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| **Month 1: Ruby Basics and Fundamentals** | |
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| **Week 1 : Introduction to Ruby** | |
| Day 1 | Introduction, Installation and Set Up Environment |
| Day 2 | Explore Basic Syntax and Variables |
| Day 3 | Understand Control Structures, selection structures |
| Project | Write a simple Ruby program that takes user input for their name and greets them |
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| **Week 2 : Methods and Object-Oriented Programming** | |
| Day 4 | Loops |
| Day 5 | Define and Call Methods |
| Day 6 | Introduction to Classes and Objects |
| Project | Create a class representing a bank account and implement methods for deposit and withdrawal |
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| **Week 3 : Collections and File Handling** | |
| Day 7 | Learn About Inheritance and Encapsulation |
| Day 8 | Work with Arrays and Hashes |
| Day 9 | Perform File Input/Output (I/O) Operations |
| Project | Write a program that reads data from a text file, performs some calculations, and writes the result to another file |
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| **Week 4 : Introduction to Ruby on Rails** | |
| Day 10 | Overview of Ruby on Rails Framework |
| Day 11 | MVC Architecture in Rails |
| Day 12 | Create a Simple Rails Application |
| Project | Generate a new Rails application and create a basic CRUD functionality for managing a list of tasks |
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| **Month 2: Ruby on Rails Development** | |
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| **Week 5 : Models in Rails** | |
| Day 12 | Generate Models and Database Migrations |
| Day 14 | Define Associations in Rails Models |
| Day 15 | Perform CRUD Operations with ActiveRecord |
| Project | Add validations to the task model to ensure that tasks have a title and a description |
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| **Week 6 : Views and Controllers in Rails** | |
| Day 16 | Create Views with Embedded Ruby (ERB) |
| Day 17 | Define Routes and Controllers |
| Day 18 | Implement Layouts and Partials |
| Project | Implement a feature to display the list of tasks on the homepage and add pagination to the task index page |
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| **Week 7 : Forms and Data Validation** | |
| Day 19 | Build Forms and Handle Form Data |
| Day 20 | Validate Form Input and Implement Error Handling |
| Day 21 | Use Flash Messages and Redirection |
| Project | Create a form for adding new tasks and implement server-side validation for the form inputs |
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| **Week 8 : Authentication and Authorization** | |
| Day 22 | Implement User Authentication with Devise |
| Day 23 | Set Up Role-based Authorization |
| Day 24 | Secure Controllers and Actions |
| Project | Allow only authenticated users to create, update, and delete tasks, and restrict access based on user roles |
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| **Month 3: Advanced Ruby on Rails Development** | |
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| **Week 9 : Advanced Topics in Rails** | |
| Day 25 | Implement Background Jobs |
| Day 26 | Integrate Third-party APIs |
| Day 27 | Build RESTful APIs with Rails |
| Project | Build a RESTful API for adding tasks |
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| **Week 10 : Frontend Development in Rails** | |
| Day 28 | Add Styles with CSS Frameworks |
| Day 29 | Enhance User Experience with JavaScript |
| Day 30 | Implement AJAX for Asynchronous Updates |
| Project | Use Bootstrap to style the application, add a date picker using JavaScript, and implement AJAX for marking tasks as completed without refreshing the page |
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| **Week 11 : Deployment and Scaling** | |
| Day 31 | Deploy Rails Application to Heroku |
| Day 32 | Optimize Application Performance |
| Day 33 | Monitor Application Health and Debug Issues |
| Project | Deploy the application to Heroku, optimize database queries for better performance, and set up monitoring tools to  track application metrics |
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| **Week 12 : React Integration in Rails** | |
| Day 34 | Explore React, a popular JavaScript library for building UIs, and its benefits for Rails applications |
| Day 35 | Learn how to set up React with your Rails project using tools like react-rails or webpacker |
| Day 36 | Build basic React components for reusable UI elements within your task management application |
| Project | Integrate a simple React component to display a dynamic task list in your Rails application |
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