.15
## LabelAppeal-1          0.24        0.05    4.88     0.00
## LabelAppeal0           0.42        0.05    8.84     0.00
## LabelAppeal1           0.55        0.05   11.24     0.00
## LabelAppeal2           0.68        0.06   12.23     0.00
## AcidIndex5             0.11        0.45    0.25     0.80
## AcidIndex13           -0.44        0.47   -0.94     0.35
## AcidIndex14           -0.20        0.47   -0.43     0.67
## AcidIndex15            0.11        0.53    0.21     0.83
## AcidIndex16          -37.44 38745320.70    0.00     1.00
## AcidIndex17           -0.28        0.63   -0.44     0.66
## STARS1                 0.79        0.03   30.48     0.00
## STARS2                 1.12        0.02   46.37     0.00
## STARS3                 1.24        0.03   49.06     0.00
## STARS4                 1.37        0.03   42.43     0.00
```

```
## TARGET ~ FixedAcidity + VolatileAcidity + Chlorides + FreeSulfurDioxide +
##     TotalSulfurDioxide + Density + Sulphates + Alcohol + LabelAppeal +
##     AcidIndex + STARS
```

We noticed that our dataset do NOT has lot of overdispersion (based on poission model above), so the negative binomial results are very much close to the poission.

For example, for each one-unit increase in VolatileAcidity, the expected log count of the number of sample units sold is decreases by 0.031.

The factor variable shown as STARS1 is the expected difference [0.80] in log count between group 1 and the reference group zero (/NA).

Negative Binomial Model - Stepwise Forward

```
##                     Estimate  Std. Error z value Pr(>|z|)
## (Intercept)             0.25        0.51    0.49     0.62
## STARS1                  0.79        0.03   30.48     0.00
## STARS2                  1.12        0.02   46.37     0.00
## STARS3                  1.24        0.03   49.06     0.00
## STARS4                  1.37        0.03   42.43     0.00
## LabelAppeal-1           0.24        0.05    4.88     0.00
## LabelAppeal0            0.42        0.05    8.84     0.00
## LabelAppeal1            0.55        0.05   11.24     0.00
## LabelAppeal2            0.68        0.06   12.23     0.00
## AcidIndex5              0.11        0.45    0.25     0.80
## AcidIndex13            -0.44        0.47   -0.94     0.35
## AcidIndex14            -0.20        0.47   -0.43     0.67
## AcidIndex15             0.11        0.53    0.21     0.83
## AcidIndex16           -37.44 38745320.70    0.00     1.00
## AcidIndex17            -0.28        0.63   -0.44     0.66
## TotalSulfurDioxide      0.00        0.00    3.72     0.00
## VolatileAcidity        -0.03        0.01   -3.31     0.00
## FreeSulfurDioxide       0.00        0.00    2.74     0.01
## Chlorides              -0.05        0.02   -2.33     0.02
## Sulphates              -0.02        0.01   -2.29     0.02
## Density                -0.58        0.25   -2.28     0.02
## FixedAcidity            0.00        0.00   -1.75     0.08
## Alcohol                 0.00        0.00    1.45     0.15
```

```
## TARGET ~ STARS + LabelAppeal + AcidIndex + TotalSulfurDioxide +
##     VolatileAcidity + FreeSulfurDioxide + Chlorides + Sulphates +
##     Density + FixedAcidity + Alcohol
```

This provides us with the similar results as Stepwise Backward.

Negative Binomial Model - Manual

Lets include only significant predictors noticed from the data exploration section. Since in the dataset with all numeric values Density does not seems significant, so we decide to remove it

```
##                     Estimate Std. Error z value Pr(>|z|)
## (Intercept)             0.81       0.05   15.60     0.00
## VolatileAcidity        -0.03       0.01   -3.61     0.00
## Chlorides              -0.04       0.02   -1.99     0.05
## FreeSulfurDioxide       0.00       0.00    2.03     0.04
## TotalSulfurDioxide      0.00       0.00    3.23     0.00
## Sulphates              -0.01       0.01   -1.85     0.06
## LabelAppeal             0.16       0.01   19.72     0.00
## AcidIndex              -0.08       0.01  -13.06     0.00
## STARS1                  0.78       0.03   29.99     0.00
## STARS2                  1.09       0.02   45.06     0.00
## STARS3                  1.21       0.03   47.71     0.00
## STARS4                  1.33       0.03   40.74     0.00
```

```
## TARGET ~ VolatileAcidity + Chlorides + FreeSulfurDioxide + TotalSulfurDioxide +
##     Sulphates + LabelAppeal + AcidIndex + STARS
```

```
##                  Estimate  Std. Error z value Pr(>|z|)
## (Intercept)         -0.32        0.45   -0.71     0.48
## STARS1               0.80        0.03   30.71     0.00
## STARS2               1.13        0.02   46.63     0.00
## STARS3               1.25        0.03   49.56     0.00
## STARS4               1.38        0.03   42.82     0.00
## LabelAppeal-1        0.24        0.05    4.93     0.00
## LabelAppeal0         0.43        0.05    8.91     0.00
## LabelAppeal1         0.55        0.05   11.28     0.00
## LabelAppeal2         0.68        0.06   12.22     0.00
## AcidIndex5           0.12        0.45    0.26     0.80
## AcidIndex13         -0.46        0.47   -0.97     0.33
## AcidIndex14         -0.22        0.47   -0.47     0.64
## AcidIndex15          0.12        0.53    0.23     0.82
## AcidIndex16       -37.42 37494215.41    0.00     1.00
## AcidIndex17         -0.37        0.63   -0.58     0.56
## VolatileAcidity     -0.03        0.01   -3.37     0.00
```

```
## TARGET ~ STARS + LabelAppeal + AcidIndex + VolatileAcidity
```

We only included the above significant variables we noticed from our correlation here, so this model has got few co-efficients compared with the above.

Linear Model - Stepwise Backward

Lets now just try with multiple linear regression model, and see the outcome.

```
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)            3.93       0.58    6.77     0.00
## VolatileAcidity       -0.09       0.02   -4.86     0.00
## Chlorides             -0.13       0.05   -2.67     0.01
## FreeSulfurDioxide      0.00       0.00    2.68     0.01
## TotalSulfurDioxide     0.00       0.00    4.26     0.00
## Density               -1.13       0.58   -1.95     0.05
## Sulphates             -0.03       0.02   -1.97     0.05
## LabelAppeal            0.47       0.02   25.82     0.00
## AcidIndex             -0.19       0.01  -16.10     0.00
## STARS1                 1.39       0.04   31.84     0.00
## STARS2                 2.39       0.04   56.59     0.00
## STARS3                 2.98       0.05   61.01     0.00
## STARS4                 3.67       0.08   45.95     0.00
```

```
## TARGET ~ VolatileAcidity + Chlorides + FreeSulfurDioxide + TotalSulfurDioxide +
##     Density + Sulphates + LabelAppeal + AcidIndex + STARS
```

```
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)            1.59       1.44    1.10     0.27
## FixedAcidity          -0.01       0.00   -2.17     0.03
## VolatileAcidity       -0.09       0.02   -4.62     0.00
```

```
## Chlorides             -0.16       0.05   -3.18     0.00
## FreeSulfurDioxide      0.00       0.00    3.52     0.00
## TotalSulfurDioxide     0.00       0.00    4.91     0.00
## Density               -1.70       0.58   -2.90     0.00
## Sulphates             -0.04       0.02   -2.63     0.01
## Alcohol                0.01       0.00    2.04     0.04
## LabelAppeal-1          0.37       0.08    4.44     0.00
## LabelAppeal0           0.83       0.08   10.18     0.00
## LabelAppeal1           1.26       0.08   14.85     0.00
## LabelAppeal2           1.82       0.11   15.99     0.00
## AcidIndex5             0.53       1.32    0.40     0.69
## AcidIndex13           -0.68       1.34   -0.50     0.62
## AcidIndex14            0.01       1.35    0.01     0.99
## AcidIndex15            0.60       1.45    0.41     0.68
## AcidIndex16           -1.35       1.53   -0.88     0.38
## AcidIndex17           -0.34       1.53   -0.22     0.83
## STARS1                 1.44       0.04   32.63     0.00
## STARS2                 2.51       0.04   58.68     0.00
## STARS3                 3.06       0.05   62.61     0.00
## STARS4                 3.78       0.08   47.39     0.00

## TARGET ~ FixedAcidity + VolatileAcidity + Chlorides + FreeSulfurDioxide +
##     TotalSulfurDioxide + Density + Sulphates + Alcohol + LabelAppeal +
##     AcidIndex + STARS
```

Linear Model - Stepwise Forward

```
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)            1.59       1.44    1.10     0.27
## STARS1                 1.44       0.04   32.63     0.00
## STARS2                 2.51       0.04   58.68     0.00
## STARS3                 3.06       0.05   62.61     0.00
## STARS4                 3.78       0.08   47.39     0.00
## LabelAppeal-1          0.37       0.08    4.44     0.00
## LabelAppeal0           0.83       0.08   10.18     0.00
## LabelAppeal1           1.26       0.08   14.85     0.00
## LabelAppeal2           1.82       0.11   15.99     0.00
## AcidIndex5             0.53       1.32    0.40     0.69
## AcidIndex13           -0.68       1.34   -0.50     0.62
## AcidIndex14            0.01       1.35    0.01     0.99
## AcidIndex15            0.60       1.45    0.41     0.68
## AcidIndex16           -1.35       1.53   -0.88     0.38
## AcidIndex17           -0.34       1.53   -0.22     0.83
## TotalSulfurDioxide     0.00       0.00    4.91     0.00
## VolatileAcidity       -0.09       0.02   -4.62     0.00
## FreeSulfurDioxide      0.00       0.00    3.52     0.00
## Chlorides             -0.16       0.05   -3.18     0.00
## Density               -1.70       0.58   -2.90     0.00
## Sulphates             -0.04       0.02   -2.63     0.01
## FixedAcidity          -0.01       0.00   -2.17     0.03
## Alcohol                0.01       0.00    2.04     0.04

## TARGET ~ STARS + LabelAppeal + AcidIndex + TotalSulfurDioxide +
```

```
##     VolatileAcidity + FreeSulfurDioxide + Chlorides + Density +
##     Sulphates + FixedAcidity + Alcohol
```

Linear Model - Manual

```
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)            2.80       0.10   27.91     0.00
## VolatileAcidity       -0.09       0.02   -4.86     0.00
## Chlorides             -0.13       0.05   -2.72     0.01
## FreeSulfurDioxide      0.00       0.00    2.64     0.01
## TotalSulfurDioxide     0.00       0.00    4.23     0.00
## LabelAppeal            0.47       0.02   25.87     0.00
## AcidIndex             -0.19       0.01  -16.27     0.00
## STARS1                 1.40       0.04   31.87     0.00
## STARS2                 2.40       0.04   56.61     0.00
## STARS3                 2.98       0.05   61.12     0.00
## STARS4                 3.67       0.08   45.97     0.00
```

```
## TARGET ~ VolatileAcidity + Chlorides + FreeSulfurDioxide + TotalSulfurDioxide +
##     LabelAppeal + AcidIndex + STARS
```

```
##                  Estimate Std. Error t value Pr(>|t|)
## (Intercept)         -0.06       1.33   -0.04     0.97
## STARS1               1.45       0.04   32.87     0.00
## STARS2               2.52       0.04   58.90     0.00
## STARS3               3.09       0.05   63.13     0.00
## STARS4               3.81       0.08   47.63     0.00
## LabelAppeal-1        0.37       0.08    4.47     0.00
## LabelAppeal0         0.83       0.08   10.21     0.00
## LabelAppeal1         1.26       0.09   14.81     0.00
## LabelAppeal2         1.81       0.11   15.89     0.00
## AcidIndex5           0.53       1.33    0.40     0.69
## AcidIndex13         -0.74       1.35   -0.55     0.59
## AcidIndex14         -0.06       1.35   -0.05     0.96
## AcidIndex15          0.63       1.46    0.44     0.66
## AcidIndex16         -1.41       1.53   -0.92     0.36
## AcidIndex17         -0.49       1.54   -0.32     0.75
## VolatileAcidity     -0.09       0.02   -4.67     0.00
```

```
## TARGET ~ STARS + LabelAppeal + AcidIndex + VolatileAcidity
```

Model Selection

Lets prepare a validation results data frame by deriving the validation metrics like, RMSE, R^2 (for linear model only) and AIC and number of coefficients etc., to help decide a better model out of the above 9 models.

ModelType	RMSE	Adj_R2	AIC	Coefs
Poisson - Stepwise Backward	2.6125	NA	26200.28	22
Poisson - Stepwise Forward	2.6125	NA	26200.28	22
Poisson - Manual	2.6125	NA	26229.36	15
Negative Binomial - Backward	2.7576	NA	26202.52	22

ModelType	RMSE	Adj_R2	AIC	Coefs
Negative Binomial - Forward	2.7576	NA	26202.52	22
Negative Binomial - Manual	2.7570	NA	26231.60	15
Linear - Stepwise Backward	1.3710	0.52	24832.12	22
Linear - Stepwise Forward	1.3710	0.52	24832.12	22
Linear - Manual	1.3725	0.52	24890.70	15

Since we are comparing different types of models, its tricky to select a common metric for these.

For our evaluation, lets consider the model that had least RMSE, AIC - which in our case is the linear model (both barkward and forward resluted in the same metrics)

Evaluation

Lets do the data transformation first for our eval data frame, and then predict.

