FOML Assignment1

SADINENI ABHINAY - CS21BTECH11055
NIMMALA AVINASH - CS21BTECH11039
Group 64

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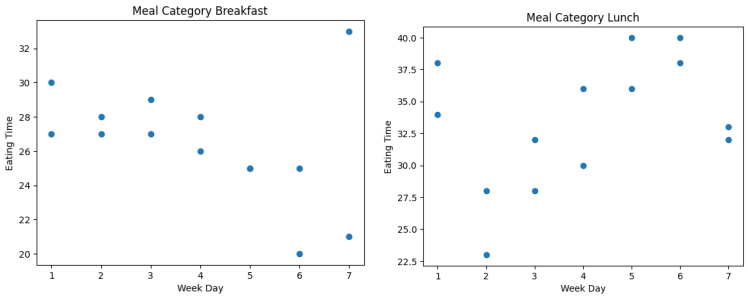
Question 1 (Corresponding notebook file 1.ipynb)

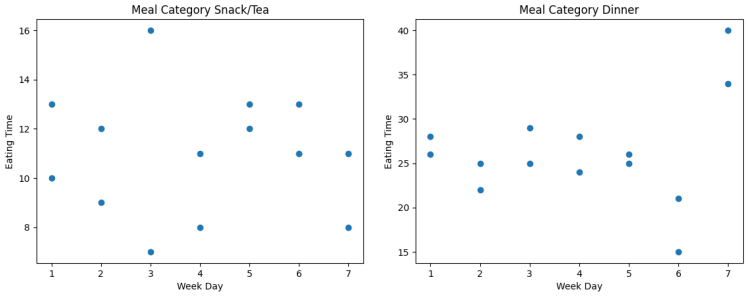
(a) (i) According to the plots given by Eating time vs meal type for days in a week,

- Eating time of breakfast is kind of inversely related to week day as average eating time of breakfast decreases in a week.
- Eating time of lunch directly related to days in the week.
- Eating time of snacks scatter irregularly.
- Eating time of dinner is kind of inversely related to week day as average eating time of dinner decreases in a week.



(a) breakfast (b) lunch

Figure 1

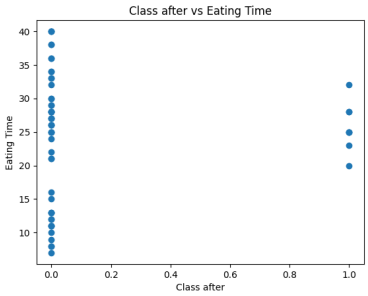


(a) snacks (b) dinner

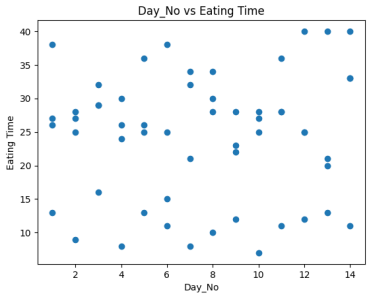
Figure 2

(b)

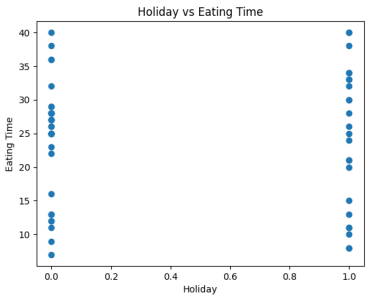
- Sample size: The sample size is comparetively lower ,so the normal distribution is not possible for these kind of small sample sizes.
- Eating time in the dataset is a count variable representing the time taken for eating which makes it suitable for Poisson regression as this regression is specially designed for count data.
  Lets us how Each feature affects Eating Time



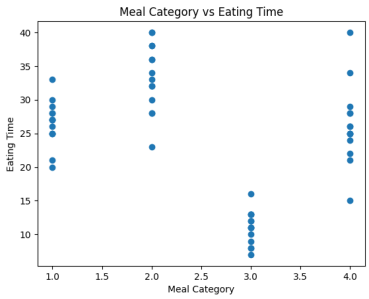
(a) Eating time vs class after



(b) Eating time vs Day Number



(a) Eating time vs Holiday



(b) Eating time vs Meal Category

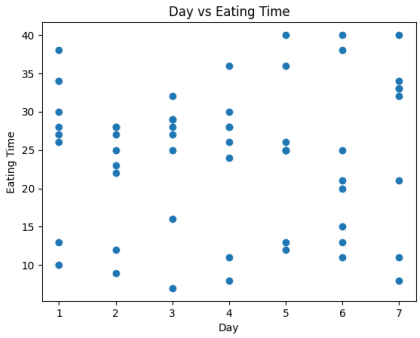


Figure 5: Eating time vs Week Day

From the plots and paramter values (1b part of notebook) we can observe that day feature is important for the prediction. Meal Category feature is also important for the prediction and class after plays significant role for predicting the eating time.

(c) Root mean squared error (RMSE) is the evalution metric used for this model .From Cell 16 (bottom of the notebook) we can observe that the RMSE of poission regression is smaller than RMSE of linear regression ,so poisson regression is better fit for this data compared to linear regression.