STAGE-1 ASSIGNMENT

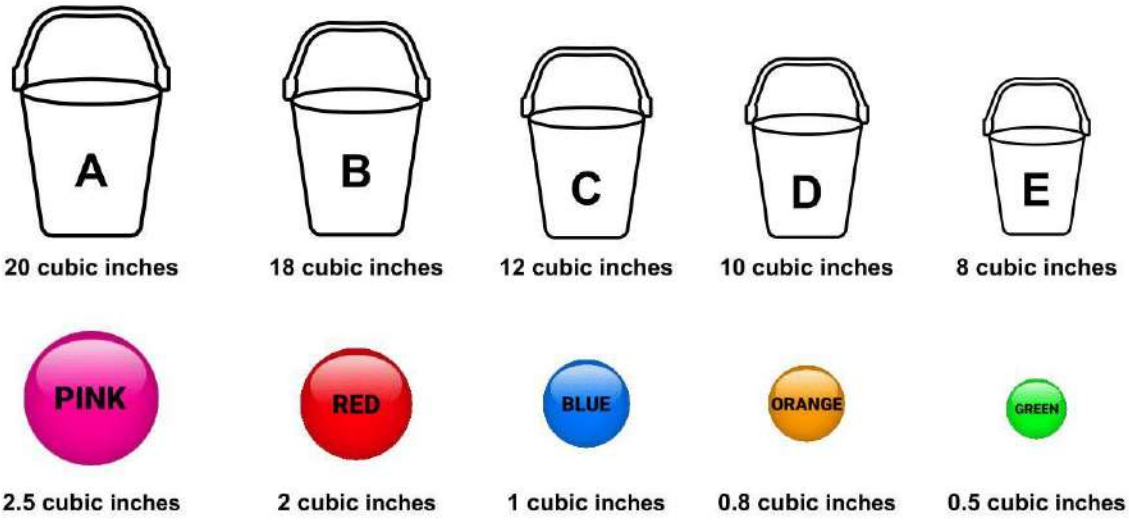

Diagram: 1

Q:1 Design a system where inputs and the output will be as mentioned in the diagram below:

Bucket Form

Bucket Name:	A
Volume (in Inches):	100

SAVE

Ball Form

Ball Name:	Pink
Volume (in Inches):	2.5

SAVE

Bucket Suggestion

PINK	10
RED	20
BLUE	30
ORANGE	40
GREEN	50

PLACE BALLS IN BUCKET

RESULT

Following are the suggested buckets:

- Bucket A: **Place 20 blue balls and 10 black balls.**
- Bucket B: **Place 10 yellow balls**

* Numbers of balls are just for reference

Empty volume = Bucket volume - Filled Volume (Volume of balls)

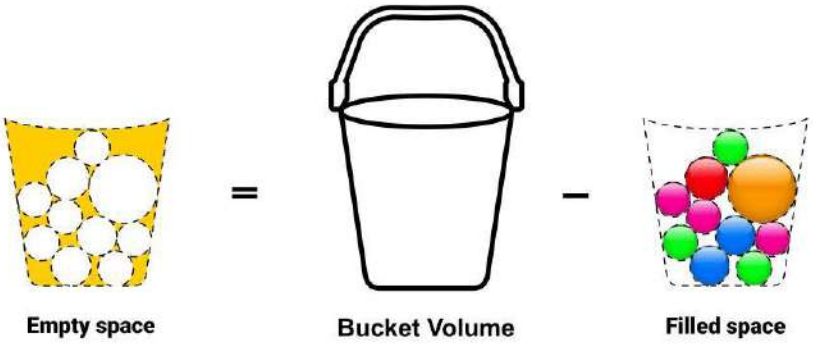

Diagram: 2

- Balls, Buckets and Output Must be stored in Database
- Note:Every time a user requests the system to place balls in buckets by inputting a quantity of balls to be placed, the empty volume of the bucket will get reduced after the placement of the balls.
- Everytime user adds new bucket or ball or update existing bucket or ball, all buckets will get emptied.
- Following things are to be kept in mind while designing a system:

  1) Every time the balls are placed in bucket, empty volume will be reduced by volume of the balls placed inside the bucket
  2) Partial placement must be made by the system, if all the balls are not possible to be placed inside the buckets because of the lack of empty volume, then the maximum possible volume of the balls must be placed.
  3) After any placement, empty volume must not be less than zero, if no bucket satisfies this criteria, no placement will be made and message will be shown.
  4) Minimum number of the buckets must be used for balls placement
  5) Wherever possible, in a single placement, system must utilize the single bucket to its maximum empty volume.
  6) Any ball of any color can go to any basket, all depending on the empty volume and other criteria mentioned above.
  7) Please comment wherever necessary and follow coding standards.

------- *End of Test* -------