Week 1

Technical Workouts
1. Learn HTML, CSS by the end of this week. 2. Design at least two public website's home page using HTML & CSS with maximum components.(For Eg: Home page of LinkedIn)
Write a short description about this task *Link to the tutorials that you have followed*
Write a short description about this task *Link to your public websites* *1.* *2.* *3.*

Week 2

Technical Workouts
1. Learn JavaScript & Bootstrap by the end of this week. 2. Design a public website using HTML, CSS, JavaScript, Media queries and bootstrap. Website must be completely responsive. 3. Complete an excellent personal website using a template. The website should meet the following criteria: a. Should be responsive. b. It should contain at least six pages. c. Should not contain any dummy content or images. d. Enquiry form with validation and submission. e. Social media links with proper contact details. 4. Read the document below and check the performance of your website. Improve your website until you acquire a score above 90. https://developers.google.com/web/tools/lighthouse#devtools 5. Also learn the concepts: ● DOM manipulations and selectors. ● addEventListeners (click, scroll, change).
Write a short description about this task *Links to the tutorials that you have followed*
Write a short description about this task *Link to your project url*
Write a short description about this task *Link to your personal website*
Write a short description about this task
Write a short description about this task *Link to the screenshot showing performance score above 90*

Write a short description about this task

Week 3

Technical Workouts
1. Complete basic programming fundamentals in your domain. For example, if your domain is MERN stack, learn basic programming fundamentals in JavaScript such as variables, conditional statements, loops, arrays, functions, class, objects, etc. 2. Complete all the assignments in the following document using the language you have chosen in your domain. *Assignments* 3. Also learn ES6 features (like map, filter, reduce, spread, rest, ternary, optional chaining, callback, promise, async-await). 4. Refer to this website W3School.
Write a short description about this task *Link to the tutorials that you have followed*
Write a short description about this task *Link to the folder containing the code and the screenshot of the output*
Write a short description about this task
Write a short description about this task

Week 4

Data Structure Workouts
1. Learn what is Data Structure & Algorithms. 2. Learn the basics of Memory Allocation and Memory leak. 3. Learn the concept of Complexity Analysis.

NB: The complexity of common operations of all data structures should be covered.

4. Learn about Asymptotic analysis (Big-O notation).
5. Learn the concepts of Array. Complete at least three sample workouts & do at least 3 problems from any competitive coding websites (Hacker Rank, Code Chef, Leet code, Algo Expert, etc.)
6. Learn the concepts of the Linked list. Complete at least three sample workouts
    a. Construction of Singly linked list & Doubly linked list.
    b. Convert array to a linked list
    c. Add a node at the end & beginning
    d. Delete node with the value specified
    e. Insert a node after & before a node with x data
    f. Print all elements by order & reverse by order
    g. Write a program to remove duplicates in a sorted singly linked list
7. Learn the concepts of String. Complete at least three sample workouts.
   Eg: Write a function to replace each alphabet in the given string with another alphabet occurring at the n-th position from each of them.
8. Learn about Linear Search & Binary Search. Complete at least 3 sample workouts in each of them
9. Learn the concepts of Recursion. Complete at least 3 sample workouts.
10. Learn about the applications of all structures you covered this week

Write a short description about Array

Link to the folder containing code and screenshot of the output

Write a short description about Linked list

Link to the folder containing code and screenshot of the output

Write a short description about string

Link to the folder containing code and screenshot of the output

Write a short description about Linear search and Binary search

Link to the folder containing code and screenshot of the output

Write a short description about Recursion *Link to the folder containing code and screenshot of the output*

Week 5

Data Structure Workouts
1. Learn about Bubble Sort, Insertion Sort, Selection Sort, Quick sort and Merge sort. Complete at least three sample workouts in each of them. 2. Learn the concept of Stack and Queue. Complete at least three sample workouts in each of them & do at least 3 problems from any competitive coding websites (Hacker Rank, Code Chef, Leet code, Algo Expert, etc.) a. PUSH, POP and Display elements in Stack b. Enqueue, Dequeue and Display elements in Queue 3. Learn the concepts of Hash Table. Complete at least 3 sample workouts. 4. Learn about the Applications of all structures you covered this week
Write a short description about this task *Link to the folder containing code and screenshot of the output*
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Write a short description about this task *Link to the folder containing code and screenshot of the output*
Write a short description about this task

Week 6

Data Structure Workouts
1. Learn the concepts of Tree. Complete at least three sample workouts.

