

**Problem Statement 1 :**

Please write code for solving the following problem statements

**1. Number of days (JavaScript only)**

Given the number of the month, your task is to calculate the number of days present in the particular month.

Note:- Consider non-leap year

**2. Write a recursive solution to print even numbers from 0 to X (x will be provided as an input) (any language)****3. Diagonal Sum (any language)**

Given a matrix of size  $N \times N$ , your task is to find the sum of the primary and secondary diagonal of the matrix.

For Matrix:- M00 M01 M02 M10 M11 M12 M20 M21 M22

Primary diagonal:- M00 M11 M22 Secondary diagonal:- M02 M11 M20

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**Problem Statement 2 :**

Choose at least one from the following tech stack :

- Frontend (HTML / CSS / JS )
- ReactJS
- Backend (Node JS / Express)

Choose at least one from the following tech stack :

- Arrays, 2D Arrays, Sorting
- Searching & Sorting
- Stacks, Queues and Heaps

From the selected two topics of your preferences, please provide a deck/ presentation designed to address :

1. If someone asked for your guidance, how would you go about providing a method for him/her to learn the technology from scratch. What will be the detailed topic distribution for it. Please provide methodology to learn each topic. (Brownie points to provide topic wise resources from the web)
  2. How would you test a candidate in the chosen stack/tech. Give a step by step methodology.
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### **Problem Statement 3 :**

Please create a responsive CV (your own profile) and host it on Github pages. Share the repo and the page url for the same.

Optional : Problem Statement 4 (NodeJs) :

To improve twitter, please create a new twitter API, with character limit of 10000 characters.

- It should have the ability to create, update and delete posts (only post authentication).
- It should have relevant apis to read the posts.

Please write scripts to populate the app with mock data.

Please use mySql/mongoDB for the db.

**Brownie points** : Unit test cases using jest / mocha.

### **Optional : Problem Statement 5 (React):**

Create a personal blog app, which has the facility to create / edit posts with limit of 10000 characters.

The home page should show post previews (title + 100 characters) from all the users. User can go into any user profile and see a list of that user's posts.

User can delete his / her own post.

User can update his / her own post.

For API, use the api's created in the express project.

If you have not worked on problem statement 4, please use firebase to implement this project.

Brownie points : Test cases using enzyme / jest.

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Notes :

1. The assignment has to be completed in a 10 days from allotment.
2. All the code that is written as part of the project has to be pushed to Github and the respective repo's have to be shared with us in the email for evaluation.
3. The decks / presentations have to be shared online via google slides.
4. You can choose to complete any three problem statements. Attempting 4 and 5 gives brownie points.

The submissions have to be sent via email to [hiring.ns@newtonschool.co](mailto:hiring.ns@newtonschool.co)

Please feel free to reach out to the team in case of any doubts.