Course Progression Syllabus

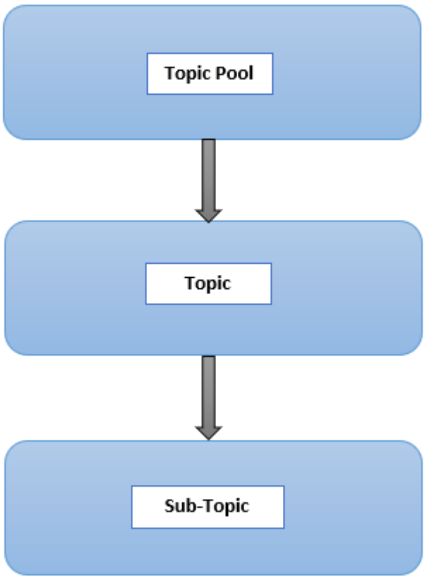
Hey,

Please find attached the course structure & list of topics/stacks that we provide training for in the 6 month rigorous course. The content has been carefully created keeping industry standards in mind and we are confident that proficiency in these will make you a "Rockstar Developer.

Newton school trains you on the following listed tech stacks:

- Data Structures & Algorithms
- HTML
- CSS
- JavaScript
- ReactJS
- NodeJS
- ExpressJS
- MongoDB
- MySQL

Course Structure



Course structure of Newton School is divided into various ***Topic Pools,*** which is further divided into ***Topic,*** which is then finally divided into ***Sub Topics.***

Course Structure break-up

Data Structures & Algorithms:

- **1. DSA Basic 1**
  - **1.1.** Basics of Programming (Java)
    - 1.1.1. Variables & Operators
    - 1.1.2. Control Structures
      - 1.1.2.1. If-Else Ladder
      - 1.1.2.2. Switch Case & Jump Statements
    - 1.1.3. Loops
      - 1.1.3.1. For Loop
      - 1.1.3.2. While Loop & Do-While Loop
      - 1.1.3.3. Pattern Making
    - 1.1.4. Functions
    - 1.1.5. Complexity Analysis
      - 1.1.5.1. Time Complexity
      - 1.1.5.2. Space Complexity
    - 1.1.6. Java Programming Syntax
  - **1.2.** Arrays
    - 1.2.1. 1-D Array
    - 1.2.2. 2-D Array (Matrix)
    - 1.2.3. Prefix Sum
      - 1.2.3.1. Kadane Algorithm
  - **1.3.** Recursions
    - 1.3.1. Base Case & Mathematical Interpretation
    - 1.3.2. Tail & Non-Tail recursion
  - **1.4.** Sorting Algorithms
    - 1.4.1. Simple Sorting
      - 1.4.1.1. Bubble Sort
      - 1.4.1.2. Insertion Sort
      - 1.4.1.3. Selection Sort
      - 1.4.1.4. Merge Sort

Web Development Fundamentals:

- **1. HTML**
  - 1.1. HTML & HTML5 Tags
  - 1.2. Elements,Attributes and Meta Tags
  - 1.3. Formatting
  - 1.4. Tables and List
  - 1.5. HTML Links
  - 1.6. Frames
  - 1.7. Background, Colors and Fonts
  - 1.8. Forms
  - 1.9. Marquees, Header and Layouts
- **2. CSS**
  - 2.1. Color,Background and Fonts
  - 2.2. Text, Images and Links
  - 2.3. Tables
  - 2.4. Borders and Margins
  - 2.5. List, Padding and Cursors
  - 2.6. Outlines and Dimensions
  - 2.7. Positioning
  - 2.8. Layers
  - 2.9. Validations
  - 2.10. Grids
  - 2.11. Flex
  - 2.12. CSS Frameworks

- **3. JavaScript**
  - 3.1. Variables and Operators
  - 3.2. If-Else and Switch Case
  - 3.3. Loops and Loop Control
  - 3.4. Functions
  - 3.5. Events
  - 3.6. Cookies
  - 3.7. Objects
    - 3.7.1. Number
    - 3.7.2. Boolean
    - 3.7.3. Strings
    - 3.7.4. Arrays
    - 3.7.5. Date

3.7.6. Math

3.7.7. RegExp

3.7.8. HTML DOM

3.8. Error Handling

3.9. Validations

3.10. Animations

3.11. Multimedia

3.12. Debugging

<u>Frontend Libraries and Framework:</u>

1. Bootstrap

1.1. Grid System

1.2. Code

1.3. Tables, Forms and Buttons

1.4. Helper Classes

1.5. Bootstrap Layout and Component

2. ReactJS

2.1. Introduction to ReactJS

2.2. JSX

2.3. Component

2.4. State

2.5. Props

2.6. Component Lifecycle

2.7. Component API

2.8. Events

2.9. Flux

2.10. Higher Order Component

3. Redux

3.1. Introduction to Redux

3.2. Data Flow

3.3. Store, and Actions

3.4. Pure Functions

3.5. Reducers

3.6. Middleware

3.7. Devtools and Testing

Backend Technologies:

1. **NodeJS**
   - 1.1. Introduction to NodeJS
   - 1.2. REPL terminals
   - 1.3. Callbacks
   - 1.4. Event Loop
   - 1.5. Buffers and Streams
   - 1.6. File System
   - 1.7. Global Objects
   - 1.8. Utility and Web Modules
   - 1.9. REST API
   - 1.10. Packaging
2. **ExpressJS**
   - 2.1. Introduction to ExpressJS
   - 2.2. Routing
   - 2.3. HTTP Methods
   - 2.4. Form Data
   - 2.5. Cookies and Sessions
   - 2.6. Authentication
   - 2.7. REST API
   - 2.8. Scaffolding
   - 2.9. Error Handling
   - 2.10. Debugging

Database Management System:

1. **MongoDB**
   - 1.1. Introduction to NoSQL
   - 1.2. Data Modelling
   - 1.3. Create and Drop Database
   - 1.4. Create and Drop Collection
   - 1.5. Data Types
   - 1.6. Insert, Query, Update, Delete Document
   - 1.7. Limiting and Sorting Records
   - 1.8. Indexing
   - 1.9. Deployment

2. MySQL

2.1. Introduction to MySQL

2.2. Create, Drop, Select Database

2.3. Data Types

2.4. Create and Drop Tables

2.5. Insert, Select, Update, Delete Query

2.6. Where and Like Clause

2.7. Order

2.8. Join

2.9. Union

2.10. Transaction

2.11. Temporary Tables

2.12. Sub Queries