Scenario Oriented Questions for Zoho

1. Design a Call taxi booking application

-There are n number of taxi's. For simplicity, assume 4. But it should work for any number of taxi's.
-The are 6 points(A,B,C,D,E,F)
-All the points are in a straight line, and each point is 15kms away from the adjacent points.
-It takes 60 mins to travel from one point to another
-Each taxi charges Rs.100 minimum for the first 5 kilometers and Rs.10 for the subsequent kilometers.
-For simplicity, time can be entered as absolute time. Eg: 9hrs, 15hrs etc.
-All taxi's are initially stationed at A.
-When a customer books a Taxi, a free taxi at that point is allocated
-If no free taxi is available at that point, a free taxi at the nearest point is allocated.
-If two taxi's are free at the same point, one with lower earning is allocated
-Note that the taxi only charges the customer from the pickup point to the drop point. Not the distance it travels from an adjacent point to pickup the customer.
-If no taxi is free at that time, booking is rejected
Design modules for
1) Call taxi booking
Input 1:
Customer ID: 1
Pickup Point: A
Drop Point: B
Pickup Time: 9

Output 1:
Taxi can be allotted.
Taxi-1 is allotted

Input 2:
Customer ID: 2
Pickup Point: B
Drop Point: D
Pickup Time: 9

Output 1:
Taxi can be allotted.
Taxi-2 is allotted
(Note: Since Taxi-1 would have completed its journey when second booking is done, so Taxi-2 from nearest point A which is free is allocated)

Input 3:
Customer ID: 3
Pickup Point: B
Drop Point: C
Pickup Time: 12

Output 1:
Taxi can be allotted.
Taxi-1 is allotted
2) Display the Taxi details

Taxi No: Total Earnings:
BookingID CustomerID From To PickupTime DropTime Amount
Output:
Taxi-1 Total Earnings: Rs. 400
1 1 A B 9 10 200
3 3 B C 12 13 200

Taxi-2 Total Earnings: Rs. 350
2 2 B D 9 11 350
These were just sample inputs. It should work for any input that they give.
Those who finished both the modules within 3 hours and if it worked for all the inputs they give, those candidates were given extra modules to work with.
Only 9 candidates made it to the next round

2. Balloon game

1. Given a MxN matrix filled with '-' and you need to drop the balloons in the desired columns starting from the bottom. You need to print the matrix when a new balloon is dropped.
You need to continue getting inputs until the box is full or until the user chooses to stop.

TEST CASE :
Enter the matrix size(m*n) : 3 3
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- - -
- R -
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : B
Contents of the matrix :
- - -
- B -
- R -
Do you wish to continue(Y/N) : Y
Enter the column number : 1
Enter the color of the balloon : R
Contents of the matrix :
- - -
- B -
R R -

Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- R -
- B -
R R -
Do you wish to continue(Y/N) : N
Program Stopped

2. Extended version of the previous problem. Now you need to quit when a row become filled completely.

TEST CASE :
Enter the matrix size(m*n) : 3 3
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- - -
- R -
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : B
Contents of the matrix :
- - -
- B -
- R -
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- R -
- B -
- R -
Column is filled completely. Program is terminated.

3. Extended version of the previous problem. Now you need to drop balloon in the first free cell from left if the specified column is filled in every row.

TEST CASE :
Enter the matrix size(m*n) : 3 3
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- - -
- R -
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : B
Contents of the matrix :

- - -
- - -
B R -
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- - -
B R R
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- R -
B R R
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : B
Contents of the matrix :
- - -
B R -
B R R
Do you wish to continue(Y/N) : N
Program terminated.

4. Extended version of the previous problem. If any column has three continuous balloons of same colors then we need to burst them.

TEST CASE :
Enter the matrix size(m*n) : 3 3
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- - -
- R -
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- - -
R R -
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :

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- - -
- - -
R R R
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
- R -
R R R
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : B
Contents of the matrix :
- - -
R R -
R R R
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
R R R
R R R
Do you wish to continue(Y/N) : Y
Enter the column number : 2
Enter the color of the balloon : R
Contents of the matrix :
- - -
R - R
R - R
Do you wish to continue(Y/N) : N
Program Terminated.
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3. Write a program to form lines using given set of words. The line formation should follow below rules.

i) Total characters in a single line excluding the space between the words and the favourite character should not exceed the given number.

ii) Favourite character is case insensitive.

iii) Words should not be broken up. Complete words alone should be used in a single line. A word should be used in one line only.

