

Problem : 1 (Programming)

There is a zoo and there are several groups(number of groups:K) of people for tour. Each group is having different size ($g_1, g_2, g_3 \dots g_K$). There is one bus with capacity C. Journey starts from a point and bus will come back to the same point. A group can only be included in the bus if all the members of the groups can be accumulated in bus. After coming back from the tour, each group in the bus will again wait in the queue at the bus-stand. Bus-driver earns a rupee for each person travelled. You have to find the earning of the bus driver after R rounds.

For example :

Number of groups $G = 4$

Group size for each group : 2 4 3 5

Bus capacity : 7

Number of rounds $R : 4$

queue : (from front side) 2 4 3 5

First round : 2 4 (we can't take 3rd group as 3 members can't be accumulated after 2 and 4.)

queue : 3 5 2 4 (1st and 2nd group are enqueued. i.e. 2 and 4)

Second round : 3

queue : 5 2 4 3

Third Round : 5 2

queue : 4 3 5 2

Fourth Round : 4 3

After 4 rounds, total earning is $6+3+7+7 = 23$.

Note: You should write production quality code to implement above feature. Adding unit test will be highly appreciated.

Problem : 2 (Database modelling)

Design database model for WhatsApp Application.

- Considering you are designing database model for an application similar to WhatsApp.
- Design ER model.