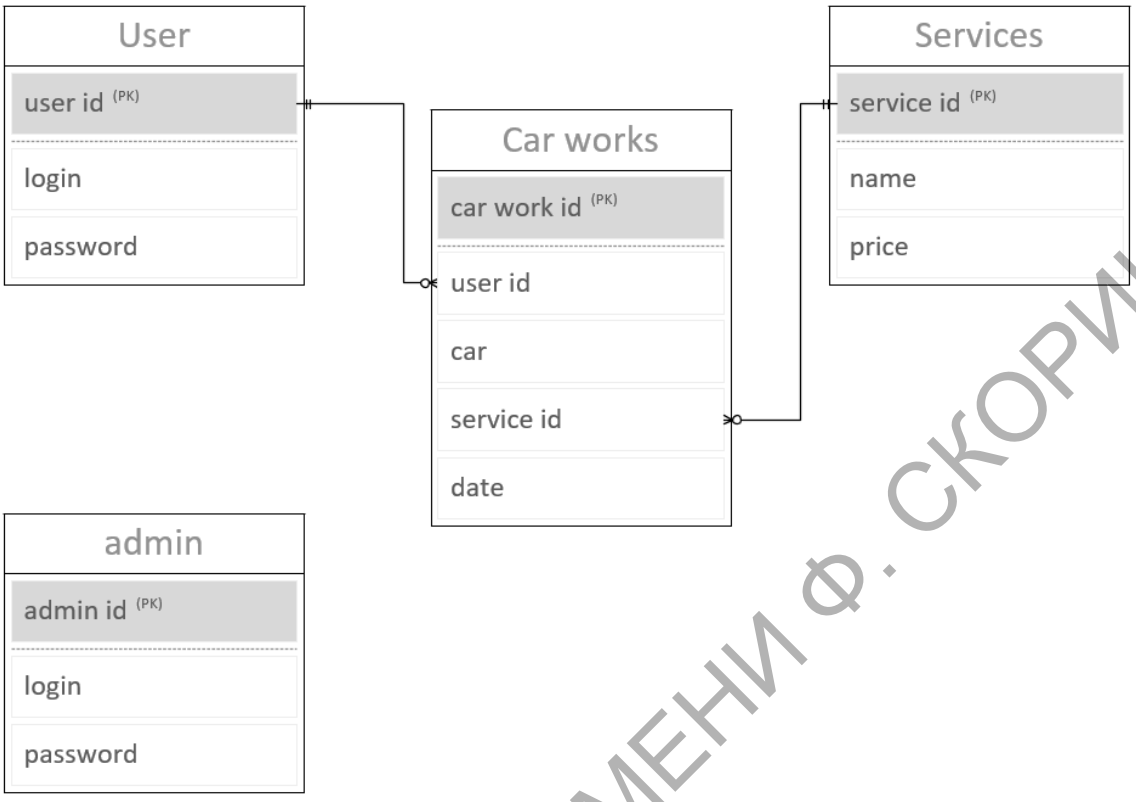
Database contains several tables: User, Car works, Services and Admin. (Picture 2)



Picture 2 – Project Data Base

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DEVELOPMENT OF AN APPLICATION FOR MONITORING THE IMPLEMENTATION OF ROUTINE MAINTENANCE

In order to make modern, reactive and powerful web-application, it is necessary to use modern technologies and frameworks. So my application was made with the help of one of the most popular and reliable technologies.

I will describe main functional abilities of the most useful of them.

JavaScript, often abbreviated as JS, is a high-level, dynamic, weakly typed, prototype-based, multi-paradigm, and interpreted programming language. With the help of JS I`ve manipulated the main data-flow of the front-end part such as user lists, arrays of cars and maintenance prices. ES6 (ECMA Script) is a standard of JS which provides ‘syntax sugar’ to build separated classes and define scoped variables. With ES6 I`ve made classes such as User, Car, Admin, Order, and PriceList.

In computing, React (sometimes styled React.js or ReactJS) is a JavaScript library for building user interfaces.

The main idea of Redux is a common store of data, which provides some info to connected components. My application store is an object, which has several fields, such as users, cars, orders, carLists, orderLists. With the help of Redux I can share a lot of separated info to different components without mutating the whole store of data.

The idea of React is components and single-direction-data-flow. For my project I`ve decided to use stateful components to represent some data to users (such as Car component, User Profile component). I also had components with inner state. Inner state helps components to define the moment when it is necessary to re-render some part of interface (in my project they are Order, Car Search, Order List and Car Repairs).