Input : Max char per line = 10
Favorite character = 'o'
Words : Zoho, Eating, Watching, Pogo

Loving, Mango

Output : Watching Zoho

Eating Mango

Loving Pogo.

4. Railway Ticket Booking application

Write an application for booking railway ticket reservation system. The application should have four functionalities.

Book
Cancel
Print booked tickets (details with summary)
Print available tickets (details with summary)
Conditions for booking:

There are a total of 63 berths for 63 confirmed tickets, 9 berths for 18 RAC tickets and 10 tickets in waiting-list. If the waiting-list ticket count goes above 10, print as 'No tickets available'. The following passenger details should be obtained from the user.

Name
Age
Gender
Berth Preference
The tickets should not be allocated for children below age 5.But, their details should be stored. Lower berth should be allocated for persons whose age is above 60 and ladies with children if available. Side-lower berths should be allocated for RAC passengers.

Conditions for cancelling:

Whenever a ticket is cancelled, a ticket from RAC should be confirmed and a waiting-list ticket should move to RAC.

Conditions for printing booked tickets:

Print all the tickets that are filled along with the passenger details and at the end, print the total number of tickets that are filled.

Conditions for printing available tickets:

Print all the tickets that are unoccupied and at the end, print the total number of tickets that are unoccupied.

5. Ball Game

Size of the array is given were w is wall, g ground, o ball, numbers are bricks.

I/p size 7

Number of bricks 6

Position (2, 2)(2, 3)(2, 4)(3, 2)(3, 3)(3, 4)

Ball:5(life)

w w w w w w w

w w

w 1 1 1 w

w 1 1 1 w

w w

w w

w g g o g g w

There are three commands St, lt, rt straight, left, right respectively.

If it is st the ball moves straight .if there any brick(1) along the way it hit it .then brick disappear.ball back to original position.if there is no brick .it come to initial position.

I/p st

O/p

w w w w w w w

w w

w 1 1 1 w

w 1 1 w

w w

w w

w g g o g g w

Ball count:5

I/p lt

O/p

w w w w w w w

w w

w 1 1 1 w

w 1 w

w w

w w

w g o g g g w

Ball count:4

(Lt : ball moves diagonally left there is no bricK on the way so it hit the wall reflect back horizontally there is a brick(3, 2) after hitting it it moves downwards ball position changed.hence ball count get reduced. On moving downwards is there any brick that also disappear.)

Same for rt but moves diagonally right.

This is first module.In second module each brick has value for each hit value get reduced.it disappear only when it become zero.

There are about 7 modules.

6. Batman, Spiderman and Superman

Batman, Spiderman and Superman are going to start a business. The total investment is 1000M$. Anyone can add new investment to their existing investment. They can transfer investments between themselves. The program should be in OOP style and should have a menu for user to do all operations. (Something similar to below example.)

Constraints:

a.Total investment should always be
equal to or lesser than 1000M$.

b.Spiderman's investment should never
exceed Batman's.
c.Investment cannot go into negative.
d.Display investments on each update.

Example:

Input: batman = 300, spiderman = 250,
superman = 100
Output:
batman - 300
spiderman - 250
superman - 100
add 100 into spiderman
sorry, spiderman cant have more
investment than batman add 200
to batman
batman - 500
spiderman - 250
superman - 100
add 500 to superman
sorry, total investment cant
exceed 1000.

7. Banking Applications

The bank has initially three customers.T here were around eight modules .

Account Login
Purchase
Account Login

Giving customer id and password .Password should be encrypted and stored

Encryption is like A-> B, B->C

a-> b, b->c, c->d

0->1, 1->2

On successful login, it should print the account details

1.Create Gift Card

2. TopUp

3.Transaction History

4.Block

5.Logout

1.Create Gift Card

Gift card with 5 digit card no and 4 digit pin number will be genrated

2.TopUp

For topup, amount need to be reduced from main account balance and added to gift card

3.Transaction History

Should print all the transaction details of a particular gift card

4.Block

If the card is blocked, shouldn’t be available for topUp, Purchase.the amount in gift card should be transferred to main account

5.Logging Out

After log out, should go to main module,

2.Purchase

Login to the gift card

Purchase Amount

Then print Available balance

7.Redeem points :

For Every 100 rupee purchase, 1 reward point is added .For 10 reward points, 10 will be added to main account

8.Doing for Multiple gift cards