Due: 29th January 2024,10pm
Problems due: 2

1. Exercises below from: https://r4ds.had.co.nz/data-visualisation.html
   (a) Exercise 3.5.1
   (b) Exercise 3.6.1
   (c) Exercise 3.7.1
   (d) Exercise 3.8.1
   (e) Exercise 3.9.1

2. Download data set from: https://data.incovid19.org/csv/latest/states.csv
   (a) Go to https://data.incovid19.org and write out a one paragraph description of what the data set contains.
   (b) Load `state.csv` in R into a dataframe called `statedf`.
      i. Pick a state of India which has the same starting letter as the starting letters in your first, middle or last name. For E.g.: Siva Athreya could pick Arunachal Pradesh[1].
      ii. Subset the dataframe `statedf` to have only data from the state that you picked in the previous step and call the resulting dataframe as `mystatedf`
      iii. Using `mystatedf` compute the daily active cases for the state. Then plot a line chart using `geom_line` for the period July 1, 2021 to December 31, 2021,`viridis` colored by date. Provide: Title as "Active cases for State– NAME"; Xlabel - dates, Ylabel - Cases, X-ticks to be dates.
      iv. Using `mystatedf` compute the total `Deceased` figures for each month since March 2020 till December 31, 2021. Then plot a bar chart using `geom_bar` of the monthly Deceased totals, `viridis` colored by month. Provide: Title as "Monthly Deceased Totals for State– NAME"; Xlabel - Months, Ylabel - Deceased Total, X-ticks to be names of months.
      v. Using `statedf` compute the total `Confirmed` cases and total `Deceased` for each state since March 2020 till December 31, 2021. Then plot a scatter using `geom_point` of the total confirmed cases of the states versus total deceased figures; `viridis` colored by state. Provide: Title as "Scatter Plot of Confirmed Versus Deceased"; Xlabel - Deceased Figures, Ylabel - Confirmed Cases. *Can you label the dots with the State names ?*
   (c) Using the appropriate inbuilt function `r..` and `d..` do the following:
      i. Simulate 1000 samples from Negative Binomial(10, 0.4) and plot the histogram of the data set generated, along with a linechart of the true Probabilities.
      ii. Simulate 1000 samples from Poisson (3) and plot the histogram of the data set generated, along with a linechart of the true Probabilities.

[1] If there is no such state then use the second letter and proceed till you are able to find a state