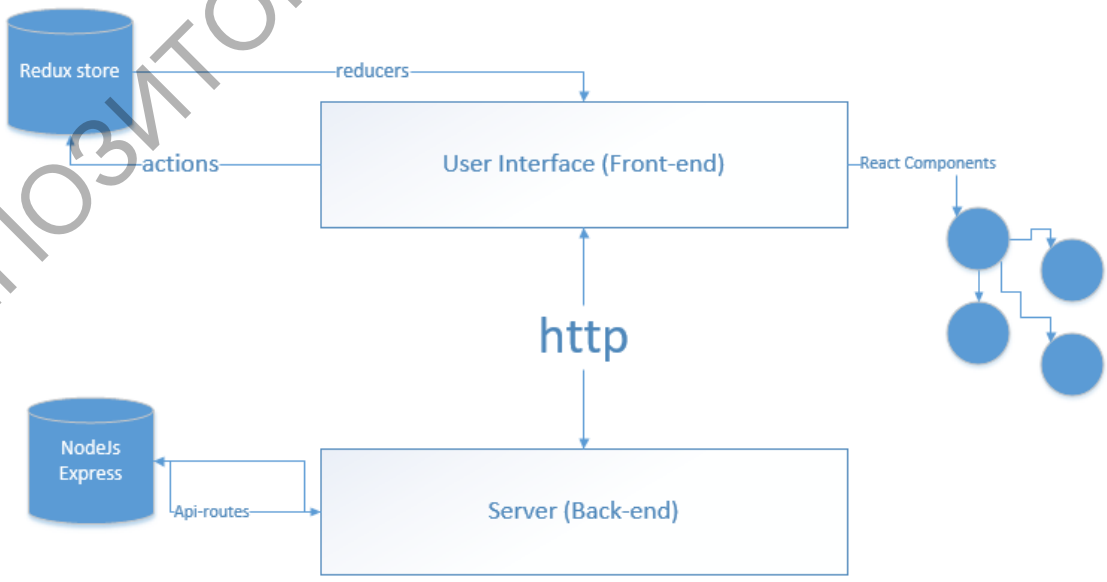
Node.js is an open-source, cross-platform JavaScript run-time environment for executing JavaScript code server-side. Node.js enables JavaScript to be used for server-side scripting, and runs scripts server-side to produce dynamic web page content before the page is sent to the user's web browser.

In my project I used one of the most popular NodeJS frameworks – Express. It allows to make different api-routes to handle different http queries. I had some main routes such as ‘/user/login’, ‘/user/registration’, ‘/car/search’ and etc.

So my main project structure was made with the help or React, Redux, NodeJS and Express.

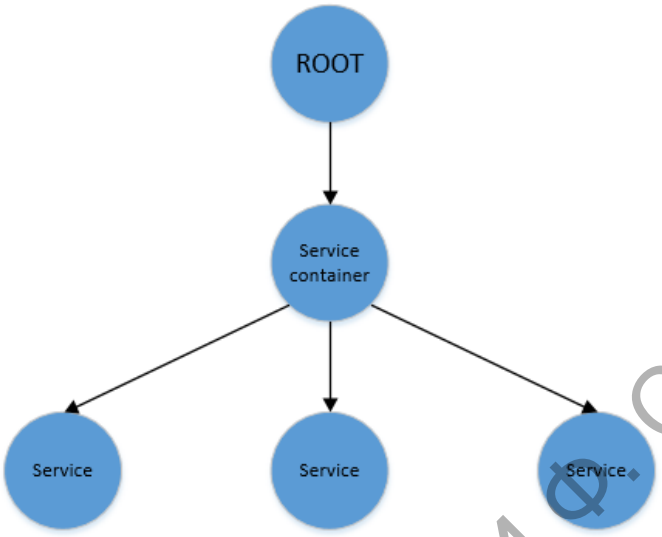
Main idea is to manipulate with server via http queries and api-routes, server goes to main data base, checks, gets or inserts data and later gives the response back to the front-end part, where Redux store catches data-changes, and then gives pieces of data to different components.

React components (stateful) check data difference between current state and previous state. And then pass data down to the child stateless components. (Picture 1)



Picture 1 – Project structure

Project data flow is based via components. Entry point is a ROOT component, which will contain Service container component and inner-based Service components. (Picture 2)



Picture 2 – Project data flow

Overall, project describes basic concepts and processes of routine maintenance. Project contains modern JavaScript frameworks, related to modern designed architecture of the automated system.

Potential automated system was compared to existing ones in many scopes and processes. The course project has shown importance of this system in the current moment of time.

The system design proves its scalability, flexibility and customizability. It provides finest user experience to the users making their maintenance easy and fast.

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AUTOMATION OF ACCOUNT OF HOURLY LOAD OF DEPARTMENT TEACHERS

There is a sufficient number of software products that automate the processes of compilation, processing, distribution and information in the process of transfer of workflow in the work of universities, as well as solutions to the hourly load of teachers in the department. The main goal of this project was to create a better application, taking into account the task, excluding the load on the system with extra functionality.