

## THE WEB APPLICATION DEVELOPED FOR THE EXCHANGE OF INFORMATION AND FILES FOR A RESTRICTED NUMBER OF USERS

PAVEL MAKHANKO, YURIY KRAVCHENKO  
Polotsk State University, Belarus

*This article discusses the main goals and principles of database modeling, building a fast, user-friendly API for a web application. The main database entities were considered. Addresses for accessing the client part of the web application to the server part are designed.*

The creation of graphical interfaces is currently based mainly on the use of:

1. HTML – hypertext markup language;
2. CSS – cascading style sheets;
3. multi-paradigm JavaScript programming language

Page layout is carried out by means of HTML language. With this language, the basic elements of the page with which the user interacts are created. Using CSS stylesheet you can achieve a certain style of the page, as well as describe the animation and changes to the page, in the process of using it. The basis is the JavaScript programming language (Angular 5). It is Javascript that allows pages to interact with each other, make HTTP requests to the server and dynamically change the content of the page.

This article gives a detailed description of the interface building technologies in a web application.

Typically, applications in Angular 5 are built using the MVC pattern (Model-View-Controller or model-View-Controller). The idea of this template is simple and based on distribution of responsibilities: the task of the controller-processing user actions (clicking on the buttons, processing requests to the server, etc.); the model provides the controller with the data requested by the user; the view, in turn, provides a view of the data obtained from the model.

File with the extension HTML is a markup file generated in HTML using tags. A tag is a named label or descriptor that contains information about an element of an HTML page and its location on that page.

Stylistic features are written in files with the extension .css. You apply certain styles to specific markup elements in html files by using classes and identifiers. The CSS stylesheet allows you to encapsulate the styles of specific tags by nesting CSS selectors and allows you to create functions that can be called in different selectors, making it much easier to understand the code.

Files with the extension .ts are used as controllers. Ts files are written in TypeScript, which extends the capabilities of JavaScript. One of the main advantages of TypeScript is static typing (implementation of OOP in the classical form, more understandable for most programmers).

The interaction of html markup and controllers occurs using:

1. The attribute directives
2. Structural directives
3. Data binding

In Angular, there are four forms of data binding:

1. Binding a DOM element to component values
2. The binding properties of the html element to the value of the component
3. Binding a component method to an event in DOM
4. Two-way binding when a DOM element is bound to a value in a component, and changes at one end of the binding immediately result in changes at the other end.

NgIf, ngSwitch and ngFor (by analogy with the structures of programming if, for, and switch) are used as structural directives.

Attribute directives change the behavior of elements by changing their attribute. For example, the ngClass Directive allows you to set a certain class at certain events.

Nowadays it is difficult to imagine a good web application without a developed database and fast, optimized API. The database allows you to conveniently store large amounts of information not on the user's device, but on a remote server, and the API allows you to process web application requests, differentiate access rights and issue data from the database to any device where the main purpose of API development is to create an in-

intermediate link between the client part of the web application and the database. This is a great way to protect user data, as well as to provide quick access to information without loading the user's device.

JSON Web token is used as protection. This is an open standard for creating access tokens based on json. At the time of user authorization, the server generates hash keys that are sent to the client side of the web application. In the future, each request to the server must contain a hash key to confirm access rights to resources.

As points for requests, the server provides the web application with the end addresses to which the web application receives certain data. Requests pass through the standard HTTP Protocol using the GET, POST methods. Chat and file sharing are implemented using socket technology (Websocket Protocol). Socket is a real-time duplex communication protocol between the client and the server. In this case, the web application subscribes to new messages when it successfully logs on to the application. Then, when you receive a new message, it will be instantly sent to the user.

A document-oriented MongoDB database was chosen as the database. The MongoDB syntax is similar to the json format, which in turn does not specify a rigid data storage framework, which makes it convenient to expand the stored data. The entire database consists of collections, and the data stored in it are documents. A document is a json object in the form of key/value pairs, where strings, numbers, binary data, arrays, or other nested objects can be stored as a value.

A relational model is a database in the form of a set of interrelated relations (tables), which are used to store information about the objects represented in the database.

This article discusses the main goals and principles of database modeling, building a fast, user-friendly API for a web application. The main database entities were considered. Addresses for accessing the client part of the web application to the server part are designed.

#### REFERENCES

1. What is JavaScript actually [Electronic resource]. – Access mode: <https://developer.mozilla.org/>. – Access date: 04.04.2017.
2. Angular build the web applications. [Electronic resource]. – Access mode: <https://codecraft.tv/courses/angular/>. – Access date: 02.04.2017.
3. What is Agile and Scrum ?. [Electronic resource]. – Access mode: <http://www.pmooffice.by/blog/agile/> – Access date: 10.06.2017.
4. MongoDB Guide. [Electronic resource]. – Access mode: <https://metanit.com/nosql/mongodb/>. – Access date: 10.06.2017