REPORT

On

Professional Practice in It Project

Submitted

In partial fulfilment

For the award of the Degree of

Bachelor of Science

in Computing in Software Development (year 3)

Submitted By:

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GitHub Repository Link = https://github.com/keemo01/PPIT_PRO

Department of Computer Science

Candidate's Declaration

I hereby declare that the work being presented in the project report, entitled "Cryptonite", in fulfilment of the Professional Practice module, is a record of our investigations carried out under the guidance of the Department of Computer Science.

Contents

Introduction

Project Idea

As part of my college project, I have decided to utilize the technology that I have learned over the past three years to develop a web3-powered crowdfunding application for cryptocurrencies. This application will enable users to conduct transactions on the blockchain, which will be permanently recorded and associated with a specific crowdfunding campaign. It will also provide users with the latest news on cryptocurrency.

One of the key features of this platform is that it will enable users to fund various projects such as opening restaurants or building cars from scratch. The homepage will allow users to create their own campaigns by clicking on "Create Campaign," and view their previous campaigns by clicking on "Profile."

Once a user clicks on a particular campaign, they will be able to see information such as the campaign's creator, the motivation behind the campaign, and a list of donors. They will also be able to complete the funding transaction by using MetaMask, which will appear on the screen. The platform will also display the number of days left in the campaign, the amount of money raised, and the number of backers.

It was important for me to ensure that each transaction is associated with a specific crowdfunding campaign website, which will monitor the current price of Ethereum. This will ensure that users can easily track their campaigns and make informed decisions about their investments.

Requirements for this App

Must have minimum 5 components

- ***Create a campaign an have a unique blockchain Id***
- ***User Authentication and Verification:*** ***Your crowdfunding application must have a user authentication and verification system in place. This ensures that only legitimate users can access the platform and that their identities are verified, thereby minimizing fraudulent activities.***
- ***Payment Gateway Integration:*** ***A crowdfunding application must have a secure and reliable payment gateway integration system. This allows users to easily make donations and payments without any complications or issues.***
- ***Reporting and Analytics:*** ***Your crowdfunding application must have reporting and analytics feature that provides users with insights into their fundraising campaigns. This will enable them to track their progress and make informed decisions to improve their campaigns.***
- ***Social Media Integration:*** ***Your crowdfunding application must have social media integration features. This will help users share their fundraising campaigns on various social media platforms and increase their reach and visibility.***

- ***Customer Support:*** ***Your crowdfunding application must have a robust customer support system. This will help users resolve any issues they may encounter while using the platform and ensure a smooth and satisfactory experience.***

System Requirements

• *Visual Studio Code*

• *Google Chrome*

• *Command Prompt*

• *Windows 10*

Technologies used and why:

For this project I used many technologies which I've listed below:

- *I used typescript and JavaScript as it's a popular language when it comes to web development.*
- *I used ReactJs to build my UI.*
- *I implemented web3 so I can connect to MetaMask and send and receive crypto.*
- *I added chartJs so I can see the live price of Ethereum as it's the crypto coin used for this crowdfunding application*

Why JavaScript & typescript:

In my web 3.0 crowdfunding application, I utilized several technologies to create a modern and efficient platform. Firstly, I selected TypeScript and JavaScript as the programming languages for the project due to their popularity and widespread use in web development. Using these languages allowed me to easily incorporate various libraries and frameworks to enhance the functionality of the application.

Why React:

To build the user interface of the application, I chose to use ReactJS, a popular JavaScript library for building dynamic and responsive user interfaces. ReactJS provided me with the necessary tools to create an interactive and user-friendly crowdfunding platform with its reusable components and virtual DOM rendering.

Why Web 3.0:

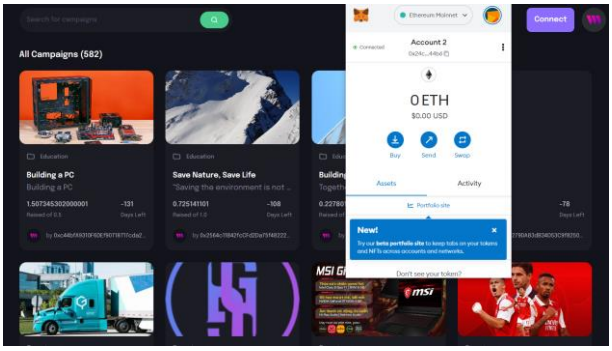
To facilitate cryptocurrency transactions, I implemented web3, a JavaScript library that enables connection to blockchain networks, including Ethereum, which is the cryptocurrency used in the crowdfunding application. With web3, I was able to connect to MetaMask, a popular cryptocurrency wallet, to facilitate seamless sending and receiving of cryptocurrency on the platform.

