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APPROACHES TO THE DESIGN OF GRAPHIC WEB INTERFACE ON THE EXAMPLE OF A WEB APPLICATION

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The article analyses the technologies used for implementation of web applications interfaces. Examples of web interface implementation within the page of an application are given.

Introduction. With the development of Internet technologies more and more web applications with various subjects began to appear.

Web application is a client-server application in which the client is a browser, and server is a web server. The logic of the web application is distributed between the server and the client, data storage is carried out, preferentially, on the server, information exchange happens on a network.

The web application consists of client and server parts, thereby realizing client-server technology. A client part realizes the user interface, creates server requests and processes responses from it [1].

Development of web applications is a powerful tool which allows to realize business ideas and to create successful software products. Web applications help to automate process of operation with large information streams (a client basis, a directory of goods, a branch network, documents and so on).

Front-end and back-end are terms in program engineering which are distinguished according to the principle of division of the responsibility between external representation and internal implementation respectively. Front-end is an abstraction which provides the user interface. For example, in the design of software, the architecture provides to Model-View-Controller front-end and back-end between the database, components of data handling and users [1].

Development of web applications on the front-end and back-end system implies hierarchical division of a resource creation process into two parts, into development of the user interface (frontend) and its programme and administrative part (back-end).

Now web applications are already comparable by their advantages to classical applications. But at the same time they can be available in any place and at any time on a computer, a pad or a mobile device and often have smaller cumulative possession costs. These features make web technologies very attractive to the solution of a wide range of tasks.

Main part. Main techniques of implementing a web application front-end are considered on the basis of noncommercial passengers transportation.

Front-end development is an operation of creating a public part of an application which a user contacts with, and functions which can be used directly (in the browser). The front-end is a component of the application which is responsible for the output of certain information to the user and for user's actions in the web application, for its interpretation in a clear way to the programmes relating to a back-end.

In operation Bootstrap – CSS/HTML is a framework for creating web applications. A number of advantages makes it the most popular framework among the similar ones. In other words, it is a tool kit for imposition.

Primary benefits of Bootstrap are considered as following:

– operation speed – due to a set of ready elements imposition with bootstrap takes much less time;

– scalability – new elements adding doesn't break the general structure;

– easy adjustability – editing styles are made by creating new css-rules which are executed instead of standard ones;

– large number of templates;

– huge community of developers;

– wide scope of application – Bootstrap is used for creating subjects for almost any CMS (OpenCart, Prestashop, Magento, Joomla, Bitrix, WordPress and many other), including one-page appendices [3].

Bootstrap uses the modern practices in the field of CSS and HTML therefore it is necessary to be attentive with assistance of old browsers.

The main Bootstrap tools include the following:

– grids – the sizes of columns are given in advance, which can be used at once. For example, the width of a column of 140px belongs to the class .span2 (.col-md-2 in the third version of a framework) which can be used in CSS document description;

– templates – the fixed or rubber document template;

– typographies – fonts descriptions, determining of some classes for fonts, such as a code, quotes and so on;

– media – are represented by some control of images and video;

– tables – means of tables designing, including addition of sorting functions;

– forms – classes for forms designing and some events happening to them;

– navigation – design classes for tab, tabs, pageness, the menu and a toolbar;

– alert – dialog boxes designing, hints and pop-up windows [1].

Also in case of implementing a web application JSP (JavaServerPages) – the technology allowing to create contents with both static and dynamic components was used. The JSP page contains texts of two types: static basic data which can be issued in one of the text HTML formats, SVG, WML, or XML, and JSP elements which construct dynamic contents. Besides libraries of JSP tags, and also EL (ExpressionLanguage), for implementation of Java code in static contents of JSP pages can be used [1].

JSP platform is an independent, portable and easily expanded technology for developing web applications. The main idea of JSP is very simple – the page is a template with already prepared HTML tags between which it is necessary to insert the necessary data.

JSP pages have extension of .jsp and are placed with normal web pages. The structure of such pages can consist of five constructions: HTML, comment, scripting elements, directives and actions. The JSP page in case of compilation will be transformed to a servlet with static contents which go to the output stream connected to the service method. Therefore in case of the first request this process can cause a small time delay. Scripting elements allow to specify a code in the Java language which afterwards will become a part of a finite servlet, directives give the chance to control the whole structure of a servlet, and actions are used for existing components functioning, and also for controlling the performance of the JSP engine. To simplify scripts functioning there are variables defined in advance, such as request, response, page context, session, out, application, config, page, exception [1, 2].

The code of the JSP page is broadcast in servlet Java code by means of JSP pages compiler Jasper, and then compiled in byte code of the virtual machine Java (JVM). The containers of servlets capable to execute JSP pages are written in the Java language. JSP pages boot on the server and cope from structure of special Java server pack which is called Java EE WebApplication. Usually pages are packed into file archives .war and .ear.

Conclusion. Nowadays web technologies are quickly developing, they are giving more and more opportunities to developers, and their productivity is growing. As a result, advantages of native applications are decreasing, and development is going to the web environment more and more. Web applications have become part of our life, and we use many of them even without thinking – for example, Google search or a Gmail mail service.

Developing web interfaces, it is necessary to pay attention not only to a good design which helps to concentrate on user's tasks, but also to consider that any interface should be intuitively clear for the user – he is supposed understand instantly which following step he is to take. The web interface should have such qualities as a cross platform, adaptivity for different screen sizes, dynamism and correct operation in different browsers.

It is obvious that the use of web applications has a lot of advantages, and the use of different frameworks and technologies allows to reduce considerably the time of web applications implementation without their quality loss.

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