1. How does the time of upload (`status_published`) affects the number of reactions `num_reaction`?
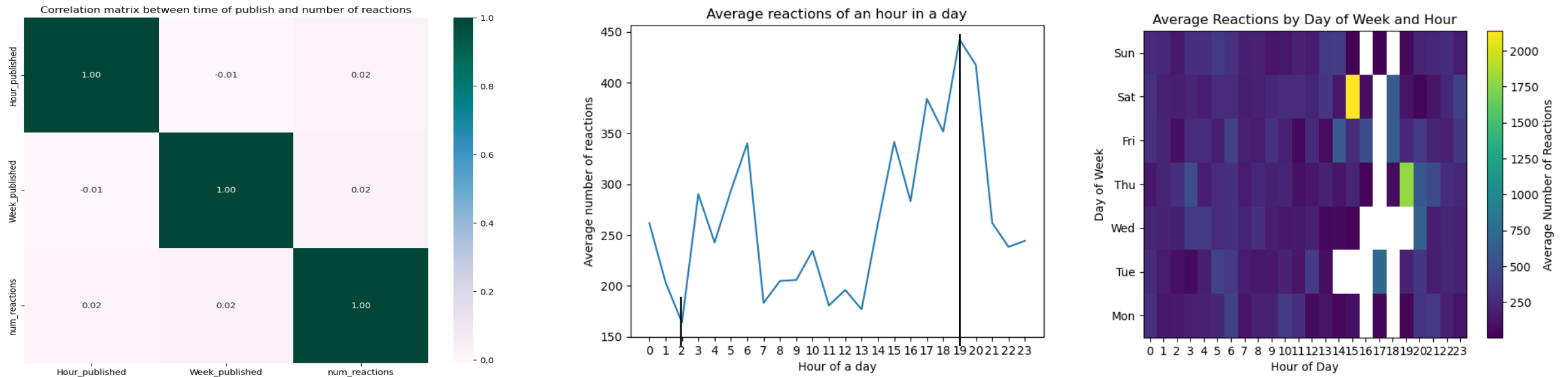
Figure 1: (a) Correlation matrix between time of publish and number of reactions (b) Average reactions for each hour in a day (c) Average reactions by hour and day

➢ There is no linear relationship between time of publish and number of reactions obtained for each post, that is, posting in a later hour of a day or a later of week does not increase much the number of reactions.

➢ In a day, average number of reactions shows the largest in 7:00 pm and the lowest at 2:00 am. It is more in the evening than in the morning.

➢ In a week, average number of reactions shows the largest in Friday around 2-3pm (evening).

2. Is there a correlation between the number of reactions (num_reactions) and other engagement metrics such as comments (num_comments) and shares (num_shares)? If so, what is the strength and direction of this correlation?

Correlation between number of reactions and number of shares & comments
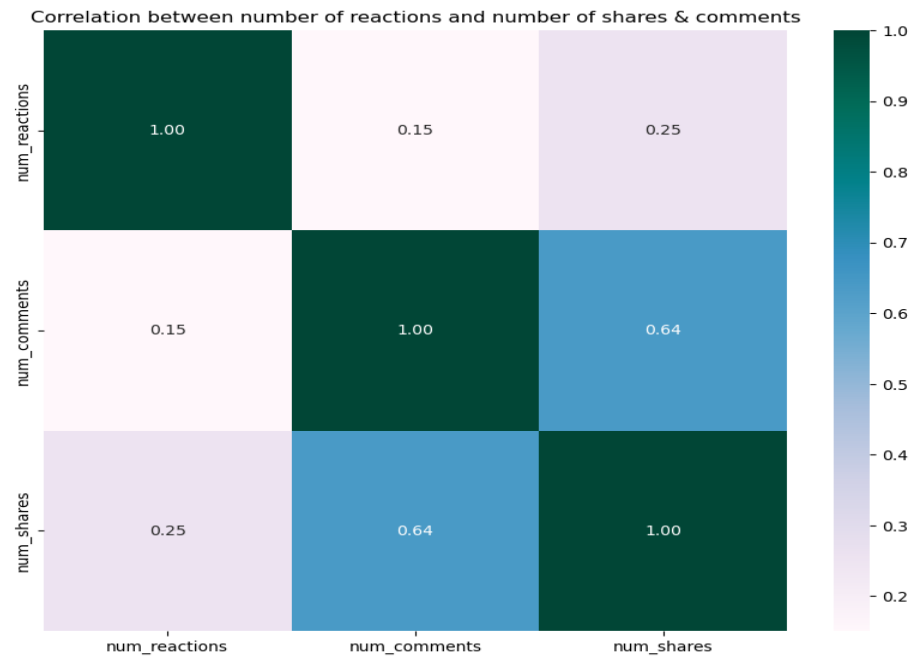
➤ There is no linear relationship between number of reactions and number of shares & comments, which means here that increase of number of reactions does not necessarily occur together that the posts will be commented or/and shared more.