```
## Observations: 3,335
## Variables: 16
## $ IN                 <int> 3, 9, 10, 18, 21, 30, 31, 37, 39, 47, 60, 6...
## $ TARGET             <lgl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA,...
## $ FixedAcidity       <dbl> 5.4, 12.4, 7.2, 6.2, 11.4, 17.6, 15.5, 15.9...
## $ VolatileAcidity    <dbl> -0.860, 0.385, 1.750, 0.100, 0.210, 0.040, ...
## $ CitricAcid         <dbl> 0.27, -0.76, 0.17, 1.80, 0.28, -1.15, -0.53...
## $ ResidualSugar      <dbl> -10.70, -19.70, -33.00, 1.00, 1.20, 1.40, 4...
## $ Chlorides          <dbl> 0.092, 1.169, 0.065, -0.179, 0.038, 0.535, ...
## $ FreeSulfurDioxide  <dbl> 23, -37, 9, 104, 70, -250, 10, 115, 35, 40,...
## $ TotalSulfurDioxide <dbl> 398, 68, 76, 89, 53, 140, 17, 381, 83, 129,...
## $ Density            <dbl> 0.98527, 0.99048, 1.04641, 0.98877, 1.02899...
## $ pH                 <dbl> 5.02, 3.37, 4.61, 3.20, 2.54, 3.06, 3.07, 2...
## $ Sulphates          <dbl> 0.64, 1.09, 0.68, 2.11, -0.07, -0.02, 0.75,...
## $ Alcohol            <dbl> 12.30, 16.00, 8.55, 12.30, 4.80, 11.40, 8.5...
## $ LabelAppeal        <int> -1, 0, 0, -1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 0,...
## $ AcidIndex          <int> 6, 6, 8, 8, 10, 8, 12, 7, 12, 7, 8, 10, 9, ...
## $ STARS              <int> NA, 2, 1, 1, NA, 4, 3, NA, NA, NA, 1, NA, 2...
```

INDEX	STARS	LabelAppeal	TARGET
3	0	-1	1
9	2	0	4
10	1	0	2
18	1	-1	2
21	0	0	1
30	4	1	5
31	3	0	4
37	0	1	2
39	0	0	1
47	0	0	2
60	1	0	NA
62	0	1	1
63	2	0	4
64	0	0	NA
68	0	-1	1

INDEX	STARS	LabelAppeal	TARGET
75	2	-1	3
76	1	-1	3
83	0	1	0
87	2	0	4
92	3	1	5
98	2	-2	3
106	0	0	1
107	0	2	2
113	1	-1	2
120	2	0	4
123	2	2	5
125	2	-1	3
126	4	1	5
128	4	0	5
129	1	-1	2
131	3	0	NA
135	0	1	2
141	3	0	4
147	1	0	3
148	0	-1	1
151	2	0	4
156	1	1	3
157	3	-1	4
174	0	-1	1
186	0	1	2
193	1	-1	2
195	0	0	NA
212	0	0	1
213	0	0	1
217	1	0	NA
223	2	0	4
226	1	0	3
228	2	1	4
230	3	0	4
241	1	0	3
243	2	0	4
249	0	0	1
281	3	0	5
288	0	0	1
294	1	-2	2
295	1	-2	2
300	2	2	NA
302	2	1	4
303	0	0	1
308	0	-1	1
319	2	1	NA
320	0	0	NA
324	1	0	NA
331	1	-1	2
343	1	0	3
347	1	-1	2
348	2	0	4

INDEX	STARS	LabelAppeal	TARGET
350	2	1	5
357	0	-2	0
358	2	0	4
360	3	0	NA
366	1	1	3
367	1	-1	2
368	3	1	5
376	1	-1	2
380	1	0	3
388	0	-2	0
396	2	1	NA
398	4	0	5
403	3	0	NA
410	1	0	3
412	0	2	3
420	1	-1	2
434	1	-1	2
440	1	0	3
450	2	0	4
453	1	0	3
464	4	0	5
465	2	1	NA
466	4	0	5
473	1	-1	2
476	0	0	1
478	0	0	1
479	2	-1	4
493	1	-1	2
497	3	-1	NA
503	2	0	4
504	2	0	3
505	2	-2	3
507	0	1	2
513	1	0	2
519	1	-1	2
521	2	0	4
522	2	0	4
545	1	0	NA
549	0	0	2
551	0	0	1
556	3	2	NA
557	4	1	6
559	0	-1	1
560	1	-1	NA
566	2	0	4
569	2	1	4
573	1	-1	NA
578	0	0	1
579	3	1	NA
582	3	1	5
596	3	0	NA
598	1	-1	NA

INDEX	STARS	LabelAppeal	TARGET
599	0	-1	1
602	1	0	3
605	0	-1	1
617	1	-1	NA
619	4	1	5
630	1	1	3
634	2	0	4
643	1	-1	NA
645	0	-1	1
647	2	1	4
649	1	1	3
656	2	0	4
657	3	1	5
658	1	0	NA
667	3	-1	4
692	1	0	NA
693	3	0	4
698	0	1	1
699	2	0	4
700	4	2	NA
704	2	-1	3
707	1	1	NA
708	2	1	4
709	1	0	3
713	0	-1	1
714	2	-1	3
716	1	-1	2
718	2	0	4
722	3	0	4
729	3	2	NA
731	1	0	3
733	2	0	4
746	1	0	3
747	2	0	4
748	0	-1	NA
753	0	-1	NA
757	0	-1	1
763	2	-1	4
767	3	1	5
774	1	0	3
776	0	1	2
788	0	0	1
794	2	0	4
799	0	0	2
803	3	0	4
806	3	0	4
807	2	0	4
811	3	0	5
816	3	2	NA
818	2	0	4
819	0	-1	1
831	3	1	5

INDEX	STARS	LabelAppeal	TARGET
835	3	1	5
837	0	-1	1
841	0	1	NA
846	0	-1	1
856	4	1	NA
861	2	1	4
862	0	2	NA
863	2	-1	3
865	2	0	NA
871	1	-1	2
879	0	0	1
880	1	-1	2
881	2	0	4
885	2	0	4
887	1	0	NA
892	0	1	NA
898	2	0	4
900	0	-2	1
904	0	0	NA
906	3	1	5
910	2	0	4
912	3	0	4
913	1	-1	2
919	4	0	5
924	0	-1	NA
925	1	0	3
930	2	-1	3
940	1	-2	NA
941	1	1	3
946	0	0	1
949	3	1	5
951	0	-1	1
962	2	0	4
966	1	-1	2
967	4	0	5
971	0	1	2
981	3	-1	4
982	2	-1	NA
983	0	0	1
984	0	1	2
989	2	-2	3
990	2	1	4
992	1	0	3
995	3	1	5
996	0	-1	1
998	0	-1	1
1001	4	-1	5
1007	0	0	1
1008	1	-1	NA
1016	1	-1	2
1022	1	-1	NA
1027	3	1	5

INDEX	STARS	LabelAppeal	TARGET
1032	0	1	NA
1033	2	0	3
1041	3	1	5
1065	0	-1	NA
1074	0	0	2
1075	0	0	1
1081	0	-1	1
1094	3	0	4
1099	2	-1	3
1105	1	0	3
1123	0	1	2
1135	0	0	NA
1142	1	-1	2
1155	1	-1	2
1169	1	0	NA
1176	1	1	NA
1178	2	0	4
1180	2	0	4
1184	0	0	1
1185	0	-1	1
1193	0	0	1
1196	0	-1	1
1199	0	-2	1
1203	2	-1	3
1205	1	-1	2
1207	1	-1	2
1208	0	0	1
1212	0	-2	NA
1213	0	0	NA
1222	0	-1	1
1223	0	0	1
1226	3	0	4
1227	3	2	5
1229	0	-1	1
1230	3	0	4
1231	1	0	3
1241	0	-1	1
1243	3	0	4
1244	4	1	6
1246	3	0	4
1248	1	-1	2
1249	2	0	4
1252	2	0	4
1261	1	1	3
1275	3	-1	4
1281	0	0	2
1285	3	0	NA
1288	0	1	2
1290	2	0	4
1291	0	0	1
1304	2	1	4
1305	3	-2	4

INDEX	STARS	LabelAppeal	TARGET
1323	2	1	4
1342	0	0	NA
1348	1	-1	NA
1353	2	0	4
1363	2	-1	3
1371	2	0	4
1372	0	-1	1
1378	0	0	1
1381	3	0	4
1382	3	0	4
1393	2	1	NA
1394	3	1	5
1398	3	2	5
1404	1	1	NA
1405	2	0	4
1419	0	0	1
1421	2	-2	3
1426	0	-1	1
1431	0	0	NA
1435	2	-1	NA
1437	0	0	1
1438	0	1	NA
1442	0	-2	NA
1464	0	-1	NA
1471	1	1	NA
1473	2	1	4
1476	2	-1	3
1478	1	-1	2
1479	2	0	4
1487	3	1	5
1492	2	1	4
1496	2	-1	3
1497	0	1	2
1515	1	0	NA
1519	0	0	1
1522	2	-1	3
1526	1	1	3
1537	1	0	3
1538	3	0	5
1540	1	-1	2
1543	2	0	NA
1548	0	-1	1
1549	0	0	1
1556	2	-1	3
1564	0	0	2
1570	3	-1	4
1577	1	-1	2
1585	3	0	4
1590	2	1	4
1592	0	-1	1
1594	0	-1	1
1596	4	2	6

INDEX	STARS	LabelAppeal	TARGET
1598	4	0	5
1603	0	0	1
1607	0	-1	1
1612	4	1	6
1627	2	1	4
1629	1	1	3
1630	2	-1	3
1640	4	1	5
1641	3	0	4
1646	2	0	4
1662	0	1	2
1668	0	0	NA
1671	0	1	2
1672	3	0	4
1673	4	1	NA
1686	2	0	4
1688	3	0	4
1696	3	-1	4
1701	4	0	5
1707	2	0	NA
1708	1	1	3
1713	2	0	4
1715	3	-1	NA
1717	1	0	3
1721	2	-1	3
1724	1	0	NA
1725	2	-1	3
1730	2	0	4
1731	3	0	4
1734	1	2	4
1740	1	1	3
1748	1	0	3
1749	2	1	4
1750	4	1	5
1763	1	0	3
1768	3	0	4
1773	1	-1	NA
1777	0	1	2
1778	0	0	1
1780	1	0	3
1782	0	0	1
1784	2	1	4
1786	2	0	4
1787	2	1	NA
1792	0	0	1
1800	1	-1	NA
1801	2	-1	3
1803	1	0	3
1804	3	-1	4
1807	1	-1	2
1818	3	2	5
1821	1	1	3

INDEX	STARS	LabelAppeal	TARGET
1822	3	0	5
1828	1	0	3
1833	2	0	4
1844	3	0	4
1847	1	0	3
1850	1	-1	2
1854	2	0	4
1858	3	1	5
1864	3	0	4
1867	1	0	NA
1876	1	0	NA
1880	0	0	NA
1881	1	-1	NA
1891	1	0	3
1894	2	0	NA
1895	2	1	4
1901	0	1	NA
1905	2	1	4
1912	3	2	5
1918	2	-1	3
1921	2	0	4
1923	2	-1	3
1924	0	1	2
1931	1	-1	NA
1941	3	0	4
1950	0	-2	1
1951	3	0	5
1954	2	1	4
1961	2	0	4
1966	2	0	NA
1979	2	0	4
1982	0	0	NA
1987	1	0	3