2. Learn the concepts of Binary Search Tree. Complete at least three sample workouts.
   Example:
   a. Create a Binary Search Tree with insertion, contains, delete, three traversals (postorder, preorder, in order).
   b. Find the closest value to a given number in a Tree.
   c. Validate whether a given tree is BST or not.
3. Learn the concepts of Heap. Complete at least three sample workouts.
   Example:
   a. Create a min heap & max heap with build, insert, remove.
4. Learn the concept of Heap sort. Complete at least three sample workouts
5. Learn the concepts of Trie. Complete at least 3 sample workouts.
6. Learn the concepts of Graph. Complete at least three sample workouts.
7. Learn the concepts of Graph traversals (BFS, DFS).
8. Do at least 3 problems each for every structure from any competitive coding websites
9. Learn about the applications of all structures you covered this week

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Write a short description about this task

Link to the folder containing code and screenshot of the output

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Write a short description about this task

Link to the folder containing code and screenshot of the output

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Write a short description about this task

Link to the folder containing code and screenshot of the output

Write a short description about this task *Link to the folder containing code and screenshot of the output*
Write a short description about this task *Link to the folder containing code and screenshot of the output*

Week 7

Technical Workouts
1. Complete the basic tutorial on the backend Framework you have chosen. For example, if your domain is Node.js Express, complete a basic Node.js and Express.js Framework tutorial. 2. Have a clear idea about View Engine and its working. Complete at least 3 sample works using view engine concepts and bootstrap. For example, list dummy items/ cards using a loop or display table items etc. 3. Design a login and a home page, the Home page should not be blank. Use bootstrap & View engine. 4. Have a clear idea about Session and Cookies. 5. Complete server-side development for the login page. a. Login page should accept the username and password from the user. b. The username and password should be validated on the server side with a predefined value. c. If correct, give access to the home page. d. If incorrect, display an incorrect username or password message on the login page. e. The home page should contain a signout button. On click signout button - redirect to the login page. Note: Session handling should work properly. Signout shouldn't happen unless the user presses the signout button. Also, once the user has signed out, the home page shouldn't be loaded on pressing the back button. 6. Have a clear idea about HTTP methods.

Write a short description about this task
Write a short description about this task
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Write a short description about this task
Write a short description about this task

Week 8

Technical Workouts
1. Complete the basics of MongoDB using the terminal. (Do not use any language or framework you have chosen). 2. Prepare a video presentation on what you have learnt about databases. Record and upload it on youtube as an unlisted video. 3. Complete all the assignments in the following document Assignments.
Write a short description about this task
Link to your presentation video
Write a short description about this task *Link to the folder containing the code and the screenshot of the output*

Week 9

Technical Workouts
1. Create a web application. a. Should have login, signup and home page for users.

b. Should store the user data on a database.
c. Login should be validated.

2. Create an admin panel.
    a. Admin panel should have a login with validation.
    b. Should be able to view and perform a search on user data.
    c. Should be able to create, delete and edit user data.
    d. Should handle sessions and cookies properly.
3. Prepare for your full domain review.

Write a short description about this task

Link to your screen record video

Write a short description about this task

Link to your screen record video

Week 10

Technical Workouts
1. This week you are going to start your first project. You are advised to search and find a complete project tutorial in your domain. Complete the tutorial by the end of this week and prepare a presentation on it. Your presentation should explain what you are going to do in the upcoming weeks. a. NB: Candidates are advised not to start coding. This week is for project planning only. Please finish watching the tutorial carefully and plan your project and presentation accordingly. b. Refer to some existing websites related to your project and submit the research video. c. Compare different third party apps like razorpay, paypal etc. 2. Divide your project into modules. 3. Prepare a dated timeline in the module list. 4. Prepare API documentation for your project using postman.

5. Prototype your complete project using any prototyping tool such as “Figma” or XD. 6. Choose admin and user template, do the cleanup and design the database accordingly. 7. Learn basic Git concepts like add, commit, pull, push, stash.
Write a short description about this task *Link to your complete project tutorial*
Write a short description about this task *Link to the document containing your list of modules*
Write a short description about this task *Link to the document containing your timeline of module list*
Write a short description about this task *Link to the api document of your project*
Write a short description about this task *Link to the prototype*
Write a short description about this task *Link to your database design document*
Write a short description about this task

Week 11

Technical Workouts
1. Complete your project according to the instructions.
Write a description about this task

Week 12

Technical Workouts
1. Complete your project according to the instructions.
Write a description about this task

Week 13

Technical Workouts
1. Complete your project according to the instructions.
Write a description about this task

Week 14

Technical Workouts
1. Complete your project according to the instructions.
Write a description about this task

Week 15

Technical Workouts
1. Complete all the testing and bug fixing activities of your first project. 2. Reformat your project source code into the official coding standard of your domain. 3. Complete the basic tutorial of GIT.