Figure 2: (a) Correlation matrix number of reactions and number of comments & shares

3. Use the elbow method and find the optimum number of clusters.

Figure 3: Plot showing the number of clusters and corresponding wcss values
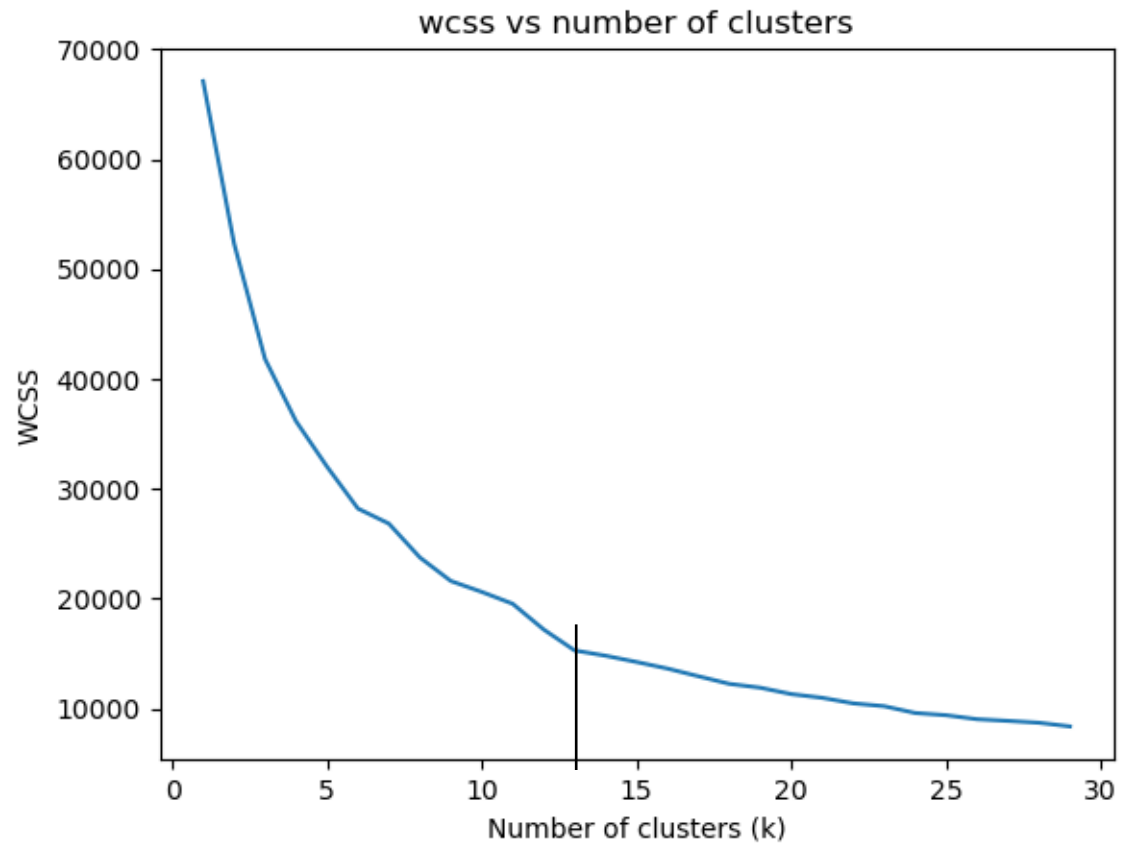
➢ By elbow method, the optimal number of clusters to cluster the dataset is 12. Beyond this number, there is no significant change in WCSS(Within Cluster Sum of Squares) which represent compactness of a cluster.

4. What is the average value of num_reaction, num_comments, num_shares for each post type?
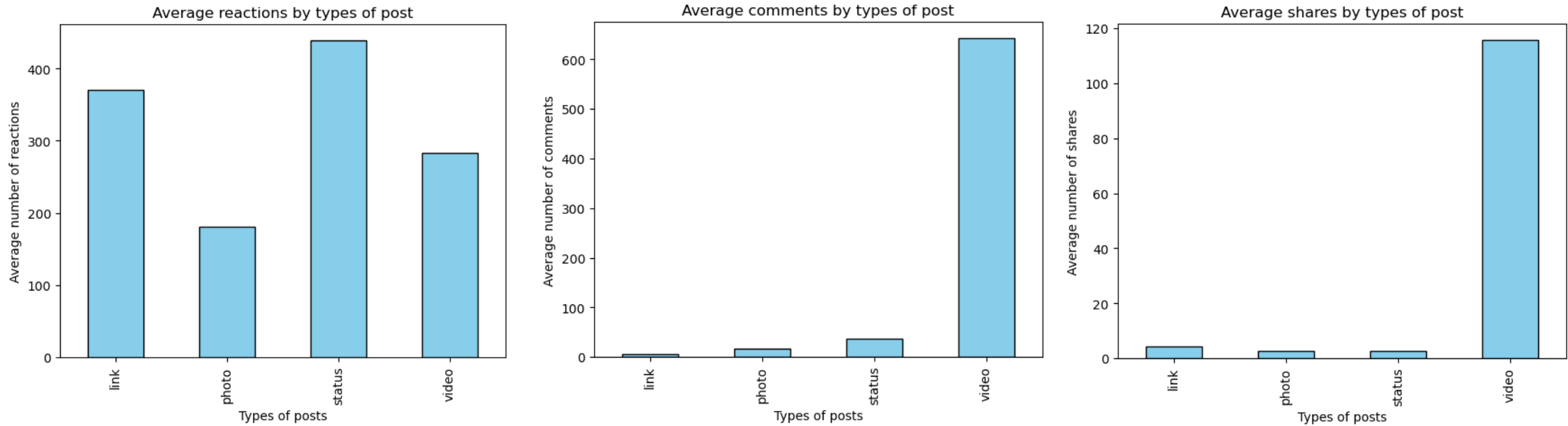
Figure 4: Plots showing the average number of reactions, the number of comments and number of shares by types of posts uploaded.

➢ To get more number of reactions like yes/no,good/bad etc, status posts shows the highest.
➢ To get more clear opinions through comments, video posts show the highest engagement.
➢ Also, to reach out to many other people through second persons, video posts show the highest engagement.