1997	1	0	NA
2004	3	0	4
2011	4	0	5
2015	1	1	3
2025	4	2	6
2033	0	0	NA
2034	2	1	4
2035	0	0	NA
2036	0	-2	1
2053	1	0	3
2059	3	-1	NA
2060	0	-1	1
2073	1	0	NA
2084	1	0	3
2089	3	-1	4
2092	0	-1	1
2109	4	0	5
2129	3	1	5
2134	3	2	5

INDEX	STARS	LabelAppeal	TARGET
2135	2	1	4
2148	1	1	NA
2149	0	1	NA
2150	1	-1	2
2165	1	0	3
2166	1	0	NA
2168	4	0	NA
2170	0	-2	0
2171	1	-1	2
2172	1	1	3
2176	3	1	5
2182	2	-1	3
2189	1	-1	2
2191	2	1	NA
2197	1	0	3
2202	0	1	2
2203	2	0	4
2204	0	-1	0
2206	2	1	4
2218	1	0	3
2219	2	0	4
2221	0	0	1
2226	0	0	1
2228	2	-1	NA
2232	2	0	NA
2236	0	0	1
2241	1	-1	2
2245	3	1	5
2251	3	-1	NA
2255	3	1	5
2256	2	0	4
2259	0	0	1
2263	2	0	4
2264	2	0	NA
2267	0	0	1
2273	1	-1	2
2277	2	1	4
2287	3	0	5
2289	2	-1	3
2291	0	-1	1
2296	1	-1	2
2299	0	-1	NA
2306	2	-1	3
2314	0	1	2
2317	1	-1	2
2318	3	0	4
2321	3	0	4
2324	2	1	NA
2340	2	-1	3
2343	2	-2	NA
2349	0	-1	1
2352	3	1	5

INDEX	STARS	LabelAppeal	TARGET
2353	0	-1	1
2365	1	0	3
2370	0	0	NA
2378	2	-1	NA
2390	0	-1	1
2399	0	1	2
2402	0	0	1
2403	0	1	2
2404	0	0	1
2414	3	1	5
2422	2	0	4
2424	0	1	1
2430	2	0	4
2435	2	-1	3
2439	0	0	NA
2442	2	1	4
2445	2	0	4
2449	0	1	2
2451	0	0	1
2461	1	1	3
2464	2	0	NA
2465	2	0	4
2472	2	-1	3
2476	1	-1	2
2482	1	0	3
2487	3	1	5
2498	2	1	4
2501	2	0	NA
2504	1	0	3
2511	0	0	1
2518	3	1	5
2521	3	1	NA
2530	2	-1	3
2543	2	1	4
2545	2	1	4
2561	3	-1	NA
2566	2	0	NA
2572	1	0	3
2577	1	1	3
2578	0	0	1
2580	1	1	3
2581	3	0	4
2582	2	1	4
2584	1	0	NA
2590	3	0	4
2598	2	-1	3
2602	0	0	NA
2605	3	1	5
2616	2	0	4
2618	2	0	3
2619	0	-1	1
2624	3	1	5

INDEX	STARS	LabelAppeal	TARGET
2632	0	0	1
2640	2	0	4
2646	3	0	4
2651	0	1	NA
2660	0	0	1
2661	3	-1	4
2668	0	-2	0
2670	0	1	2
2680	1	1	3
2681	2	-1	4
2689	0	0	NA
2694	2	2	5
2695	0	0	NA
2696	1	0	NA
2702	1	0	3
2704	2	0	4
2708	4	1	5
2709	1	1	3
2714	3	0	NA
2716	2	1	NA
2723	0	0	1
2725	2	-1	NA
2738	0	2	NA
2750	2	0	4
2756	0	0	1
2758	3	0	4
2766	1	0	NA
2767	0	1	2
2771	2	-2	3
2775	2	0	4
2776	2	-1	NA
2779	0	0	1
2780	1	0	3
2781	0	0	1
2782	3	0	4
2783	2	0	4
2796	2	0	4
2798	2	2	5
2800	1	1	NA
2803	4	2	6
2806	3	1	NA
2813	2	-1	4
2818	0	-1	1
2821	3	1	5
2825	3	0	4
2829	1	-1	2
2830	1	0	3
2833	3	0	4
2839	0	-1	NA
2843	4	0	5
2846	2	1	4
2847	1	1	3

INDEX	STARS	LabelAppeal	TARGET
2848	4	1	NA
2856	1	1	NA
2863	0	1	1
2867	3	1	5
2869	2	0	4
2873	3	0	4
2874	2	0	4
2875	2	-1	4
2880	0	-1	1
2886	3	-1	4
2887	2	0	NA
2888	2	0	4
2889	1	-1	2
2890	0	1	2
2892	0	-1	1
2901	1	1	NA
2902	1	0	2
2905	1	-1	2
2917	1	0	NA
2922	1	0	3
2924	1	2	4
2930	0	2	2
2931	3	1	5
2946	0	-1	1
2955	2	0	4
2962	2	-1	NA
2964	0	0	1
2965	0	0	1
2967	2	2	5
2970	4	1	5
2973	3	2	6
2974	0	-1	1
2976	0	0	1
2977	0	0	1
2978	0	0	NA
2986	3	0	5
2988	3	1	5
2989	0	1	NA
2995	2	0	4
3005	3	1	5
3011	3	1	5
3013	1	0	3
3019	2	0	NA
3021	1	-2	2
3022	3	1	5
3029	0	-1	1
3037	2	0	4
3042	1	-1	2
3043	2	0	4
3049	2	0	4
3050	4	1	5
3053	0	-1	1

INDEX	STARS	LabelAppeal	TARGET
3058	0	0	1
3062	0	1	2
3063	3	0	NA
3065	0	1	NA
3080	1	-1	3
3088	0	1	NA
3093	0	-1	1
3096	3	1	NA
3101	4	1	6
3103	0	-2	1
3107	3	2	5
3109	3	0	4
3111	4	1	6
3113	2	1	4
3116	3	1	5
3132	1	0	NA
3141	3	1	5
3153	0	0	NA
3154	0	0	1
3160	0	0	1
3167	0	1	2
3170	2	-1	3
3173	1	-1	2
3174	2	0	4
3177	3	1	5
3179	3	0	NA
3184	0	-1	1
3190	1	0	NA
3193	3	0	NA
3199	3	0	4
3201	0	0	NA
3202	1	-1	2
3203	1	1	3
3206	2	-1	NA
3209	2	-1	3
3210	1	0	2
3217	3	0	4
3220	3	0	NA
3228	1	-1	NA
3232	1	0	3
3239	0	0	NA
3243	2	0	4
3245	1	0	3
3246	2	1	NA
3251	4	0	5
3253	4	0	5
3257	3	0	NA
3260	0	0	1
3261	1	1	3
3263	3	1	5
3278	2	0	4
3281	1	0	3

INDEX	STARS	LabelAppeal	TARGET
3283	3	1	5
3290	1	-1	2
3297	2	0	4
3304	3	0	4
3305	2	-1	3
3307	2	2	5
3308	1	1	3
3313	1	1	3
3314	1	0	3
3317	0	2	2
3348	0	1	2
3350	1	-1	2
3359	2	0	4
3367	3	0	4
3376	1	0	3
3378	3	-1	4
3384	0	0	1
3386	1	0	3
3387	2	0	NA
3388	2	-1	3
3390	2	1	4
3391	0	0	1
3396	0	-1	-1
3398	2	0	4
3404	4	0	5
3406	0	1	2
3407	1	1	3
3414	3	1	5
3419	2	-1	3
3423	1	-1	NA
3427	1	0	3
3432	0	0	0
3434	1	0	3
3438	0	0	1
3442	0	0	1
3443	0	0	1
3448	0	0	1
3456	2	-1	3
3464	4	1	5
3470	0	0	1
3475	2	0	4
3477	3	-1	NA
3490	1	0	NA
3493	2	0	4
3502	2	-1	NA
3508	3	0	NA
3516	0	-1	NA
3517	3	1	NA
3525	1	0	NA
3532	2	0	4
3535	2	0	NA
3536	2	1	4

INDEX	STARS	LabelAppeal	TARGET
3540	2	-1	3
3547	1	0	3
3550	3	-1	4
3557	1	-1	NA
3562	0	-1	1
3563	2	-1	3
3564	0	-1	1
3570	1	1	3
3573	1	1	NA
3577	1	1	3
3579	3	-1	NA
3581	0	-1	1
3587	2	0	4
3602	3	-1	4
3609	2	0	4
3612	2	1	5
3621	1	1	3
3642	0	1	NA
3647	0	0	1
3649	1	0	NA
3654	1	0	NA
3660	2	1	4
3665	3	0	NA
3669	2	0	4
3673	2	0	4
3675	0	0	1
3678	2	0	4
3680	1	1	3
3686	3	2	5
3693	2	1	4
3710	1	0	3
3713	3	0	4
3718	3	1	NA
3725	2	-1	3
3726	1	1	3
3747	1	0	3
3753	0	0	2
3754	4	0	5
3760	4	0	5
3763	1	-1	2
3765	3	0	4
3769	4	0	5
3771	2	0	4
3784	1	1	3
3787	2	1	NA
3794	0	0	1
3796	2	0	4
3798	2	1	4
3809	2	0	4
3812	3	1	5
3819	0	-2	0
3828	3	0	NA

INDEX	STARS	LabelAppeal	TARGET
3831	3	1	5
3833	1	1	3
3837	3	1	5
3839	0	-1	1
3843	0	0	1
3846	2	0	NA
3854	3	1	5
3861	0	0	1
3864	2	0	4
3868	1	0	2
3869	3	1	5
3870	1	0	3
3883	1	-1	2
3886	1	0	3
3889	2	0	NA
3894	0	-1	1
3907	1	0	3
3910	2	0	4
3913	0	0	1
3914	1	0	3
3921	2	2	5
3923	0	1	2
3929	2	-2	3
3931	0	-2	1
3932	3	1	5
3937	0	0	NA
3943	1	1	3
3956	2	1	4
3957	1	0	2
3961	4	1	6
3971	1	1	3
4004	0	-1	1
4005	1	1	3
4006	3	0	4
4011	1	-1	2
4013	3	1	5
4014	3	2	5
4016	0	-1	1
4017	3	1	5
4020	1	0	NA
4022	2	0	4
4026	0	0	1
4032	0	-1	1
4043	1	-1	2
4045	1	1	3
4048	3	1	5
4051	3	1	NA
4052	2	0	4
4056	2	-1	3
4059	1	0	2
4069	3	1	NA
4074	2	0	4

INDEX	STARS	LabelAppeal	TARGET
4076	1	0	3
4077	0	-1	NA
4079	1	0	NA
4081	2	0	NA
4088	0	0	1
4105	1	1	NA
4125	2	0	4
4134	2	-1	3
4139	1	0	2
4146	1	-1	2
4149	3	0	NA
4151	0	1	2
4155	1	0	NA
4157	1	1	3
4168	3	1	NA
4170	1	-1	2
4174	1	-1	2
4179	3	1	5
4185	3	0	4
4199	0	-1	1
4205	0	0	1
4208	1	1	NA
4211	2	-2	3
4212	0	-1	0
4215	1	0	3
4217	2	-1	NA
4219	0	0	1
4226	3	0	4
4227	2	-1	NA
4229	0	-1	1
4231	1	0	3
4233	0	-1	1
4237	1	0	NA
4243	2	1	4
4248	3	0	4
4255	3	1	5
4262	1	-1	2
4266	0	-1	1
4268	0	1	2
4270	1	-1	NA
4273	0	1	NA
4276	2	1	4
4277	2	0	4
4279	1	-1	NA
4299	2	0	4
4313	0	1	2
4322	3	0	NA
4324	0	0	1
4328	2	-1	3
4331	1	0	3
4335	1	-1	2
4337	2	0	4

INDEX	STARS	LabelAppeal	TARGET
4338	0	-1	1
4343	1	-1	2
4347	1	-2	2
4355	2	0	4
4357	1	0	NA
4359	4	1	6
4362	1	-2	NA
4368	1	-1	2
4374	3	1	NA
4375	3	1	5
4378	2	0	4
4381	0	0	1
4387	2	1	4
4400	1	-1	2
4423	2	1	4
4424	1	0	NA
4428	3	0	5
4433	3	2	6
