

# Assignment\_3\_2\_Marketing\_Promotions

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## 1. Importing, Ploting, and Saving Data

Head of the dataframe

```
##   month day attend day_of_week opponent temp  skies day_night cap shirt
## 1  APR  10  56000    Tuesday  Pirates   67 Clear      Day   NO   NO
## 2  APR  11  29729   Wednesday  Pirates   58 Cloudy    Night  NO   NO
## 3  APR  12  28328   Thursday  Pirates   57 Cloudy    Night  NO   NO
## 4  APR  13  31601    Friday    Padres   54 Cloudy    Night  NO   NO
## 5  APR  14  46549    Saturday  Padres   57 Cloudy    Night  NO   NO
## 6  APR  15  38359    Sunday    Padres   65 Clear      Day   NO   NO
##   fireworks bobblehead
## 1          NO         NO
## 2          NO         NO
## 3          NO         NO
## 4         YES         NO
## 5          NO         NO
## 6          NO         NO
```

Summary of the dataframe

```
##      month              day              attend              day_of_week
## Length:81             Min.   : 1.00             Min.   :24312             Length:81
## Class :character      1st Qu.: 8.00             1st Qu.:34493             Class :character
## Mode  :character      Median :15.00             Median :40284             Mode  :character
##                               Mean  :16.14             Mean  :41040
##                               3rd Qu.:25.00             3rd Qu.:46588
##                               Max.   :31.00             Max.   :56000
##      opponent              temp              skies              day_night
## Length:81             Min.   :54.00             Length:81             Length:81
## Class :character      1st Qu.:67.00             Class :character      Class :character
## Mode  :character      Median :73.00             Mode  :character      Mode  :character
##                               Mean  :73.15
##                               3rd Qu.:79.00
##                               Max.   :95.00
##      cap              shirt              fireworks              bobblehead
## Length:81             Length:81             Length:81             Length:81
## Class :character      Class :character      Class :character      Class :character
## Mode  :character      Mode  :character      Mode  :character      Mode  :character
##
```

```
##  
##
```

