KALKANI
SYSTEMS PVT. LTD.

Technical Tasks

Task 1:

Write a SPA application with backend Rest API that satisfy the following requirement

API: Laravel / Nodejs (NestJS or Express or Any framework of your choice)

1. Design database where following user information is stored
    - First name and last name (Both are mandatory)
    - Email, Mobile number (Both should be unique, Mandatory, Valid Email, Valid 10 digit number)
    - Birthdate (Optional)
    - Addresses (One user can have multiple addresses, At least one address is mandatory)
        - Address line 1 (Mandatory)
        - Address line 2 (Optional)
        - Pincode (Mandatory, should be min 4 length digit, max 6 length digit)
        - City (Mandatory)
        - State (Mandatory)
        - Type (Home or Office)

2. REST API endpoint to search users (Only endpoint, no need for screen)
    - Add ***search endpoint*** with following filters (Endpoint should return all users matching filters)
        - Search by string (on first name, last name, email).

        - If one of three fields contains a given string as substring record is considered matched
        - Search is case insensitive
    - Search on Age
        - Ex. should able to search a user with age 25 years greater equal
        - Ex. should able to search users with ageless equal than 21 years
    - Search by City
        - Ex. I send “Mumbai” then a user with one of the addresses of Mumbai is returned
    - *Note:* If multiple filters are applied then users matching all filters are returned only.
        - Ex. send “Mumbai” and age greater equal 18. Then all users with “Mumbai” city address and age greater equal to 18 are returned.
        - Make sure filters are performed using database query instead of in-memory filter

3. REST API endpoint to update the user information (including address)
    - Proper validation has been done

Notes:

- Make sure your database design is good, follows relational database best practices and indexing, keys
- Make sure you tested your code with 50+ users. (You can use Laravel database seeder to generate a large number of test users data)

Task 2:

Write a program to print the following pattern

Language: Javascript / C / C++ / Java / C# / PHP / Python or any other programing language

Sample input

```
Please enter your lucky number: 5
```

```
        1
      1 3 A
    1 3 5 A B
  1 3 5 7 A B C
1 3 5 7 9 A B C D
  1 3 5 7 A B C
    1 3 5 A B
      1 3 A
        1
```

```
Please enter your lucky number: 3
```

```
    1
  1 3 A
1 3 5 A B
  1 3 A
    1
```

Rules:

- You are allowed to use the internet for your task as far as you do not use the internet to search for any direct/indirect solution for your given task.
    - You can use the internet to download any libraries you need for the task.

    - You can use the internet to search for programing language references in case you can not recall certain syntax or functionalities
- You are not allowed to take any outside help for your task or any solution
    - We believe these tasks are the best way to check compatibility for both sides
    - Not doing interview tasks with honesty can take you to the wrong position in the company, which letter result in unpleasant situations
- You can attempt Task in any frontend framework of your choice (Angular, React, Vue, Or any).
- Make sure you test your solution well and it does not have any bugs.
- We expect you to submit your task within **4 days** from the date and time you start.
    - It is fine if you do not finish 100% of the task. You can submit whatever is done in **4 days**.
    - Try to do your task in stages so that there is at least something to show
- We do not have any intention to gain anything from the source code you write in your task. Any code you write, you have your full ownership of that code. It is your IP. Any sample files or material we share with you for your task is our IP. You should delete any digital copy you own from us once your interview process is done (the result is out).
- Submission:
    - Via Github: Push your code on the GitHub repo shared with you.

      OR
    - Via Email: On completion of the task create a zip file with all code and database dump. Upload zip on google drive and share a link with us.
- Make sure you follow code quality standards you know, folder structure, formatting, naming conventions....
- Do not worry about CSS, Use a UI kit in your task such as
    - https://material.angular.io/components
    - https://material-ui.com/
    - https://chakra-ui.com/
    - https://mui.com/
    - https://vuetifyjs.com/en/
    - Or any other of your choice