4436	0	-1	NA
4437	0	0	1
4439	4	1	6
4449	2	0	4
4456	2	0	4
4463	4	1	6
4467	1	-1	NA
4468	0	0	1
4469	1	0	3
4472	2	0	4
4473	3	0	4
4476	1	0	3
4500	1	-1	3
4509	2	0	4
4513	1	-1	NA
4521	0	0	1
4527	1	0	2
4530	1	-2	2
4532	1	1	3
4533	2	-1	3
4535	1	-1	2
4536	3	1	5
4542	2	0	4
4551	1	0	3
4554	2	0	4
4555	1	-2	2
4564	0	0	1
4572	1	-1	NA
4573	4	2	6
4577	0	-1	1
4579	3	1	NA
4583	2	0	NA
4584	4	1	5
4596	2	-1	3

INDEX	STARS	LabelAppeal	TARGET
4599	2	0	4
4607	2	0	4
4609	0	-1	1
4610	0	0	1
4616	1	-2	2
4617	1	0	3
4633	3	0	5
4638	2	0	NA
4641	1	0	NA
4653	4	2	6
4655	3	0	4
4659	0	1	2
4669	0	-1	1
4678	0	0	1
4685	2	1	4
4686	2	0	NA
4691	0	-1	1
4695	2	1	4
4698	2	0	4
4700	4	0	5
4711	2	-1	3
4722	3	0	NA
4727	3	-1	4
4756	4	1	6
4762	0	0	1
4763	2	-1	NA
4766	4	0	5
4770	0	0	1
4784	3	-1	4
4791	1	1	3
4795	3	1	5
4799	0	-1	1
4802	3	0	4
4805	2	0	4
4814	2	1	4
4816	0	0	1
4817	2	0	4
4822	1	0	3
4827	1	-1	2
4833	4	0	5
4836	0	1	1
4842	1	0	NA
4844	1	0	NA
4845	1	-1	2
4849	3	0	4
4850	0	0	1
4860	3	0	4
4863	1	0	3
4871	2	0	4
4878	2	0	4
4881	1	0	3
4888	1	2	NA

INDEX	STARS	LabelAppeal	TARGET
4900	4	2	6
4906	1	1	3
4909	0	1	NA
4916	2	1	4
4918	4	1	5
4926	1	0	NA
4928	1	-1	NA
4941	1	0	3
4946	3	0	5
4949	0	0	1
4956	1	0	3
4966	3	0	4
4969	1	0	3
4973	2	0	4
4978	3	1	5
4982	2	0	3
4985	2	1	4
4991	1	1	3
4998	2	0	4
5000	1	-1	2
5004	2	0	NA
5005	1	-1	2
5011	2	1	4
5016	0	0	0
5018	3	-1	4
5034	2	0	4
5038	0	0	1
5042	3	2	NA
5046	1	0	3
5051	0	0	NA
5054	0	0	NA
5057	3	0	4
5062	2	0	4
5063	2	1	NA
5065	1	0	NA
5066	0	-1	1
5076	1	-1	2
5089	2	-1	3
5092	2	-2	3
5093	3	0	4
5094	3	0	4
5098	2	0	4
5102	3	-2	4
5112	3	1	5
5117	1	0	3
5127	2	0	NA
5130	1	-1	2
5131	1	-1	2
5132	2	0	NA
5135	0	0	1
5136	1	0	NA
5147	2	1	4

INDEX	STARS	LabelAppeal	TARGET
5157	2	0	4
5160	1	-1	2
5165	0	-1	1
5166	0	0	1
5172	1	-1	2
5173	1	-1	2
5179	0	0	NA
5184	3	1	5
5187	1	-1	NA
5191	1	0	3
5193	0	-1	1
5194	0	0	1
5199	1	-1	NA
5212	0	0	1
5213	1	0	3
5224	2	0	4
5226	3	0	4
5239	3	1	5
5252	2	1	NA
5264	0	0	1
5266	1	-2	NA
5271	3	1	5
5273	2	0	4
5276	2	-2	3
5278	3	0	4
5281	1	-1	2
5283	3	0	4
5291	0	2	2
5294	3	2	5
5296	2	0	4
5297	0	0	1
5313	2	0	4
5314	1	0	3
5321	2	-1	NA
5325	2	-1	4
5326	0	0	1
5328	3	-1	NA
5334	1	0	3
5338	2	1	4
5344	1	-2	2
5348	0	-1	1
5352	0	0	1
5353	2	0	4
5354	0	1	2
5361	0	-1	NA
5364	1	1	3
5365	2	0	4
5367	0	-2	0
5379	3	1	5
5382	2	-1	3
5386	3	1	NA
5395	2	0	4

INDEX	STARS	LabelAppeal	TARGET
5410	2	1	NA
5411	1	1	3
5416	3	1	5
5424	1	2	4
5426	1	0	3
5428	0	0	1
5430	4	0	NA
5433	0	0	2
5437	2	-1	3
5440	1	1	NA
5442	3	1	5
5445	1	0	3
5449	2	0	NA
5452	2	0	4
5460	0	-1	1
5461	1	-1	2
5465	0	-1	1
5467	3	0	NA
5471	2	1	4
5474	0	0	1
5475	2	-1	NA
5480	0	-1	NA
5481	2	0	4
5484	0	0	1
5494	2	2	5
5495	0	-1	1
5497	0	0	2
5499	2	-1	3
5507	0	0	1
5510	1	1	3
5515	0	0	1
5516	1	-2	2
5517	0	-1	1
5524	3	0	4
5530	3	2	5
5534	1	-1	3
5543	0	0	1
5545	1	0	3
5558	2	0	4
5562	0	0	1
5573	4	2	6
5581	3	0	4
5583	3	1	5
5587	3	-1	4
5589	1	-1	2
5591	4	1	5
5596	1	0	3
5606	3	0	4
5608	2	1	4
5611	2	-1	3
5612	2	1	4
5614	3	0	NA

INDEX	STARS	LabelAppeal	TARGET
5620	2	0	4
5623	3	1	5
5624	1	2	4
5626	3	2	5
5633	0	-2	1
5635	2	-1	3
5640	2	1	NA
5643	1	0	NA
5644	4	1	6
5653	3	1	5
5663	3	0	NA
5664	3	1	5
5667	1	-1	2
5671	0	0	1
5673	2	0	4
5676	2	-2	3
5678	1	0	3
5698	1	-1	2
5700	4	1	5
5705	2	0	4
5706	2	2	NA
5711	0	0	NA
5712	3	1	5
5716	2	-1	3
5719	1	1	3
5725	1	-1	NA
5728	4	2	6
5734	0	-1	1
5735	3	0	5
5743	1	-1	3
5754	0	-1	1
5755	1	0	NA
5756	2	1	NA
5766	1	0	3
5770	2	0	4
5774	0	0	1
5775	1	-1	2
5776	2	0	4
5778	4	1	5
5786	2	-1	3
5787	2	0	4
5791	3	1	5
5794	2	-1	NA
5803	1	0	3
5804	1	1	NA
5808	0	1	2
5810	2	0	4
5813	2	0	4
5828	2	-1	3
5839	4	1	6
5842	3	0	4
5843	2	-1	3

INDEX	STARS	LabelAppeal	TARGET
5844	2	0	4
5847	1	0	3
5851	1	-1	2
5854	3	-1	NA
5857	0	0	1
5866	0	-2	1
5874	0	0	NA
5886	2	0	NA
5895	1	0	2
5897	1	-1	2
5898	1	0	3
5900	0	1	1
5902	0	1	2
5908	0	0	1
5909	1	0	3
5912	4	1	6
5913	0	0	1
5917	4	0	5
5918	1	0	3
5921	3	-1	NA
5931	0	-2	1
5942	2	0	4
5943	2	-1	NA
5950	2	0	NA
5954	0	0	1
5983	2	-1	NA
5995	1	0	NA
6002	1	0	3
6005	2	0	4
6009	4	2	6
6011	1	-1	NA
6012	4	0	5
6019	0	-1	NA
6021	1	1	3
6029	3	1	NA
6036	2	1	NA
6037	1	0	3
6038	0	-1	1
6043	1	1	2
6045	3	0	4
6047	0	-1	1
6048	1	0	3
6061	2	0	4
6063	1	1	3
6064	3	1	4
6068	3	0	4
6069	0	0	1
6070	2	0	4
6071	3	1	5
6074	3	0	NA
6079	2	0	4
6082	1	0	NA

INDEX	STARS	LabelAppeal	TARGET
6088	3	0	4
6094	1	0	3
6095	0	0	1
6098	1	0	3
6102	2	0	NA
6105	0	0	1
6113	4	1	NA
6116	1	0	3
6120	0	0	1
6121	1	-1	2
6126	2	-2	3
6144	2	1	4
6145	2	1	4
6153	1	-1	2
6156	2	0	NA
6159	3	0	4
6162	0	1	NA
6184	1	-1	3
6188	1	0	3
6189	2	-1	3
6191	1	-1	NA
6211	0	1	2
6216	2	0	4
6218	0	-1	1
6222	0	0	1
6235	2	-1	3
6245	0	-1	1
6248	2	0	4
6253	2	0	4
6256	0	1	2
6257	2	1	4
6259	0	-2	NA
6266	2	1	4
6268	2	0	NA
6275	0	-2	0
6280	1	0	3
6283	1	-1	NA
6288	4	0	NA
6289	1	-1	2
6301	2	2	5
6308	2	1	4
6314	2	0	4
6315	0	-1	1
6316	2	0	4
6317	1	0	3
6318	3	-2	4
6323	3	-1	4
6329	3	-1	4
6336	0	-1	1
6341	2	1	4
6348	3	-1	4
6349	2	1	NA

INDEX	STARS	LabelAppeal	TARGET
6365	0	0	1
6372	2	0	4
6376	1	0	NA
6378	0	0	2
6379	2	1	NA
6382	0	-1	1
6383	2	-1	3
6389	3	1	5
6390	1	-2	NA
6392	3	0	5
6394	0	1	2
6402	0	1	1
6404	1	2	4
6405	1	-1	2
6406	0	0	1
6409	4	0	NA
6410	3	1	4
6411	2	0	4
6421	3	1	5
6428	4	2	6
6429	1	-1	2
6432	3	0	4
6436	0	-1	NA
6437	2	0	4
6438	0	2	2
6445	1	0	3
6447	3	0	NA
6450	2	1	4
6462	2	1	4
6467	2	0	4
6478	2	0	4
6484	2	1	4
6492	2	1	4
6497	3	2	NA
6504	2	-1	3
6505	0	-1	1
6513	2	-1	3
6525	4	0	5
6526	2	1	NA
6528	1	-1	2
6540	0	1	NA
6542	0	1	NA
6544	3	1	5
6548	2	0	4
6552	2	-1	NA
6558	2	0	4
6567	2	-2	3
6569	3	0	4
6572	4	1	5
6577	3	2	5
6581	2	-1	4
6588	2	-1	3

INDEX	STARS	LabelAppeal	TARGET
6591	0	1	2
6594	1	-1	2
6600	2	2	5
6602	1	1	NA
6604	1	0	2
6605	2	0	4
6614	1	-1	NA
6616	0	-2	NA
6621	0	0	2
6640	3	0	5
6641	2	-1	NA
6643	1	0	3
6644	0	-1	NA
6649	1	-2	2
6650	2	0	NA
6655	4	1	5
6661	1	-1	2
6672	4	0	5
6677	0	-1	NA
6688	1	0	3
6689	3	1	NA
6691	1	-1	NA
6692	2	1	4
6694	3	-1	4
6702	1	-1	NA
6714	0	0	NA
6716	3	1	5
6724	2	0	3
6725	0	-1	1
6730	2	0	4
6735	1	0	3
6738	1	0	3
6739	1	0	3
6743	2	0	4
6747	1	0	3
6750	4	2	6
6751	2	-1	NA
6753	3	0	4
6754	1	1	3
6755	0	-2	1
6762	2	0	4
6764	2	0	4
6772	0	1	2
6774	0	-1	1
6787	2	-2	3
6789	2	0	4
6793	3	0	4
6798	0	1	2
6799	0	1	2
6800	2	0	4
6802	0	-1	NA
6808	0	-1	1

INDEX	STARS	LabelAppeal	TARGET
6809	2	0	4