Class of the dataframe

```
## [1] "data.frame"
```

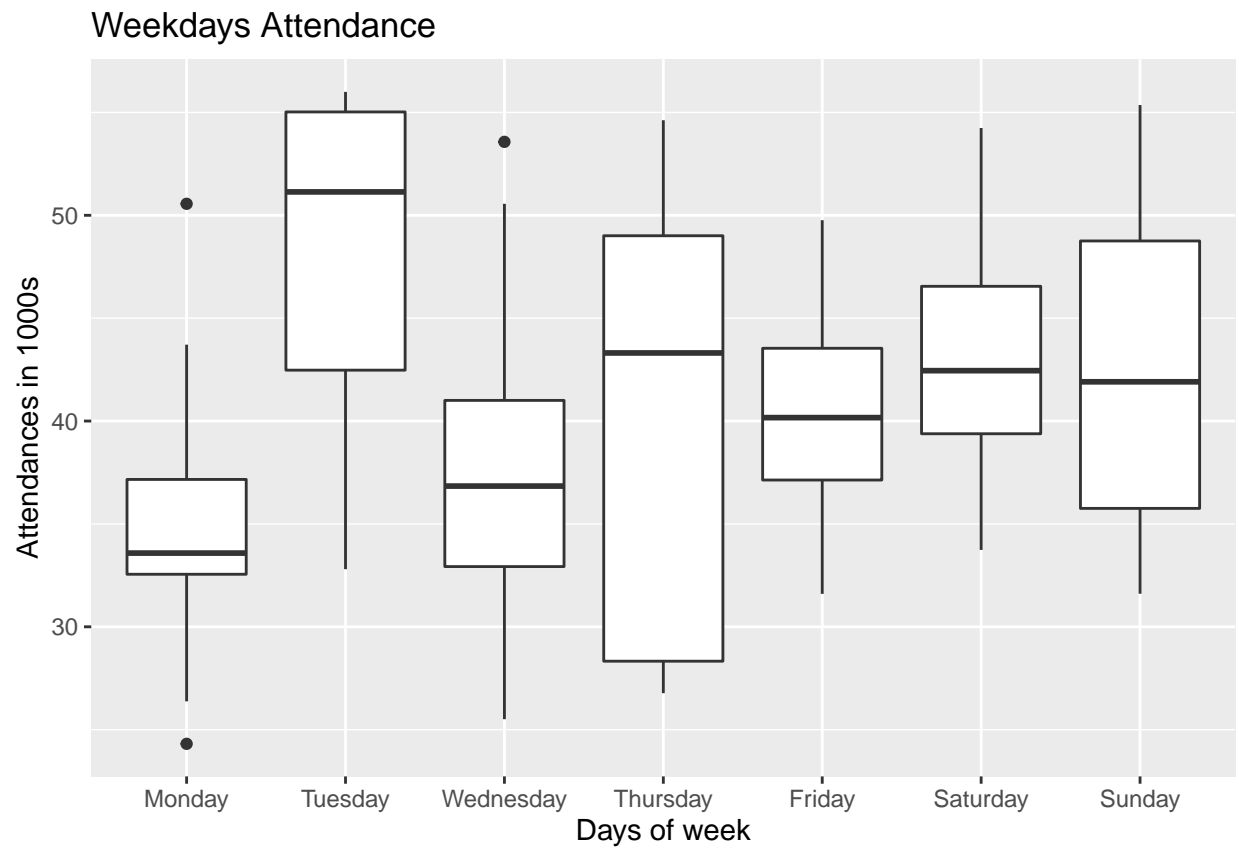
Dimension of the dataframe

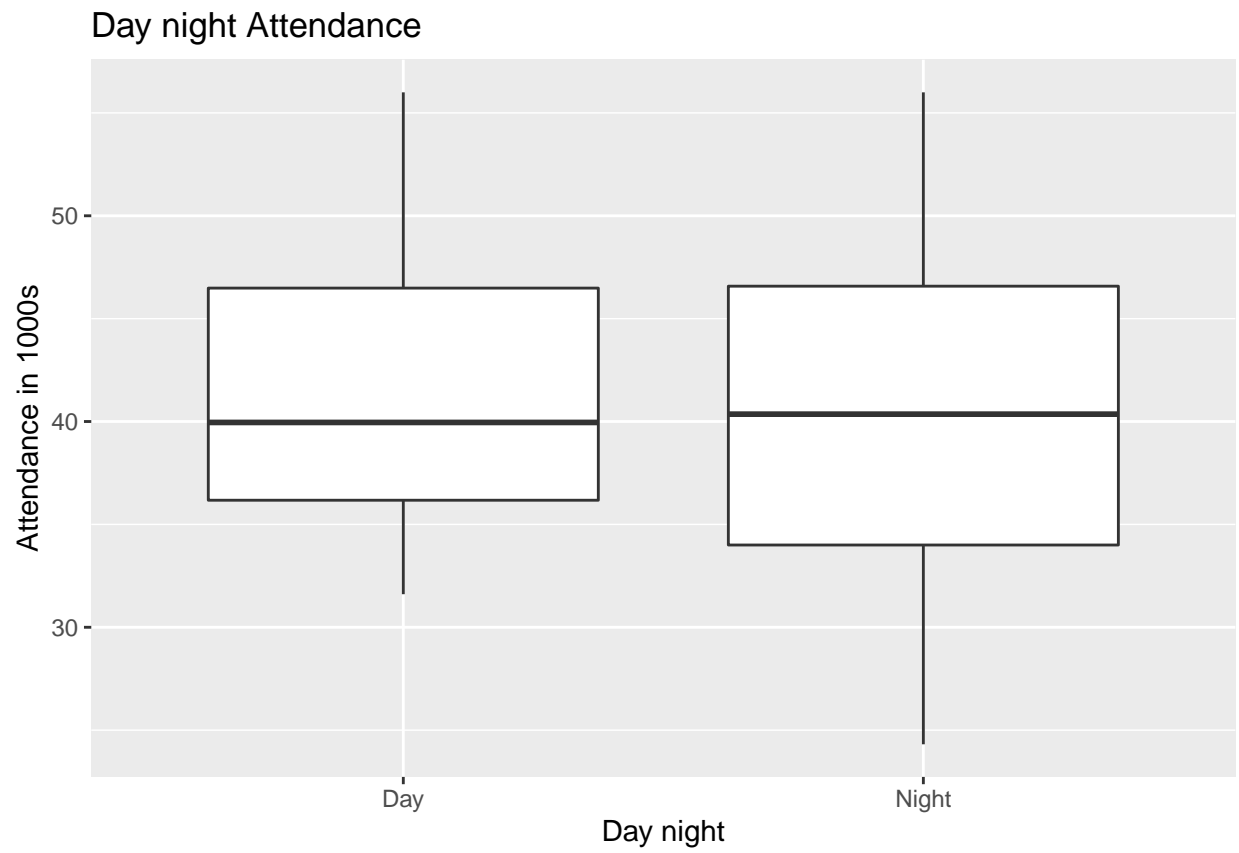
```
## [1] 81 12
```

Structure of the dataframe

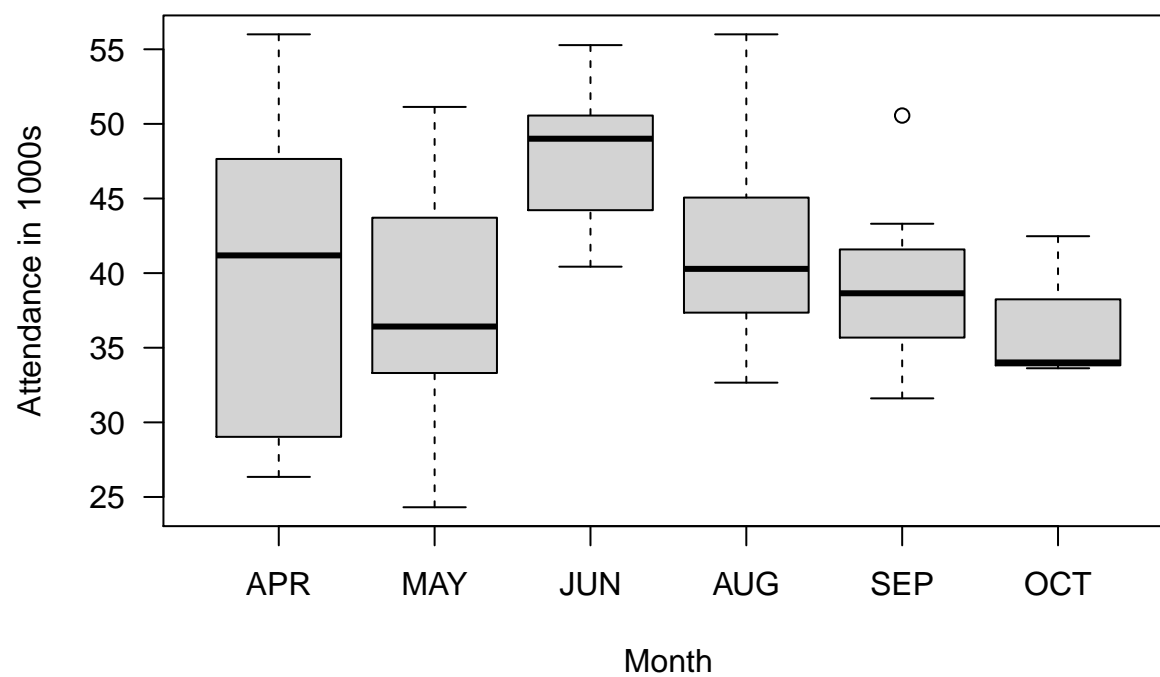
```
## 'data.frame':   81 obs. of  12 variables:  
## $ month      : chr  "APR" "APR" "APR" "APR" ...  
## $ day        : int   10 11 12 13 14 15 23 24 25 27 ...  
## $ attend     : int  56000 29729 28328 31601 46549 38359 26376 44014 26345 44807 ...  
## $ day_of_week: chr   "Tuesday" "Wednesday" "Thursday" "Friday" ...  
## $ opponent   : chr   "Pirates" "Pirates" "Pirates" "Padres" ...  
## $ temp       : int    67 58 57 54 57 65 60 63 64 66 ...  
## $ skies      : chr   "Clear " "Cloudy" "Cloudy" "Cloudy" ...  
## $ day_night  : chr   "Day" "Night" "Night" "Night" ...  
## $ cap        : chr   "NO" "NO" "NO" "NO" ...  
## $ shirt      : chr   "NO" "NO" "NO" "NO" ...  
## $ fireworks  : chr   "NO" "NO" "NO" "YES" ...  
## $ bobblehead : chr   "NO" "NO" "NO" "NO" ...
```