4. Publish your first project on GIT. 5. Finish nginx tutorial and host your first project on AWS, Azure, GCP cloud platform or any other linux server instance (Load balancing, caching, Reverse proxy). 6. Learn about Alternatives of nginx. 7. HTTP protocols. 8. Learn the difference between HTTP and HTTPs.
Write a short description about this task
Write a short description about this task
Write a short description about this task
Link to your project repository
Write a short description about this task *Link to your live project*
Write a short description about this task
Write a short description about this task
Write a short description about this task

Week 16

Technical Workouts
1. Learn the Sql database and complete basics of database operations using terminal. (Do not use any language or framework you have chosen). 2. Prepare a video presentation on what you have learnt about databases. Record and upload it on youtube as an unlisted video. 3. Learn these concepts.

• ACID properties. • Normalization. • Constrains. • Relationships. • Joins. • 3-Schema architecture. • Indexing. • Aggregate functions. • Scalar functions. • SQL queries. • Foreign key Primary key. • Closure. • Groupby. • Having. • Transactions. • DML, DDL, DCL.
Write a short description about this task
Link to your presentation video
Write a short description about this task

Week 17

Technical Workouts
1. Finish the basic tutorial of ReactJS. 2. Learn the basic concepts of ReactJS defined in the following document and complete the given assignment. (Topics shared should be basics and assignment to be prepared) [React Topics]

React Assignments 3. Design To-Do App.
Write a short description about this task *Link to the tutorials that you have followed*
Write a short description about this task
Write a short description about this task

Week 18

Technical Workouts
1. Learn the concepts of ReactJS. a. useCallback b. useMemo c. React.memo vs useMemo d. useContext and context API e. useReducer f. React.lazy – code splitting 2. Design Netflix, OLX. (with useContext API)
Write a short description about this task
Write a short description about this task

Week 19

Technical Workouts

1. Create a web application
    - Redux for global state management
    - JWT authentication and authorization
    - Use preferred Database
2. User side
    a. Login/Register
    b. Home page (navigation to user profile)
    c. User Profile page (must have file upload option for profile image)
3. Admin side
    a. Login
    b. Should be able to view and perform search on user data
    c. Should be able to create, delete and edit user data

Write a short description about this task

Link to your complete project tutorial

Write a short description about this task

Write a short description about this task

Week 20

Technical Workouts

1. Learn the concept of a NoSQL database by the end of this week.
   NoSQL Database Topics
2. Finish the following assignments.
   NoSQL Database: Assignments
3. Prepare your full Domain review

Write a short description about this task

Write a short description about this task

Week 21

Technical Workouts
1. This week you are going to start your second project. Do all the planning activities related to your next project by the end of this week and prepare a presentation on it. Your presentation should explain what you are going to do in the upcoming weeks.   a. NB: Candidates are advised not to start coding. This week is for project planning only. 2. Divide your project into modules. 3. Prepare API documentation for your project. 4. Prototype your complete project using any prototyping tools. 5. Prepare Database design for your project 6. Learn an architecture which you haven't yet used in your last project
Write a short description about this task
Write a short description about things s task *Link to your module list*
Write a short description about this task *Link to your API documentation*
Write a short description about this task *Link to your prototype file*
Write a short description about this task *Link to your Database design*
Write a short description about this task

Week 22

Technical Workouts
1. Complete your project according to the instructions.
Write a short description about this task

Week 23

Technical Workouts
1. Complete your project according to the instructions.
Write a short description about this task

Week 24

Technical Workouts
1. Complete your project according to the instructions.
Write a short description about this task

Week 25

Technical Workouts
1. Complete your project according to the instructions.
Write a short description about this task

Week 26

Technical Workouts
1. Complete all the testing and bug fixing activities of your second project. 2. Reformat your project source code into the official coding standard of your domain. 3. Publish your second project on Gitlab & Bitbucket. 4. Host your second project on a digital ocean cloud server, Google Cloud server and Azure cloud server using Nginx. 5. Host your project using Apache in any linux server instance.
Write a short description about this task
Write a short description about this task
Link to your project repository
Write a short description about this task *Link to your live project*
Write a short description about this task *Link to your live project*

Week 27

Technical Workouts
1. Complete learning all the advanced topics according to the instructions.
Write a short description about this task

Week 28

Technical Workouts
1. Complete learning all the advanced topics according to the instructions.
Write a short description about this task