6812	2	1	NA
6814	1	0	NA
6816	1	-1	2
6822	0	0	1
6829	2	0	NA
6834	1	-1	2
6836	3	0	5
6839	3	-1	NA
6840	0	-1	NA
6843	0	1	2
6846	1	-1	2
6848	0	-1	1
6852	1	-1	NA
6856	4	1	5
6860	2	1	4
6866	3	0	5
6870	3	0	4
6878	0	1	NA
6880	3	1	5
6885	2	2	NA
6897	3	0	4
6902	3	-1	4
6904	3	0	4
6907	3	0	4
6909	0	1	2
6914	1	-2	2
6915	2	2	5
6922	0	-1	1
6924	1	-1	2
6933	2	0	4
6934	2	1	4
6941	2	0	4
6957	1	0	NA
6960	1	2	4
6969	0	0	NA
6975	1	0	3
6980	0	-1	1
6983	0	-1	1
6987	2	-2	3
6994	1	1	3
6997	2	1	5
7002	1	1	3
7010	1	-1	2
7015	1	1	NA
7019	1	0	3
7022	2	1	NA
7025	1	-1	2
7029	1	2	4
7031	1	-1	2
7037	1	-1	NA
7038	2	0	4

INDEX	STARS	LabelAppeal	TARGET
7043	0	-2	1
7049	1	1	3
7052	1	1	3
7053	3	0	4
7056	2	-1	3
7057	3	0	4
7080	0	0	NA
7086	0	-1	1
7087	2	0	4
7105	2	0	NA
7108	2	-2	NA
7121	0	-2	0
7122	1	-1	2
7125	0	0	1
7132	1	1	3
7134	2	0	3
7151	1	0	NA
7152	3	-1	4
7157	1	0	3
7159	0	0	1
7166	0	1	1
7167	0	0	1
7177	1	0	3
7179	0	-1	1
7181	0	2	2
7183	2	2	5
7186	2	0	4
7193	3	1	5
7205	2	-1	NA
7207	0	0	1
7209	3	0	4
7216	0	1	NA
7232	1	0	NA
7235	0	-1	NA
7238	1	0	3
7240	1	-1	2
7243	0	-1	0
7252	1	-1	2
7269	1	-1	2
7275	2	0	NA
7281	1	0	NA
7283	0	-2	1
7287	3	2	5
7289	3	2	6
7291	3	0	NA
7294	0	2	NA
7304	3	1	5
7308	2	1	4
7313	2	-1	3
7319	0	0	1
7325	0	-1	NA
7326	1	0	3

INDEX	STARS	LabelAppeal	TARGET
7330	3	1	5
7332	2	1	4
7337	0	-1	1
7341	0	0	1
7346	3	-1	4
7353	0	-2	1
7354	3	0	5
7361	0	0	NA
7366	0	1	2
7368	3	1	5
7372	3	0	4
7375	2	-1	3
7377	3	2	5
7380	0	1	2
7382	3	0	NA
7385	1	0	3
7392	1	0	3
7395	2	1	4
7397	3	-1	4
7403	3	-1	4
7406	3	-1	NA
7409	0	0	1
7410	2	0	4
7412	2	1	4
7419	2	-1	3
7425	2	-1	4
7435	4	2	6
7438	2	0	4
7440	2	1	4
7447	2	-1	NA
7449	2	-2	NA
7456	3	-1	4
7464	2	0	4
7478	1	-1	NA
7480	2	-1	NA
7481	3	1	5
7483	2	0	4
7484	0	-1	1
7491	3	0	4
7494	1	-1	2
7501	1	-1	NA
7503	2	0	NA
7509	1	-1	2
7517	0	1	1
7518	4	1	6
7519	1	-2	2
7521	3	1	NA
7522	1	-1	NA
7536	2	0	4
7539	0	-1	1
7547	3	2	5
7549	1	0	3

INDEX	STARS	LabelAppeal	TARGET
7552	1	0	NA
7554	0	-1	NA
7556	2	0	4
7564	2	0	NA
7566	0	0	1
7570	3	0	4
7571	1	1	3
7572	2	0	4
7575	1	-1	2
7586	2	1	3
7589	3	1	5
7590	1	0	3
7597	2	0	4
7602	2	1	4
7604	3	0	4
7605	1	0	3
7612	1	0	3
7615	3	0	4
7617	1	0	NA
7624	2	0	4
7632	3	0	4
7639	2	1	4
7642	1	1	3
7643	2	0	4
7649	2	0	4
7650	0	-1	NA
7653	2	0	4
7654	1	1	NA
7657	3	1	5
7662	0	-1	1
7669	2	0	4
7671	1	0	3
7675	0	0	1
7678	3	0	4
7682	3	0	NA
7688	0	-1	1
7689	0	-1	1
7690	3	1	5
7692	1	0	3
7699	0	1	2
7705	2	-1	3
7712	3	-1	NA
7726	2	1	4
7728	1	-2	NA
7735	2	1	4
7737	1	-1	2
7739	2	0	3
7743	0	1	2
7744	2	2	NA
7746	1	-1	2
7749	0	-1	1
7750	3	0	5

INDEX	STARS	LabelAppeal	TARGET
7752	2	0	4
7755	3	1	5
7756	2	0	NA
7762	3	0	NA
7764	0	1	1
7769	1	-1	2
7770	1	-1	2
7776	3	1	5
7778	3	1	5
7784	1	-1	2
7786	2	-1	NA
7789	2	-1	3
7793	2	1	4
7794	0	-1	1
7804	2	-1	NA
7811	2	1	NA
7813	1	0	3
7815	1	1	3
7817	0	0	1
7818	2	0	NA
7821	4	1	6
7825	3	-1	4
7830	3	1	5
7832	2	0	NA
7835	0	0	NA
7839	3	2	5
7842	3	1	5
7849	3	0	5
7856	1	-1	NA
7857	1	-1	2
7863	2	1	4
7866	3	0	5
7871	2	-1	3
7875	1	-1	NA
7882	1	-1	2
7887	1	0	2
7888	3	-1	4
7891	1	-2	2
7895	2	1	NA
7901	3	0	4
7906	1	-1	2
7908	0	0	1
7917	1	-2	2
7924	1	0	3
7948	2	0	4
7950	4	1	6
7955	1	0	2
7957	0	1	2
7959	1	-1	NA
7967	4	0	5
7969	1	0	NA
7971	2	1	4

INDEX	STARS	LabelAppeal	TARGET
7974	2	-1	3
7976	1	0	NA
7986	4	1	6
7987	0	-1	1
7993	3	0	4
7996	2	0	4
7998	1	1	3
8018	3	-1	4
8019	1	-1	NA
8027	0	-1	NA
8036	0	0	1
8040	2	1	4
8044	1	2	4
8050	2	-1	4
8052	0	0	1
8054	0	1	2
8057	2	0	4
8058	3	0	5
8059	1	0	NA
8066	3	-2	4
8070	3	2	6
8072	3	2	5
8078	1	-1	2
8079	2	-1	3
8080	3	0	4
8081	3	0	4
8088	0	0	1
8091	1	0	2
8094	1	0	2
8095	1	-1	NA
8099	3	0	4
8101	3	1	5
8102	3	1	5
8116	3	0	5
8125	3	0	4
8134	0	2	2
8139	0	1	2
8141	2	1	4
8147	1	0	3
8158	4	1	NA
8160	1	-1	2
8165	2	-1	NA
8187	1	-1	2
8205	0	0	NA
8209	1	1	3
8211	2	0	NA
8232	2	0	4
8236	2	1	4
8237	3	1	5
8238	4	1	6
8245	3	0	4
8256	1	0	NA

INDEX	STARS	LabelAppeal	TARGET
8268	3	-1	NA
8269	1	-1	2
8270	2	1	NA
8286	1	0	2
8289	2	0	NA
8301	3	-1	4
8305	0	-1	1
8310	1	0	3
8312	0	-2	NA
8318	3	1	5
8321	3	0	4
8328	0	1	NA
8331	2	1	NA
8334	1	0	NA
8344	2	0	4
8345	1	-1	2
8352	3	0	5
8358	2	0	NA
8359	1	-1	NA
8360	1	-1	2
8365	2	-1	3
8366	2	-1	3
8369	3	1	5
8373	3	1	5
8378	2	0	4
8392	2	-1	3
8397	2	-1	3
8399	1	-1	2
8400	1	1	3
8405	1	0	3
8406	2	1	4
8410	0	1	2
8413	3	0	4
8414	0	-1	1
8416	4	1	NA
8426	1	-1	2
8434	2	1	4
8439	0	2	NA
8440	0	-2	1
8475	3	0	4
8480	3	1	5
8497	1	-1	2
8499	0	1	1
8500	1	1	3
8501	2	-1	4
8502	2	-1	NA
8518	2	2	5
8520	2	0	4
8523	2	1	4
8525	0	-2	0
8532	1	0	NA
8535	1	0	3

INDEX	STARS	LabelAppeal	TARGET
8543	0	0	1
8554	0	1	2
8560	4	0	5
8561	4	-1	5
8563	0	-1	1
8566	0	0	1
8570	2	0	4
8572	3	-1	4
8582	1	-1	1
8583	0	-1	1
8587	0	0	1
8592	1	-1	2
8593	0	1	2
8607	0	-1	1
8609	2	1	4
8610	2	0	NA
8614	2	0	NA
8616	4	0	5
8622	4	-1	5
8623	2	0	4
8624	0	-1	1
8633	4	1	6
8641	3	2	NA
8644	4	1	6
8649	2	1	4
8653	1	0	3
8657	3	2	5
8658	1	0	3
8663	2	0	4
8672	1	-1	2
8680	0	-1	1
8684	1	0	3
8687	0	0	1
8688	2	0	4
8690	2	0	4
8712	0	1	0
8717	1	1	3
8730	3	1	5
8739	2	0	4
8744	2	1	4
8747	3	1	5
8748	3	0	4
8751	2	-1	4
8758	2	0	4
8761	0	-1	NA
8763	0	1	2
8764	2	0	4
8765	3	2	5
8773	4	0	NA
8780	1	0	3
8781	2	-1	3
8782	2	0	NA

INDEX	STARS	LabelAppeal	TARGET
8785	0	0	0
8786	1	1	NA
8797	0	-1	1
8799	3	0	4
8807	0	-1	NA
8816	2	0	NA
8817	3	-1	4
8826	3	1	NA
8833	1	0	3
8834	1	0	NA
8835	1	-1	NA
8840	3	1	5
8843	1	1	3
8849	2	-1	3
8855	1	1	3
8861	1	0	3
8862	3	0	4
8865	3	-2	NA
8868	4	0	5
8870	2	1	4
8880	2	1	NA
8885	0	0	1
8894	0	0	2
8895	3	0	4
8899	3	0	5
8912	0	0	2
8922	1	-1	2
8924	2	-1	NA
8928	2	0	4
8932	0	1	2
8943	3	1	5
8945	4	1	NA
8946	2	1	4
8954	1	0	3
8958	2	0	NA
8960	0	-1	1
8965	1	0	2
8966	2	1	4
8967	1	-1	2
8969	2	-1	3
8980	3	0	NA
8984	3	0	NA
8985	1	0	NA
8988	1	0	NA
8989	2	1	4
8995	0	0	1
9004	1	1	3
9010	1	0	NA
9012	0	0	1
9018	2	0	4
9036	0	-2	0
9037	1	-1	2

INDEX	STARS	LabelAppeal	TARGET
9040	0	1	NA
9041	2	2	5
9044	4	1	5
9045	1	0	NA
9047	1	0	3
9049	0	0	NA
9061	0	0	2
9062	1	0	3
9076	2	0	4
9079	1	-1	2
9081	2	0	4
9082	2	1	4
9089	0	-1	1
9092	2	-1	3
9094	0	1	NA
9115	0	0	1
9117	3	0	4
9118	1	0	3
9120	0	-1	1
9124	1	0	NA
9128	0	-2	NA
9135	0	0	1
9136	1	0	3
9138	3	0	4
9157	3	0	NA
9176	0	0	1
9183	0	0	1
9187	1	0	3
9188	0	-1	1
9190	3	0	4
9197	2	0	NA
9200	3	-1	4
9201	0	0	1
9203	0	0	1
9212	2	0	4
9213	0	-1	1
9214	3	0	NA
9217	1	1	3