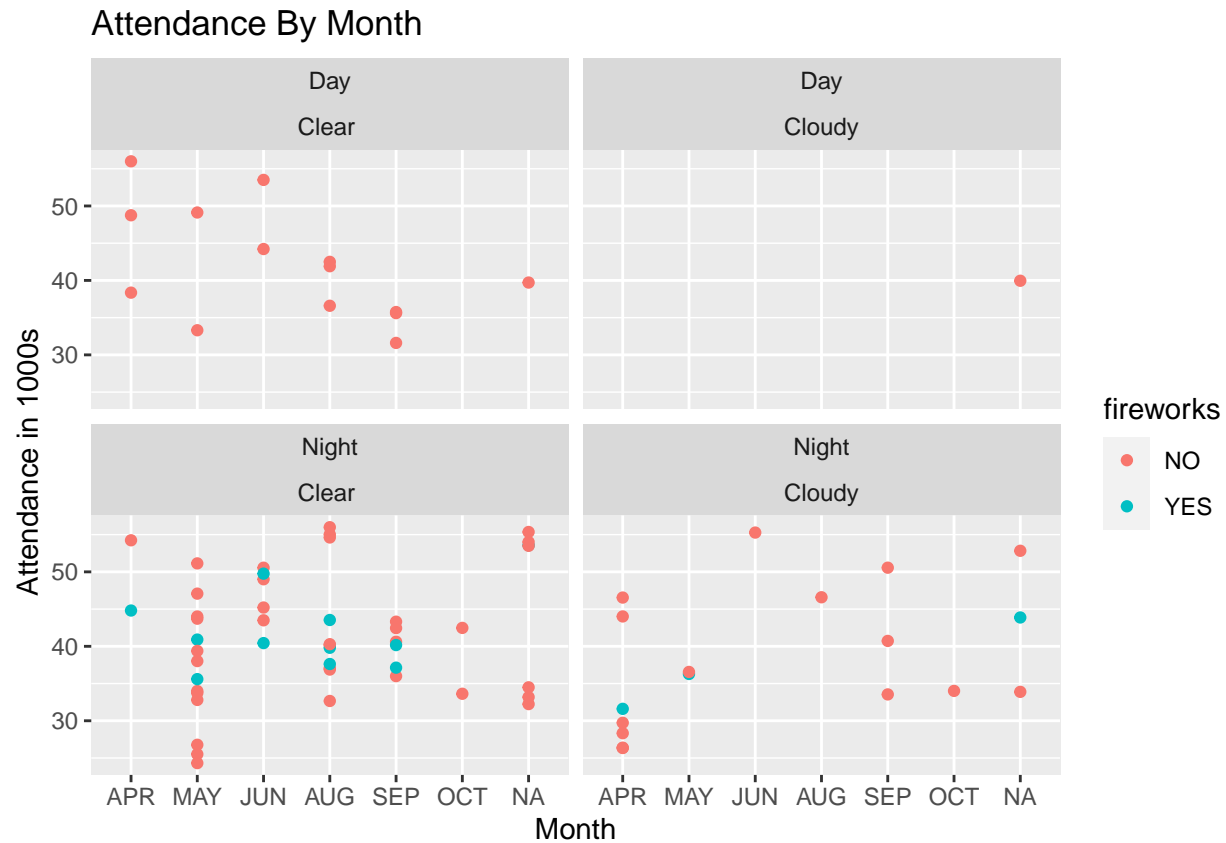
## Scatter and Box plots





## Month Attendance





## Regression Model

```
##
## Call:
## lm(formula = my.model, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -12369.1  -4351.3   -242.5    3622.1   16671.8
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    33614.1     4447.1   7.559 4.13e-10 ***
## monthMAY        -2315.3     2524.6  -0.917 0.363030
## monthJUN         8769.4     2932.7   2.990 0.004137 **
## monthAUG         3918.5     2571.1   1.524 0.133116
## monthSEP        -679.3     2734.2  -0.248 0.804697
## monthOCT       -2236.7     4410.9  -0.507 0.614088
## day_of_weekTuesday 12713.1    3064.9   4.148 0.000115 ***
## day_of_weekWednesday -202.8    3069.9  -0.066 0.947567
## day_of_weekThursday  3698.5    3739.1   0.989 0.326851
## day_of_weekFriday   3284.5    2962.6   1.109 0.272319
## day_of_weekSaturday  6121.2    2983.2   2.052 0.044869 *
## day_of_weekSunday   6898.8    4430.6   1.557 0.125081
## day_nightNight    1156.2    3601.3   0.321 0.749374
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6617 on 56 degrees of freedom
## (12 observations deleted due to missingness)
## Multiple R-squared:  0.4455, Adjusted R-squared:  0.3266
## F-statistic: 3.749 on 12 and 56 DF,  p-value: 0.0003532
```

## Report

The multiple linear regression model is developed to find the relationship between month, day of the week, Day Night and attendance. We have found the relationship with p-value of 0.0003532. As per the above analysis would be the best to run the promotion to reach more attendance (12713).