Here are the questions for the programming assignment.
Please send your submission to saloni@tactopus.com in 2 hours. Late submissions will not be counted for evaluation. If you want, you can take a couple more hours, after the deadline, to submit a finished version of Q5.

You are not expected to answer all of the questions, but you should try to answer as many as you can.
Please let us know if you have any questions.

Programming Aptitude

Question 1:

You are planning a road trip, from A to B. At various points during your trip, there are several toll gates, which have different toll rates.
The ticket that each tollgate issues can be used to cross the next toll gate as well.
Given the toll rate for each of the toll gates, find the minimum cost that you will have to pay to reach your destination from the starting point.

Example 1:

Input: cost = [5, 10, 3]
Output: 8

By paying for the toll at the first and the last gate, to reach the destination.

Example 2:

Input: cost = [5, 10, 20]
Output: 15

By paying for the toll at the first and the second gate (don't skip the second gate), to reach the destination.

Question 2:

You are given two arrays (without duplicates) nums1 and nums2, where nums1's elements are a subset of nums2.
Find all the next greater numbers for nums1's elements in the corresponding places of
nums2.
The Next Greater Number of a number x in nums1 is the first greater number to its right in nums2. If it does not exist, output -1 for this number.

Example:

Input: nums1 = [4,1,2], nums2 = [1,3,4,2].

Output: [-1,3,-1]

Refer to the files (attached to email) experts.csv, caretakers.csv and slots.csv for the following questions.
Also available in google sheets here.

Data Processing & Querying

Question 3:

In any programming language, read the files, and implement a function which iterates over the list of all the experts, and then prints out the list of all the parent names they have active slots with.
For experts with no bookings or active slots, it can print “no bookings” and “no active slots” respectively.

Question 4:

Referring to data in the CSV files, write MySQL queries for the following :
(Assume that these files represent MySQL tables called experts, caretakers and slots)

1. For each slot, update the expertName, caretakerName, and childName columns with the corresponding data
2. For each child, find the top three experts using the following conditions:
    a. Parameters that should match:
    Disability, age group, language
    b. Parameters that indicate a preference (in order of importance):
    Experience, rating, gender, digitalProwess

API creation

Question 5:

Create an API that helps the frontend team display a list of all open slots (isSlotBooked = false and status = active).
If a slot is booked, update the isSlotBooked and the caretaker detail columns; and
If a slot is deleted, update the status column.