9219	1	1	3
9220	3	1	5
9221	4	1	5
9237	0	0	1
9240	2	1	4
9241	1	-1	3
9248	2	-1	4
9253	4	2	6
9259	2	1	4
9267	0	1	2
9271	1	0	3
9273	0	-1	0
9285	4	1	5
9290	2	0	NA

INDEX	STARS	LabelAppeal	TARGET
9291	2	0	4
9293	0	0	1
9294	2	0	4
9301	2	-1	4
9302	3	0	NA
9312	1	0	3
9316	2	0	4
9319	0	1	2
9328	3	1	5
9331	2	1	4
9338	0	-1	1
9350	1	0	3
9356	2	0	4
9359	1	-1	2
9362	1	1	3
9364	1	0	3
9370	1	1	3
9380	0	-1	0
9386	2	1	NA
9394	0	0	1
9407	2	0	4
9411	1	0	3
9422	2	0	4
9423	0	0	1
9429	0	0	1
9433	0	-1	1
9439	0	0	1
9451	3	0	4
9452	1	1	3
9453	0	-1	NA
9460	3	1	NA
9465	2	2	5
9470	3	0	4
9476	2	0	NA
9485	2	0	4
9486	0	-1	1
9488	1	0	3
9507	4	1	5
9508	0	-1	1
9517	4	2	6
9521	2	2	5
9528	2	-1	3
9532	1	0	NA
9536	2	-1	3
9540	3	1	5
9542	2	1	4
9546	3	-1	4
9548	3	0	4
9549	4	1	NA
9554	4	0	5
9555	2	1	4
9558	0	-1	1

INDEX	STARS	LabelAppeal	TARGET
9573	0	0	1
9575	4	0	5
9584	2	-1	3
9586	2	0	4
9588	3	1	5
9591	0	0	1
9592	3	0	NA
9597	3	2	NA
9600	3	0	4
9603	2	0	NA
9605	1	-1	2
9614	0	0	NA
9616	3	1	NA
9622	2	0	4
9624	3	0	4
9629	0	0	1
9633	2	0	NA
9640	3	0	5
9644	1	-1	2
9645	0	0	1
9646	1	0	3
9648	1	0	3
9649	0	-1	1
9660	2	0	4
9664	2	1	NA
9675	0	1	NA
9679	1	0	3
9680	2	-1	3
9682	0	0	NA
9697	1	0	3
9701	3	-1	4
9704	2	-1	3
9705	0	1	2
9707	3	0	4
9714	0	1	2
9718	1	0	3
9722	3	1	5
9739	1	0	3
9747	4	1	5
9751	0	-1	1
9757	1	-1	2
9759	3	-1	4
9760	3	0	NA
9764	2	-1	3
9776	0	0	NA
9778	1	0	3
9786	0	-1	1
9803	2	0	4
9804	2	1	NA
9815	3	1	5
9824	1	-2	NA
9825	0	0	1

INDEX	STARS	LabelAppeal	TARGET
9826	1	0	3
9827	2	0	4
9833	2	0	4
9835	0	-1	1
9860	2	0	4
9865	1	1	3
9871	3	-1	4
9874	0	-1	1
9880	1	1	3
9882	0	-1	NA
9885	1	0	3
9888	2	1	4
9892	1	-2	2
9893	3	1	5
9896	0	-1	1
9902	1	1	3
9906	2	0	4
9910	3	1	5
9914	0	1	2
9918	0	1	2
9920	0	-1	1
9926	2	2	5
9931	3	2	5
9935	2	0	4
9945	2	1	4
9953	0	1	2
9957	1	0	NA
9963	2	1	NA
9972	2	1	4
9976	3	0	NA
9979	1	0	NA
9980	0	0	1
9982	0	1	NA
9991	2	0	NA
10000	2	2	5
10003	2	0	4
10005	1	-1	2
10014	2	0	4
10032	1	1	3
10034	1	0	NA
10041	1	-1	NA
10042	2	0	4
10044	3	1	5
10045	0	-2	0
10054	2	0	4
10061	4	1	NA
10062	0	1	2
10073	1	1	NA
10081	0	1	2
10084	0	0	NA
10086	0	1	0
10093	0	-1	NA

INDEX	STARS	LabelAppeal	TARGET
10101	3	1	NA
10105	3	0	4
10110	2	0	NA
10113	1	0	3
10115	1	0	3
10119	2	0	4
10121	3	-1	4
10124	0	1	1
10126	4	1	5
10127	1	1	3
10145	1	0	3
10147	0	-1	1
10148	1	-1	2
10162	1	-1	NA
10163	1	0	3
10166	1	-2	2
10172	2	0	4
10173	1	0	3
10175	1	-1	2
10180	2	-1	NA
10186	0	1	2
10192	3	-1	4
10199	2	-1	3
10209	0	0	1
10210	4	2	6
10214	2	0	NA
10215	0	1	NA
10216	0	0	NA
10232	1	1	3
10239	3	1	5
10249	2	1	4
10253	3	1	5
10255	0	0	1
10262	2	-1	NA
10264	1	-1	2
10266	0	1	2
10268	0	0	1
10271	2	-1	3
10272	3	1	5
10276	0	0	1
10277	1	0	3
10279	2	-1	3
10281	1	-1	2
10285	1	-1	NA
10294	0	-1	1
10300	2	-1	3
10304	1	0	3
10307	1	1	NA
10309	3	1	5
10310	0	0	1
10312	0	0	NA
10321	2	-1	3

INDEX	STARS	LabelAppeal	TARGET
10332	0	1	2
10336	2	0	4
10368	1	0	3
10369	2	2	5
10375	0	-2	0
10376	0	-1	1
10379	2	0	NA
10380	1	0	3
10383	1	-1	NA
10385	3	1	5
10387	2	0	NA
10397	1	0	3
10412	1	1	NA
10413	0	1	NA
10418	1	-1	NA
10420	2	-1	4
10426	2	0	4
10427	1	0	3
10428	2	-1	3
10430	0	0	2
10435	0	0	NA
10436	0	-2	NA
10446	4	1	6
10448	3	-1	4
10449	2	1	4
10463	1	-1	2
10469	1	-1	2
10470	3	0	NA
10471	2	0	NA
10473	3	1	NA
10476	2	-1	3
10482	1	0	3
10500	2	-1	3
10511	3	1	5
10512	2	1	4
10514	2	0	4
10515	3	0	4
10526	0	0	NA
10546	0	-1	NA
10549	2	0	4
10553	0	-1	NA
10558	1	-1	2
10575	0	0	1
10581	1	0	3
10583	1	1	NA
10584	0	-1	1
10585	0	1	1
10610	0	1	2
10611	0	-1	1
10616	2	2	4
10618	1	0	3
10628	0	-1	1

INDEX	STARS	LabelAppeal	TARGET
10632	0	-1	1
10642	2	0	4
10648	1	1	3
10649	2	0	4
10650	2	-1	NA
10654	1	-2	2
10656	3	1	5
10661	3	1	5
10663	0	2	2
10672	1	0	3
10678	3	1	5
10685	3	0	NA
10690	3	1	5
10702	2	0	4
10706	1	1	3
10708	1	-1	2
10716	2	-1	4
10717	4	0	NA
10720	3	1	5
10729	0	0	1
10730	3	1	5
10745	0	1	2
10753	1	-1	NA
10754	1	-1	2
10762	1	-1	2
10766	0	-1	NA
10776	0	-2	0
10783	1	0	3
10789	2	-1	3
10790	2	2	5
10797	0	1	2
10807	1	0	3
10810	0	0	1
10817	1	1	3
10820	1	-1	2
10822	2	0	4
10828	2	1	4
10829	1	-1	NA
10830	2	-2	3
10831	4	1	6
10841	3	2	5
10847	2	-1	NA
10856	0	-1	1
10860	0	0	NA
10861	3	1	NA
10863	1	0	3
10875	1	0	NA
10884	3	0	4
10895	0	-1	1
10897	1	0	3
10898	1	0	NA
10903	0	1	1

INDEX	STARS	LabelAppeal	TARGET
10908	0	1	2
10924	1	0	2
10926	1	-1	2
10927	1	0	3
10928	1	0	3
10933	0	0	1
10939	4	1	5
10942	2	1	4
10945	2	-1	3
10949	2	0	4
10950	1	0	3
10958	3	2	5
10963	2	0	4
10967	2	-1	4
10971	0	0	NA
10972	0	0	2
10974	2	0	4
10976	4	0	5
10980	1	0	3
10991	0	0	2
10995	3	0	NA
11014	3	1	5
11017	2	1	NA
11019	2	1	4
11022	0	0	NA
11030	3	0	4
11031	2	-1	3
11041	0	0	1
11042	2	0	4
11044	3	0	NA
11047	2	1	NA
11048	1	0	NA
11049	1	0	3
11052	1	0	3
11058	0	0	1
11069	2	-1	4
11070	2	-1	NA
11073	3	1	NA
11074	0	-1	1
11078	0	0	1
11079	0	0	1
11085	0	0	1
11088	2	0	4
11106	0	0	1
11110	4	1	NA
11114	3	-1	4
11118	1	-1	2
11129	2	1	4
11130	2	0	4
11131	2	0	4
11133	1	-1	NA
11138	3	-1	4

INDEX	STARS	LabelAppeal	TARGET
11143	2	0	4
11146	4	0	5
11153	2	0	4
11162	1	2	4
11170	4	2	6
11171	0	0	1
11201	2	-1	3
11216	3	1	5
11219	1	0	3
11222	2	1	5
11234	0	0	1
11238	2	0	4
11244	2	-1	4
11246	0	-2	0
11248	0	2	2
11250	0	0	1
11256	2	1	4
11259	1	-1	2
11263	0	0	1
11264	1	0	NA
11270	0	-1	1
11274	0	0	1
11281	2	-1	NA
11285	0	0	1
11300	1	-1	2
11305	2	-1	3
11317	3	-1	4
11319	1	-1	2
11330	0	1	NA
11334	3	1	5
11335	4	1	NA
11336	1	0	3
11356	3	0	4
11358	2	0	4
11360	0	0	1
11364	0	0	1
11373	4	1	5
11379	3	-1	4
11382	3	0	NA
11383	0	0	1
11385	3	0	5
11387	2	-1	NA
11391	1	0	3
11397	1	-1	2
11404	1	-2	2
11405	0	1	2
11409	2	1	4
11419	2	-1	3
11430	3	0	4
11434	4	1	5
11436	1	-1	2
11440	1	1	NA

INDEX	STARS	LabelAppeal	TARGET
11443	1	-1	NA
11449	2	-2	3
11452	2	1	NA
11453	0	-1	NA
11456	3	1	3
11457	0	0	1
11459	2	1	4
11471	0	0	1
11476	2	-1	3
11479	0	-1	1
11481	2	0	4
11485	1	1	3
11486	1	0	NA
11487	1	0	3
11488	1	-1	2
11498	0	1	NA
11506	1	-1	3
11511	3	1	5
11515	0	-1	NA
11518	0	-1	NA
11521	1	-1	NA
11523	1	0	NA
11524	0	1	NA
11525	2	0	4
11528	0	-1	1
11530	1	0	2
11531	2	-1	3
11533	1	0	3
11535	2	0	4
11537	2	0	4
11538	2	-2	3
11541	0	-2	NA
11548	3	0	4
11552	1	-1	2
11558	0	1	2
11560	0	0	1
11566	0	0	1
11572	0	0	1
11573	3	0	4
11582	3	0	4
11586	1	-1	3
11590	3	0	4
11591	1	-1	2
11601	2	0	4
11611	2	0	NA
11617	0	-1	NA
11619	2	1	4
