RUBY PROGRAMMING LANGUAGE. RUBY ON RAILS FRAMEWORK

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Introduction

Ruby is one of young programming languages. Its author, Yukihiro Matsumoto, is a professional Japanese programmer. He started to develop Ruby on February 24, 1993. The first Ruby 'Hello World' program ran in summer, same year, and alpha-version was ready by December, 1994. The language name derives from the name of a gem ruby (similar to another widely spread language Perl - from pearl) [1].

Ruby programming language features

One of the major aims of development was to free programmers from routine work that can be performed faster and better by a computer. Special attention was paid to everyday activities, such as word processing, administration, and for them the language is especially suitable.

In comparison to machine-oriented languages, which work faster, the aim of this development was the language, closer to human. Any computer work is done by people and for people, and human efforts should be considered above all. The language allows to perform a task extremely fast and easy for human, although it might take some additional computer time.

Ruby is a completely object-oriented language. All data is represented in objects, as opposed to many other languages, where there are primitive types. Every function is a method.

Ruby variables are passed through references. For a programmer, who is used to widely spread hybrid programming languages, some effects of this solution may seem surprising. E.g. the assignment mechanism works universally for every object, as opposed to such languages as C, Object Pascal, where assignment can mean either copying the value or copying the reference to the value. Ruby doesn't support multiple inheritance, instead there is a powerful mixin mechanism. All classes (directly or through other classes) are derived from the Object class, therefore any object can use methods, defined in it. Procedural style is also supported, but all global procedures are implicitly closed methods of the Object class. Ruby is a multiparadigm language: it supports procedural approach, object-oriented and functional. It also supports reflection, metaprogramming, information about types of variables on the execution stage.

Capabilities of Ruby:

- No primitive types, all types are objects
- Powerful realization of object-oriented programming
- Very flexible iterator system
- Regular expression support, methods are similar to Perl
- Automatically expandable numbers
- Parts of code are objects
- Closure support
- Full-fledged threads realization
- Any operator returns a value, including control structures (if, case etc.)
- Low syntax strictness [2]

Ruby on Rails framework

Ruby on Rails is a framework, written on the Ruby programming language. Since its debut in 2004, Ruby on Rails has quickly become one of the most powerful and popular frameworks for building dynamic web-applications. Rails users can cover a wide range of tasks, from start-ups to huge companies.

What makes Rails so good? First of all, Ruby on Rails is completely open, available thanks to MIT License and as a result can be downloaded and used for free. Rails owes its success its smart and compact design; using the flexibility of underlying Ruby, Rails in fact creates domain-specific language for web-development. As a result a lot of common web-programming tasks, such as HTML generation, data model creation and URL routing are easy with Rails, and the resulting code is short and easy to read. Rails also adapts fast to new web-technology trends [3].

Ruby on Rails provides the architectural pattern Model-View-Controller for web-applications and their integration with the web-server and database server.

Basic application components of Ruby on Rails are Model, View, Controller.

1. Model. The model provides object-oriented data mapping (such as product catalogue or order list) to the rest of the application's components. Objects of the model can download and save data in relational database and realize business-logic.

2. View. The view creates user interface using the data from the controller. The view also transmit user's requests to manipulate data to the controller (as a rule, the view doesn't change the model itself).

3. Controller. The controller on Rails is a set of logic launched after the server receives an HTTP-request [4].

Fig. 1. The layout view of MVC structure

Installing Ruby on Rails on Windows 7

Rails can be used almost on any operating system. Since Ruby is simply an add-on for Ruby, it's necessary to install the language interpreter, all libraries and other files. At the moment an integrated installer for Windows already exists containing all necessary files. Though there are several limits for Windows concerning file system and processes. Moreover, not all Ruby libraries (gems) works fine with the operating system, for example, one of the most popular servers for Rails – Unicorn – is adjusted to Linux and doesn't work with Windows at all.

Rails installation is very easy, so is the installation of any other gem. We just need to run the next command in the command line:

gem install rails

After the Rails framework is installed, we can create our own application, using the command:

rails new hello

After the Rails creates the structure of directories and files of our application, the dependence manager, Bundler, will be launched and will install al necessary gems. We run our application with the command:

rails server

We can find our application at http://localhost:3000.
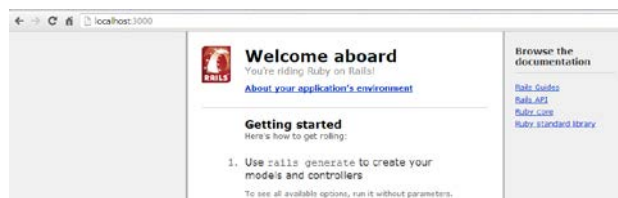

Fig. 2. Running application

The 'Welcome aboard' page is a kind of test for a new Rails application: it shows, that the software is adjusted correctly to display the page.

Conclusion

Ruby on Rails is a promising new framework. It can't replace time-tested and conventional components from Java, necessary for enterprise web-application development. But, thanks to ample opportunities and the simplicity of Ruby programming language, along with multifunctional Ruby on Rails framework, it does have a chance to compete with such popular tools as Perl and PHP that allow to create small and medium web-application.

References

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