Ruby on Rails (RoR) for Product Development with the MVP Approach

Neha,
PG Scholar,
Department of MCA,
Dayananda Sagar College of Engineering,
Bengaluru, Affiliated to VTU

Dr.Vibha M B ,
Assistant Professor,
Department of MCA,
Dayananda Sagar College of Engineering,
Bengaluru, Affiliated to VTU

Abstract- When a startup goes to release a Minimum Viable Product(MVP), it's interested to finish this task with less effort and enhanced cost-efficiency. Ruby on Rails meets both of those requirements, which makes it an ideal option for companies that are just preparing to form their project ideas real.Such businesses don't want to spend their limited budgets and human/time resources on a spread of needs which will inevitably arise within the course of long-term development. We incorporated detailed information about Ruby on Rails during this study paper, like Rails Architecture and its components. Then we discussed MVP approach, why RoR is the best approach for MVP and case study.

Keyword- Ruby on rails, Rails design architecture, MVC architecture, MVP

I. INTRODUCTION

Rails is the Web application framework written in Ruby language. Rails was created by David Heinemeier Hansson[1] and is additionally referred to as Ruby on Rails.The purpose of making Rails was to make application development easy and fun. Rails is the back-end of the net application while the browser is the front-end.

A. Ruby (Programing Language)

Ruby could be a completely object-oriented artificial language. Yukihiro Matsumoto[1] (commonly called Matz within the Ruby community) created it in Japan in 1990[1]. Ruby contains syntax that appreciates C and Java, making it easier for C and Java programmers to be told. It works on almost every platform even on Mac, Linux, and Windows. Ruby relies on a variety of various languages, including Perl, Lisp, Ads, Smalltalk, and Eiffel. it's an interpreted scripting language, which suggests that the majority of its implementations run instructions immediately and without first converting a programme into machine language instructions.

B. Rails

Rails could be a free and open source framework for developing web applications.[1] Rails are accustomed build such applications as Airbnb, Zendesk, Basecamp, GitHub[7], etc.Rails is an MVC framework that gives a default structure for a database, an internet service, and sites.It promotes and enables the usage of web standards like XML for data transport, HTML, CSS, and JavaScript for user interaction.

This framework's phenomenal rise is the results of a quickly spreading interest from startups that are desirous to simplify and accelerate the processes of development. Moreover, Ruby on Rails (or RoR) boasts several features that make it easy and developer-friendly. The supply of assorted gems and plugins lays a extremely wide path for future success.

The Rails framework has two guiding principles:

- Don't Repeat Yourself : don't Repeat Yourself (DRY) [2] principle in a very programming language could be a developer advantage. In other programming languages, you may see repetition of code, which makes debugging complicated and cumbersome.The DRY principle forbids code duplication or repetition. It enables developers to form applications that are simple, manageable, and straightforward to upgrade.

- Convention over Configuration[2]:The Ruby on Rails framework doesn't require the developer to declare minor details like variable types. Instead, the framework encourages the employment of strict naming

conventions. The variable's intended use is set by its first letter. Because Rails is written in Ruby, the framework maintains the identical naming conventions, which aids in code reduction.

II. RAILS DESIGN ARCHITECTURE

Rails focuses on a programming pattern called MVC, which remains for Model-View-Controller.

A. MVC Architecture

Rails are focused on a programming pattern called MVC, which remains for Model-View-Controller[8]. The Goal of Rail design outline is to discrete organization of information (model) from UI & presentation (view) by introducing controllers.

The Model-View-Controller architecture(MVC)Architecture is one amongst the important features of Ruby on Rails . The most advantage of MVC is to possess the detachment of Business logic from the client-user interface. Another advantage incorporates easy keeping code, DRY and making it clear where distinctive types of code belong for fewer demanding upkeep.
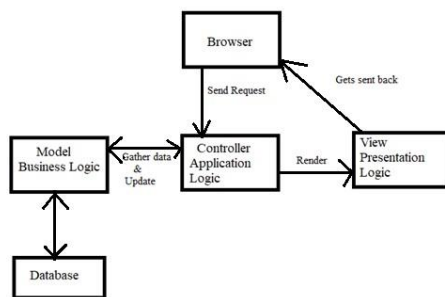

Figure- MVC Architecture

Model: Model stores the data (data) about each table of the database. If there should arise an event of Rails, do some primary validation of information before putting it into the database and one table relates to at least one model.