11624	2	0	4
11626	4	1	6
11644	1	0	3
11652	0	-2	0
11656	0	-1	1

INDEX	STARS	LabelAppeal	TARGET
11658	3	-2	4
11659	3	1	5
11663	2	-1	NA
11665	2	0	4
11683	3	0	4
11685	0	-1	1
11691	1	0	3
11694	2	0	4
11698	0	0	1
11700	2	0	4
11703	1	0	2
11705	1	-1	2
11710	3	-1	NA
11711	2	-1	3
11714	0	-1	1
11731	2	1	NA
11732	0	0	NA
11742	1	0	3
11744	2	0	4
11745	1	0	3
11749	0	1	NA
11756	1	1	3
11761	0	-1	1
11762	3	0	4
11766	3	0	4
11767	4	2	6
11769	1	0	2
11770	2	0	4
11771	3	0	4
11777	2	-1	4
11778	3	1	5
11779	0	0	1
11788	0	0	2
11790	2	1	4
11794	2	0	4
11801	2	0	NA
11807	0	0	1
11812	3	0	4
11817	0	1	2
11818	1	0	NA
11825	0	1	1
11828	3	0	NA
11833	3	0	4
11837	3	1	NA
11838	0	0	1
11842	0	0	1
11853	3	0	4
11857	3	0	NA
11858	1	0	3
11860	3	1	5
11867	2	0	NA
11868	4	0	5

INDEX	STARS	LabelAppeal	TARGET
11871	3	0	NA
11875	1	2	NA
11881	3	2	6
11890	0	1	2
11892	3	0	NA
11894	2	-1	3
11896	2	1	NA
11903	2	1	4
11905	3	-1	4
11907	1	0	3
11909	4	2	6
11911	1	0	3
11915	0	-1	1
11918	2	0	NA
11920	4	0	5
11923	3	0	4
11924	1	0	3
11926	1	-2	2
11931	2	0	NA
11933	3	0	4
11940	2	1	4
11951	1	1	3
11953	1	0	2
11973	0	0	NA
11984	0	-1	NA
11985	0	-1	1
11991	1	-1	3
12002	1	0	3
12006	2	-1	NA
12008	3	0	4
12013	0	-1	1
12015	3	-1	4
12016	3	0	5
12023	0	0	NA
12029	0	0	1
12036	0	0	1
12038	1	1	3
12041	0	1	2
12049	2	1	NA
12050	0	1	NA
12054	1	1	3
12060	2	-1	3
12062	3	1	5
12065	1	-1	2
12079	0	-1	1
12083	4	1	6
12090	2	1	4
12091	2	1	4
12094	3	0	4
12099	2	0	4
12101	1	1	3
12110	1	0	3

INDEX	STARS	LabelAppeal	TARGET
12116	3	2	NA
12122	3	-1	4
12127	4	2	6
12133	2	0	4
12142	0	1	1
12147	3	0	NA
12156	1	-1	2
12157	3	1	5
12158	4	1	NA
12161	3	0	4
12163	3	0	4
12166	1	0	3
12170	0	0	NA
12174	3	1	NA
12183	0	0	NA
12188	0	0	NA
12189	3	0	5
12192	2	0	NA
12201	2	-1	3
12204	0	-1	1
12207	0	-1	1
12208	1	-1	2
12209	2	0	NA
12210	4	2	6
12217	2	-1	3
12227	0	0	1
12231	3	-1	NA
12232	2	0	4
12239	3	1	5
12240	1	-1	2
12251	2	-1	3
12256	2	1	4
12261	0	0	NA
12263	2	-2	3
12266	0	-1	1
12267	1	0	3
12268	2	0	4
12279	3	1	NA
12280	2	1	NA
12283	1	0	3
12284	0	1	2
12285	4	1	NA
12286	3	1	5
12292	2	1	4
12295	0	0	1
12301	2	0	NA
12314	1	-1	2
12315	0	0	1
12318	0	0	NA
12332	3	1	5
12334	0	0	1
12337	2	0	4

INDEX	STARS	LabelAppeal	TARGET
12338	3	1	5
12349	3	0	4
12350	3	-1	4
12359	4	1	6
12360	3	1	5
12373	2	1	NA
12374	0	-1	1
12380	2	1	4
12382	2	-1	3
12383	2	-1	3
12390	2	1	4
12398	2	1	4
12405	2	0	4
12407	1	0	3
12410	4	1	5
12418	3	2	5
12421	3	1	NA
12422	1	1	3
12439	0	0	NA
12444	2	0	4
12463	4	0	5
12465	0	-1	NA
12470	3	0	NA
12471	2	0	4
12480	3	0	4
12482	3	0	4
12484	2	-1	3
12487	3	0	4
12491	2	0	NA
12503	4	0	NA
12507	0	0	1
12526	1	-1	2
12533	1	0	3
12540	0	0	1
12543	1	-1	2
12552	0	0	NA
12555	3	2	5
12556	3	0	4
12570	3	0	4
12579	2	0	4
12588	1	-1	2
12600	0	1	NA
12615	3	1	5
12624	2	0	4
12629	0	-1	NA
12634	2	-1	3
12638	0	0	1
12646	1	1	3
12650	0	0	NA
12665	1	0	NA
12674	2	-1	NA
12676	0	0	NA

INDEX	STARS	LabelAppeal	TARGET
12678	1	0	NA
12685	1	1	3
12690	1	0	3
12698	2	0	4
12702	2	1	4
12704	1	0	3
12705	1	0	3
12710	3	-1	4
12715	3	1	5
12720	2	0	4
12734	1	0	2
12744	2	0	4
12747	0	0	1
12757	3	1	5
12758	1	-2	NA
12766	0	-1	1
12782	2	-1	3
12787	0	0	NA
12799	1	-1	2
12804	2	1	4
12809	2	-1	3
12813	2	-1	3
12816	3	-1	4
12821	2	0	NA
12826	2	-2	3
12831	2	0	4
12832	1	1	3
12833	2	-1	3
12835	2	0	4
12842	0	-1	1
12844	2	0	4
12847	0	-1	1
12852	1	0	3
12856	2	0	4
12857	2	-1	3
12858	4	1	NA
12861	1	0	3
12869	2	0	4
12876	1	2	4
12877	0	0	NA
12879	1	1	3
12882	2	1	4
12883	4	-1	NA
12887	1	-1	3
12889	2	0	NA
12891	3	1	5
12894	3	-1	4
12895	0	0	NA
12899	0	1	2
12905	4	2	6
12913	0	0	NA
12916	0	0	1

INDEX	STARS	LabelAppeal	TARGET
12917	1	0	3
12925	3	-1	4
12934	3	1	5
12939	3	1	5
12943	0	1	2
12950	3	1	5
12961	0	-1	0
12963	1	0	3
12973	0	1	2
12979	2	0	4
12980	0	-1	1
12981	0	-1	NA
12982	1	1	3
12992	1	1	3
12994	0	0	1
12999	2	-1	3
13002	2	0	4
13004	0	0	1
13010	1	1	NA
13013	2	0	4
13015	2	1	4
13019	2	2	5
13030	1	-2	NA
13031	3	1	NA
13036	1	1	3
13037	3	1	5
13042	0	2	2
13054	1	-1	3
13060	0	1	2
13072	2	0	NA
13073	1	0	NA
13079	3	1	5
13081	0	-1	1
13086	1	0	NA
13087	2	0	4
13090	0	0	1
13098	1	0	3
13100	1	0	3
13105	0	0	1
13106	1	0	3
13107	2	0	4
13113	4	2	6
13115	3	0	5
13117	0	-1	1
13118	2	-1	3
13121	0	-1	NA
13137	1	-2	2
13146	0	0	NA
13150	3	1	NA
13151	2	1	4
13152	1	1	NA
13156	3	-1	NA

INDEX	STARS	LabelAppeal	TARGET
13165	4	1	5
13169	2	1	4
13178	2	0	4
13180	1	1	3
13183	3	0	4
13184	0	1	2
13188	2	-1	4
13191	2	0	4
13196	0	-1	1
13203	2	0	NA
13206	1	-1	2
13211	2	1	NA
13219	0	1	2
13223	3	2	5
13226	2	0	4
13228	1	-1	2
13230	2	1	4
13240	2	1	4
13249	3	1	5
13250	0	-1	1
13256	2	0	4
13261	0	0	1
13263	1	0	3
13268	2	1	4
13275	0	1	2
13277	3	1	NA
13283	2	0	4
13284	0	0	1
13285	1	0	2
13286	3	0	NA
13287	0	-1	1
13290	1	0	3
13291	0	1	NA
13294	3	1	5
13295	2	-1	3
13303	2	-1	3
13306	0	-2	1
13311	2	1	4
13322	0	0	1
13331	0	0	1
13337	2	1	4
13344	0	0	1
13362	2	1	4
13364	1	-1	2
13366	0	0	NA
13368	2	-1	3
13370	1	-1	2
13377	3	1	5
13378	1	-1	2
13388	0	0	1
13392	2	1	4
13398	2	1	4

INDEX	STARS	LabelAppeal	TARGET
13403	2	1	NA
13404	2	1	4
13409	2	0	4
13416	0	2	2
13422	0	0	1
13427	2	0	4
13433	3	1	5
13438	2	-1	3
13441	4	1	NA
13449	3	1	5
13450	1	1	3
13453	1	-1	2
13460	1	1	3
13461	2	1	4
13465	2	0	4
13468	0	1	2
13481	2	0	4
13485	1	-1	2
13487	3	1	NA
13490	2	0	NA
13493	1	0	3
13497	1	-1	2
13508	0	1	2
13516	0	0	NA
13525	2	0	4
13533	4	0	NA
13535	0	0	NA
13538	2	0	4
13545	1	1	NA
13566	3	-1	4
13581	1	0	3
13584	0	-1	1
13588	1	-1	2
13596	1	0	2
13600	3	2	5
13604	2	0	4
13608	1	1	3
13611	1	0	3
13612	0	0	1
13615	2	0	4
13616	3	0	4
13618	2	0	4
13625	0	-1	NA
13628	3	-1	4
13629	0	0	1
13630	3	1	5
13633	2	0	4
13637	2	0	4
13640	0	-1	1
13641	1	0	2
13651	2	1	NA
13674	2	0	4

INDEX	STARS	LabelAppeal	TARGET
13684	2	0	4
13690	1	-2	NA
13707	2	0	4
13709	3	1	5
13710	3	-1	NA
13713	2	2	5
13724	0	2	NA
13725	0	2	2
13731	1	-1	2
13736	1	-1	2
13740	0	1	2
13745	3	2	NA
13748	0	-1	1
13751	0	1	2
13758	0	-1	1
13762	0	0	1
13764	3	0	5
13765	0	0	1
13769	1	-1	NA
13770	1	0	2
13774	3	1	5
13787	1	0	3
13791	1	1	3
13802	1	-1	2
13807	1	0	3
13808	1	-2	2
13809	0	1	2
13810	2	0	NA
13822	3	1	NA
13823	2	-1	3
13825	2	0	4
13826	0	1	2
13833	2	0	4
13837	2	-1	3
13842	2	0	4
13846	2	0	3
13852	3	1	5
13853	0	-2	1
13858	0	-1	1
13860	0	0	1
13866	0	0	1
13886	0	0	NA
13887	0	1	2
13890	1	2	4
13891	2	-1	4
13893	1	-1	2
