Ruby on Rails (ROR) is an open source software that provides framework development tools. This framework moves to help developers build websites and applications at ease by simplifying repetitive tasks. Rails has a set of conventions which speed up development through decreasing the time it takes to configure files in order and following the same structure and coding practices. Another underlining feature of Rails is the RESTful application design. REST is a software for client-server relationship focusing on the architecture. Being able to logically structure applications with this software means the ability to display as an API.

Rails is used for frontend web development because it utilises the Model-view-controller approach (MVC) and means a frontend developer can design the views without knowledge of the models and controllers. Other than that, ROR is used more for backend development due to its object-oriented Ruby programming language, it is still seen as a top choice for agile web development as it encourages collaboration and flexibility through the framework and other development tools. Gems is the code libraries provided which developers can use to search for all their coding needs and apply to their own project. Another time saving feature is Automated testing, a script that Rails uses to help the developer test things and not rely on others or more complex testing methods.

ROR downfalls are that not all website hosts can support Rails due to its heavy resource nature unlike PHP. Its application are slower speeds than Java which cause performance concerns and it is not as widely used as other languages.

Django is a backend web framework for when using python. It’s is free and open source it encourages quick development with design in mind by easing the creation of a complex database- driven website. Django’s has many features such as:

* Designing your model though object-relational mapper without a database and the data-model syntax to avoid database schema problems
* Python API, is created with no coding necessary to help access your data
* Can automatically create a production ready admin interface after the models are defined to give better access to modify the website
* URLconf. which is a python module that contains mapping, patterns and functions to create a URL scheme
* Designing templates, being able to specify a list of directories to check for templates which result in a match or not.
* Scalability, it allows for any hardware to be added using the shared-nothing architecture. This framework can clearly separate hardware such as database servers and web/application servers to be display in database layer and application layer
* Cache framework which reduces the calculations the web server makes when looking for a result so that the calculations doesn’t have to be performed next time.
* MVC approach but instead also known as the MTV framework- Model-Template-View framework the view being described as the python call back function for which data is presented and the template describes how the data is presented.

Django is best for wanting to create a Minimum Viable Product (MVP). MVP is a version of a product that has the minimum number of features that would satisfy targeted customers and help provide feedback for future development. Django’s framework provides all the tools necessary for creating those additional or future features for a product by providing a clean and easily read framework that can be used by multiple development teams. Django’s security is one of the best out of all the frameworks, it takes security seriously and can help developers avoid common security mistakes to ensure your project is kept safe. An example would be that Django provides user authentication which provides a secure way of managing user accounts and passwords but also deals with cross site scripting protection, SQL injection protection, clickjacking protection, host header validation and HTTPS to name a few.

Express.js is a minimal and flexible server-side and mobile API application framework adopted from the Node.js back-end framework. Express includes the MEAN stack, MongoDB (Database), AngularJS for the front end and Node.js for the JavaScript runtime environment. This framework allows the use of JavaScript as the programming language in both the front and back end development. This makes the development process quicker and easier for one or more people to manage all the different layers with the help of its scalability. The design of Express is able to handle a large amount of users at one time when working on one or multiple tasks. Express.js is primarily used for building API’s for single-page, multi-page, mobile and web application.