View: View, for the foremost part the interface of the appliance. If there should be a happening of Rails, Views are often HTML pages with some inserted ruby code. Views handle the duty of giving the information to the net browser.

Controller: Controllers give the "glue" within the middle models and views. In Rails, Controller fundamentally handles the incoming request from the online browser interrogating the models for data and spending that data on to the views for presentation.

B. Framework components

Ruby on Rails may be a Model View Controller framework. The framework's main components [3]are -

• Action Pack: Handles requests and responses. This framework is an element of Rails's MVC pattern, which serves the online request, handling, routing, and consideration generation. to supply the response, it defines controllers that implement actions so as to render views.

• Active Model: Provide the interfaces for the Model a part of MVC component is new in Rails. In previous versions, the model layer supported Active Record. within the current version, you'll use any ruby class as a Model. This is often important because you'll use your own persistence layer and glue it into Rails.

• Active Record: this can be the Relational Mapping (ORM) component of Rails, with a really nice zero-configuration feature. Naming and convention is the key to maintaining simple and minimal code to define classes that may be persisted within the database tables.

• Active Support: a group of utility classes and standard library of extensions that are useful in Rails. We are able to find this extension useful for several Ruby projects.

• Active Resource: Connects business objects and Representational State Transfer (REST) Web services. With ActiveResource, you'll be able to easily use REST to show your ActiveRecord models with just a little amount of code. this is often useful thanks to create an API without much effort.

• Action Mailer: This framework provides the e-mail service layer, helping resolute send the forgot

password emails, registration emails, invoices for billing, etc. This class wraps ActionController from ActionPack to render the emails as page views, with the identical render and templates like pages.
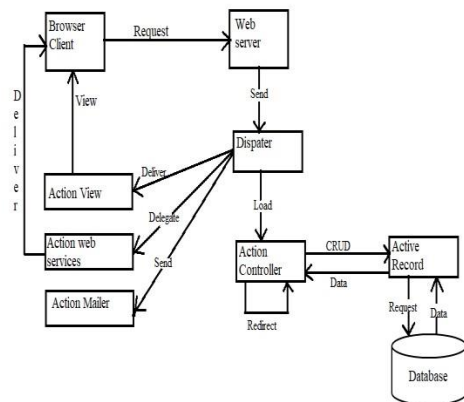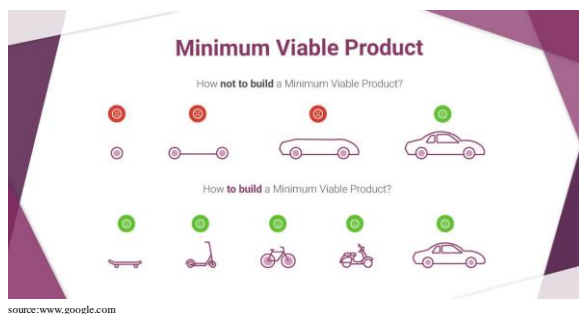

Figure. Architectural Model for Ruby on Rails (RoR)

III. MVP

MVP is an abbreviation for Minimum Viable Product. Frank Robinson[9] coined the phrase. Erich Ries,[5], who became the world's leading proponent of MVP, defined MVP as follows:" The minimum viable product is that version of a replacement product a team uses to gather the utmost amount of validated learning about customers with the smallest amount of effort."

source:www.google.com

The MVP concept appears straightforward: the corporate launches a market-ready product and strives to gather as many user opinions as possible. The trick is that the MVP performs the first function but doesn't include all of the extra features that the team originally envisioned. In terms of selling, this can be how the MVP definition may be translated. MVP implementation could be a continuous process. Using the technique, you'll be able to test hypotheses indefinitely and determine the foremost appropriate development strategy for your company. Budget

savings, the flexibility to optimize, rebrand, or maybe radically pivot the merchandise before the ultimate launch stage, and an early customer base are the three key benefits MVP provides.Because MVP allows you to check a startup hypothesis while spending as little money and time as possible, you have got three options[6] after MVP launch:

- If the hypothesis is totally correct and folks need the merchandise, development continues.
- If the hypothesis is barely partially true, customer feedback helps to alter and refine the startup idea.
- If the hypothesis is refuted — well, at least, the corporation retained 90% of the funds allocated for the total implementation.

