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на тему

**«Розробка веб-додатку з використанням фреймворків на
основі аналізу їх ефективності»**

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ANNOTATION

The master's thesis on the topic 'Development of a web application using frameworks based on the analysis of their effectiveness' is aimed at studying the features of using modern frameworks to create interactive web applications.

The subject of the study is the capabilities and functional features of the React framework for developing web applications that meet modern requirements for performance, adaptability and user friendliness.

The paper provides a theoretical analysis of popular frameworks such as Angular, Vue.js, and React for creating web applications of various levels of complexity. The architecture, functionality, and practical advantages of each of them are considered in detail. The choice of React as the optimal framework for the implementation of the set tasks is substantiated.

The practical part includes the development of a web application using React that meets the following functional requirements

- creating a data collection form with client validation;
- development of an admin panel for viewing the collected data;
- ensuring the adaptability of the interface; - implementation of libraries for smooth scrolling and interactivity.

Based on the implemented application, we conducted testing that confirmed the high performance and reliability of the developed solution. All components are organised according to the principles of code reuse and component approach, which facilitates the expansion of functionality and project support.

The purpose of the study is to explore the capabilities of the React framework and develop a web application that will demonstrate the effectiveness of its use for creating modern software solutions.

The results of the study can be useful for developers who create web applications and for organisations seeking to optimise business processes with digital solutions. The thesis emphasises the importance of modern frameworks in the development of web

technologies and confirms their effectiveness in creating adaptive, functional and intuitive applications.

The **object of research** is the process of creating web applications using modern frameworks.

The **subject of the study** is the functional features and technological capabilities of the React framework in the development of interactive, adaptive and productive web applications.

The work includes:

- analysis of the advantages and disadvantages of popular frameworks (Angular, Vue.js, React) in the context of their use for web application development;
- studying the architectural principles of the React framework;
- development of a functional web application using React that meets modern requirements for performance, interactivity and adaptability.

The practical component includes the development of a web application that contains:

1. Functional elements:

- o A data collection form with client-side validation;
- o Administrator panel for viewing the information received.

2. Non-functional elements:

- o adaptive design for different types of devices;
- o interactivity and smooth scrolling with the use of additional libraries.

The scientific novelty of the work is to improve the process of selecting frameworks for developing web applications by analysing their effectiveness. For the first time, the study demonstrates in practice how optimisation through the component-based approach in the React framework can reduce development time and costs while maintaining high performance and interface quality.

The practical significance of the study is that the results of the work can be used in real projects to develop web applications with a high level of adaptability and interactivity. The proposed approach helps to optimise the development process and ensures the effective implementation of digital solutions in business. The thesis

demonstrates the potential of the React framework in creating modern web applications that meet high quality and user experience standards.

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