13902	3	2	5
13903	0	0	NA
13908	2	1	4
13912	1	-2	2
13924	0	1	2
13928	1	0	3

INDEX	STARS	LabelAppeal	TARGET
13929	1	1	3
13938	2	1	4
13939	1	-1	NA
13941	3	1	5
13951	1	1	3
13962	0	-2	0
13964	1	-1	2
13967	2	-1	3
13971	3	-1	4
13972	3	0	4
13975	0	2	1
13977	1	0	3
13979	3	0	4
13983	0	-1	1
13984	2	0	4
13987	0	0	1
13994	3	0	NA
13999	1	0	3
14003	2	2	5
14008	2	1	4
14011	2	2	NA
14012	1	0	3
14016	2	-1	3
14017	1	0	NA
14020	0	0	NA
14027	0	1	2
14038	2	0	3
14040	3	1	5
14042	1	-1	2
14055	0	1	NA
14057	2	1	4
14060	0	1	2
14081	0	-1	NA
14091	2	0	4
14111	2	-1	3
14117	3	1	5
14121	2	0	NA
14122	3	1	NA
14125	0	0	1
14129	0	0	1
14135	0	-1	1
14148	0	2	NA
14157	2	0	4
14161	0	0	1
14163	0	0	NA
14172	3	-1	NA
14180	0	1	2
14182	2	1	NA
14188	0	1	2
14191	1	0	3
14201	4	2	6
14202	2	0	4

INDEX	STARS	LabelAppeal	TARGET
14213	2	0	4
14220	0	0	1
14224	1	-1	2
14231	0	-1	NA
14241	3	1	4
14243	3	0	NA
14245	1	-1	2
14247	1	-2	NA
14248	1	0	3
14252	1	0	3
14254	3	0	4
14260	3	-1	4
14269	2	1	4
14272	0	1	2
14274	2	0	4
14279	1	1	3
14280	3	1	5
14290	2	-1	4
14298	4	2	NA
14308	3	0	5
14313	2	0	4
14316	2	0	4
14319	4	1	NA
14322	0	1	NA
14323	2	-1	NA
14325	3	2	5
14337	3	0	4
14339	3	0	4
14341	1	0	3
14342	3	1	5
14346	4	1	5
14351	2	0	4
14354	0	0	1
14355	0	0	1
14358	3	2	5
14359	0	-1	NA
14364	2	0	4
14374	0	-2	0
14376	1	-1	NA
14382	1	0	3
14384	1	0	3
14393	0	0	NA
14398	1	0	3
14403	3	0	4
14406	0	0	NA
14408	2	0	NA
14411	0	1	2
14414	2	0	4
14418	1	-1	NA
14423	2	0	NA
14442	3	0	4
14443	2	0	4

INDEX	STARS	LabelAppeal	TARGET
14444	2	-1	3
14446	3	-1	NA
14455	1	0	3
14456	3	0	5
14458	2	0	4
14464	2	1	NA
14466	3	1	5
14467	1	0	3
14469	3	-1	4
14483	0	1	2
14484	1	0	3
14490	1	0	3
14491	2	-2	3
14494	1	0	3
14496	2	0	4
14503	0	-1	1
14504	1	0	3
14505	2	-1	3
14506	0	0	1
14507	0	0	1
14512	0	-1	NA
14520	2	1	4
14527	1	-1	2
14531	3	1	5
14532	0	0	NA
14535	1	-1	2
14543	0	0	1
14554	2	0	4
14556	3	2	5
14557	2	0	4
14561	1	-1	2
14562	3	-1	NA
14567	0	-2	0
14568	0	-2	0
14574	3	-1	4
14575	1	0	3
14579	3	-1	4
14581	2	0	4
14582	1	-2	NA
14586	0	0	1
14591	1	0	3
14598	1	0	3
14599	1	0	NA
14600	0	-1	1
14612	4	0	5
14613	0	-1	1
14624	3	1	5
14626	1	0	3
14630	3	0	4
14633	1	1	3
14639	1	0	NA
14642	2	0	NA

INDEX	STARS	LabelAppeal	TARGET
14643	4	0	5
14649	1	1	3
14650	0	0	1
14653	1	0	3
14655	1	-1	2
14656	1	-1	2
14662	2	0	4
14663	0	1	2
14673	1	0	3
14674	1	-1	2
14676	2	0	4
14682	0	0	1
14685	4	0	5
14689	1	0	3
14693	1	0	3
14697	1	0	3
14700	1	0	3
14704	0	1	NA
14710	2	-1	4
14719	2	0	3
14724	2	1	4
14728	3	0	4
14735	2	0	3
14736	1	-1	NA
14741	0	0	NA
14744	1	1	3
14753	0	0	1
14756	3	0	4
14762	3	1	5
14765	4	0	5
14783	4	0	5
14784	1	-1	2
14786	0	0	1
14790	1	-1	2
14793	2	-1	3
14796	4	1	6
14801	0	1	2
14807	0	-1	1
14812	2	0	4
14815	3	1	5
14831	3	0	4
14833	4	1	5
14836	4	1	5
14856	3	0	4
14859	1	0	NA
14861	1	1	3
14863	0	-1	-1
14865	0	0	1
14880	0	0	1
14881	2	0	4
14883	0	-1	1
14884	3	1	NA

INDEX	STARS	LabelAppeal	TARGET
14894	2	0	4
14896	3	0	4
14899	2	-1	4
14900	2	-1	4
14901	0	0	NA
14906	2	0	4
14907	0	0	1
14915	3	1	5
14919	1	-1	NA
14926	4	1	5
14927	1	-1	2
14933	2	-1	4
14937	2	-1	3
14939	2	-1	NA
14940	0	0	1
14943	0	-1	1
14953	2	0	4
14954	1	-1	2
14969	2	0	4
14999	4	2	NA
15008	2	0	4
15009	2	0	NA
15018	2	1	4
15023	2	0	4
15025	0	0	2
15034	2	0	NA
15036	3	0	4
15051	0	1	2
15052	2	-1	3
15064	2	0	4
15070	2	0	3
15074	2	1	4
15077	2	1	4
15081	2	0	4
15086	4	1	5
15093	0	-1	1
15094	0	2	2
15103	1	-1	2
15104	0	-2	NA
15110	0	0	1
15112	1	-2	2
15115	2	2	NA
15131	0	0	1
15139	3	-2	4
15141	2	0	4
15148	0	-1	1
15154	4	1	NA
15156	2	-1	3
15161	1	0	3
15167	2	-1	3
15178	3	0	NA
15205	3	0	4

INDEX	STARS	LabelAppeal	TARGET
15207	0	1	NA
15222	2	0	4
15223	3	0	4
15225	3	0	4
15228	2	1	NA
15239	1	-1	NA
15241	0	0	1
15246	0	0	1
15247	0	-1	1
15249	1	0	3
15255	3	-1	NA
15257	0	0	1
15267	0	0	1
15277	2	-1	3
15280	3	1	5
15289	2	1	NA
15297	0	0	1
15302	0	0	1
15304	0	-1	1
15312	0	-1	1
15321	0	-1	NA
15325	0	0	1
15326	2	1	4
15333	3	1	NA
15337	0	0	1
15338	1	2	4
15340	2	2	5
15342	1	-1	NA
15344	2	-1	4
15347	0	0	1
15349	3	1	NA
15355	1	1	3
15359	0	0	1
15366	0	-1	1
15367	0	-1	NA
15368	0	-1	1
15369	2	1	NA
15380	2	0	4
15381	2	-1	3
15387	0	1	0
15388	1	0	3
15389	0	2	2
15392	0	0	2
15400	2	-1	3
15405	1	1	3
15407	2	0	4
15408	4	2	6
15411	1	0	3
15413	3	0	4
15418	4	0	5
15419	3	1	5
15421	1	0	3

INDEX	STARS	LabelAppeal	TARGET
15425	1	0	3
15436	2	0	4
15438	3	0	4
15440	3	0	4
15443	2	0	4
15460	1	0	2
15464	0	-1	1
15465	2	-1	3
15473	0	0	1
15475	2	-2	3
15483	0	0	1
15494	4	0	5
15495	4	2	6
15498	3	-1	4
15499	1	0	3
15500	0	1	2
15501	0	-1	1
15510	1	-1	2
15512	1	-1	2
15516	1	-1	2
15518	3	1	NA
15519	2	0	4
15524	2	-1	3
15527	0	0	2
15529	0	0	2
15530	0	0	1
15538	0	0	1
15539	1	0	3
15541	0	0	1
15546	0	-1	1
15547	1	0	NA
15548	0	1	NA
15552	1	-1	2
15556	3	1	5
15567	2	-1	NA
15572	1	-1	2
15573	3	1	4
15574	2	0	4
15577	0	-1	1
15579	2	0	4
15581	1	-1	2
15589	0	-1	1
15596	1	0	3
15598	3	1	5
15599	3	0	4
15605	3	2	5
15606	3	0	5
15608	2	0	4
15616	2	1	4
15618	0	0	1
15621	0	0	1
15626	0	0	1

INDEX	STARS	LabelAppeal	TARGET
15638	1	0	3
15639	1	-2	NA
15642	1	-2	2
15644	1	0	NA
15646	4	1	NA
15649	2	1	4
15656	0	-1	1
15659	0	1	NA
15680	0	-1	1
15686	3	0	4
15693	0	1	2
15697	3	1	5
15699	4	0	5
15701	2	1	4
15705	0	0	1
15714	1	0	3
15722	3	0	4
15728	2	0	NA
15734	2	-1	3
15752	1	-1	2
15756	2	0	4
15760	2	0	4
15762	3	0	4
15767	3	-1	4
15768	0	0	NA
15773	3	1	NA
15774	2	0	NA
15781	1	1	NA
15782	1	0	3
15784	4	2	6
15791	1	1	NA
15796	2	1	4
15798	3	1	5
15806	0	-1	1
15814	0	0	1
15819	1	1	3
15825	2	0	4
15826	2	1	4
15831	3	0	NA
15835	4	1	6
15836	0	-1	1
15839	4	0	5
15845	1	0	3
15858	0	0	1
15859	2	0	4
15876	2	1	4
15878	3	0	NA
15880	0	1	2
15886	3	0	NA
15888	1	1	NA
15891	1	1	3
15900	1	-2	NA

INDEX	STARS	LabelAppeal	TARGET
15902	3	0	4
15904	1	0	3
15908	1	-1	2
15910	0	-1	1
15917	1	1	4
15919	3	1	5
15924	1	0	3
15927	1	0	3
15937	0	0	NA
15946	2	-1	3
15949	2	-1	3
15957	2	1	4
15961	3	0	5
15964	1	-1	2
15965	2	-1	4
15966	0	1	2
15978	0	0	1
15983	0	1	2
15987	3	-2	NA
15988	1	-1	2
15998	1	-1	3
16004	1	1	3
16008	3	-1	4
16011	0	1	NA
16023	1	0	3
16024	1	-1	NA
16025	1	0	3
16048	2	2	NA
16050	1	1	3
16051	0	0	2
16057	0	1	2
16059	3	1	5
16060	2	0	4
16075	3	0	4
16094	3	2	5
16096	3	1	5
16116	0	-1	NA
16118	0	0	1
16121	2	-2	3
16122	2	0	4
16124	4	1	6
16125	2	0	4
16126	1	0	NA
16130	3	0	5

Appendix