A. Why RoR ?

The great efficiency of building an MVP is one among the important aspects which make RoR perfect choice of technology for the start-ups.Here are a number of the explanations why Ruby on Rails is ideal for developing the MVP for your business:

- The method of MVP development is accomplished rather quickly using RoR as compared to most other technologies which are mainly, due to its ready-to-use modules and therefore the built-in development tools. This offers a way more efficient development process for the applying. Ruby being a concise and crisp artificial language, your developers needn't write the complex codes endlessly. Moreover, there's only little they'd have to modify or discard while fine-tuning the MVP in keeping with the end-users' feedback.
- RoR follows some conventions which are meant to enhance the productivity of development and to keep the items simple and simply understood by all the developers. This can be the explanation why unlike many other programming languages, ruby doesn't require extensive set-up and configuration at the start of the project[4]. thanks to its easy approach, the developers must only specify the aspects that lie out of the convention.
- Being an open source[4] web based framework, RoR technology avails your developers with a decent number of software

libraries available free. Quick access to the pre-built and well-tested pieces of code, ready to be used in your projects for RoR makes it possible for your developer to create complex features and functionality rather speedily while eliminating the requirement to make everything from scratch. This easy development of a functional prototype quickly makes it perfect for developing MVP for your project.

- The new security measures that RoR keeps on regularly introducing, serve to create the framework as secure as possible. This can be the explanation why start-ups getting to keep their data secured yet as up-to-date typically choose this framework. Also, having continuously evolved over the years, RoR has matured into a highly stable technology equipped with the features like Object-oriented and functional programming, smooth compatibility with the advanced frameworks including AngularJS and multi-platform compatibility. This makes it versatile for developing MVor start-ups.

- RoR may be a technology flexible enough to not bind an existing application with any specific database. In such a case, the backend database is simple to be modified without having to bother about the code changes. Since the MVP process requires the main target to get on the event of a product prototype, this flexibility to vary without having to affect the code could be a particularly critical advantage RoR imparts. This makes it an ideal tool for developing the MVP for any start-up.[4]

B. ROR VS Node.js VS Django

Django is employed for building scalable, secure, and high-performance web apps, while Node.js' main point is the ability to use JavaScript for the complete tech stack. ROR, on the opposite hand, is understood for its efficiency and scalability. Rich functionality is written in much fewer lines of code.

When engaged on the minimally viable version of a product, the most priority is operational efficiency and well-organized development processes, not ultimate speed and interface. Ruby on Rails includes a variety of command-line code builders that allow developers to avoid writing code from scratch. This ready-to-use code, when combined with open source libraries, can accommodate over half the functionality.

lV. CONCLUSION

The MVP will be through with the assistance of assorted tools and frameworks. Though if you would like to form it quicker, stable, easily scalable for future changes, and in a very cost-effective manner, RoR may be a perfect choice.We can conclude that MVP development using RoR keeps things efficient, neat and clean while avoiding any non required repetition with a transparent concentrate on just the key features and functionality of the app which require to be achieved. The clarity of the features and modules in Ruby, plays a very important role in making it work for your start-up projects well.Even though performance is usually listed because of the main disadvantage of RoR, remember that performance issues may appear only if the merchandise gains huge numbers of users. The main goal behind an MVP is to release fast, cheap and begin learning immediately. RoR achieves these goals perfectly, which has been proven by famous brands like Airbnb and Dribbble[9].

If in future we are able to improve the performance factor of ROR, it'll be ideal for product development. We can say that RoR may be a natural environment for products developed with the MVP approach.

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