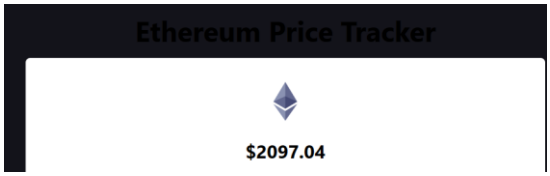
Why Chartjs:

Additionally, I added ChartJS to my application to display the live price of Ethereum in real-time. ChartJS is a popular open-source library that provides interactive charts and graphs for data visualization. With this library, I was able to display the fluctuating price of Ethereum on the platform and provide valuable information to investors and participants of the crowdfunding campaign.

Conclusion:

In conclusion, the technologies used in my web 3.0 crowdfunding application were carefully selected to provide a modern and efficient platform for users. TypeScript and JavaScript were used for their popularity in web development, while ReactJS was used to build a dynamic and responsive user interface. Web3 was implemented to facilitate cryptocurrency transactions, and ChartJS was utilized to display real-time price information to investors.





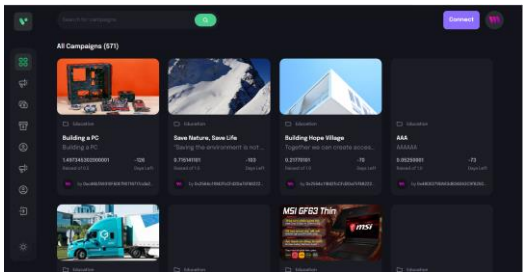
Design Methodologies Implemented:

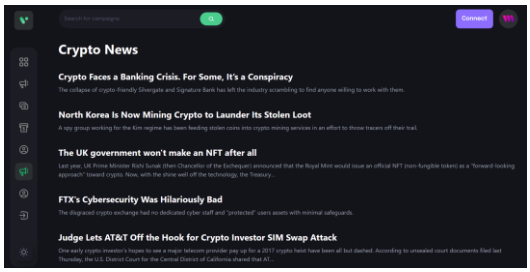
To create a user-friendly and modern crowdfunding application, I focused on developing a simple and intuitive design that facilitates easy navigation between pages. This involved designing a straightforward navbar that guides users directly to their intended pages upon clicking. Additionally, I incorporated colour schemes that enhance user engagement and involvement on the platform.

To accomplish these design goals, I had to consider the target audience, which included age group, gender, and familiarity with cryptocurrency.

- *Age Group*
- *Male/Female*
- *New people interested in crypto/ People that already know about crypto*
- *What makes my website different to others?*

By answering these questions, I created a crowdfunding application that caters to the needs and preferences of my target audience, primarily the younger generation between the ages of 18-28 who seek a hassle-free platform.





Project Management Cycle:

As a solo project manager for a crowdfunding application, I followed a structured project management cycle to ensure the success of the project.

Planning Phase:

During this critical phase, I worked closely with the relevant stakeholders, including the marketing, development, and finance teams to define the scope, goals, and objectives of the project. We all came together to make sure that the project was aligned with the overall company strategy. We also conducted extensive research on the market trends and user needs to ensure that the application would meet the needs of our target audience.

After getting a clear understanding of the project scope and objectives, I created a detailed project proposal that outlined the key features of the crowdfunding application. This proposal included a breakdown of the different components of the application, such as the user interface, payment processing system, and social media integration. I also included a timeline for the project, outlining the different milestones and deliverables.

Once I completed the project proposal, I shared it with my supervisor for their feedback and revisions. We had several discussions about the proposal, and my supervisor provided valuable input on how to

improve the project plan. I took this feedback seriously and made several revisions to the proposal, refining the scope of the project and defining clearer objectives.

Throughout the project, I scheduled weekly meetings with my supervisor to discuss progress and determine the next steps. During these meetings, we reviewed the project plan, discussed any issues or challenges that had arisen, and identified areas where we could improve the project. With the help of my supervisor and the stakeholders, I was able to ensure that the project was completed on time and met the needs of our target audience.

Requirements Phase:

In order to develop the crowdfunding application, I dedicated a considerable amount of time to identifying specific, measurable, achievable, relevant, and time-bound (SMART) requirements that would ensure the application was accessible and user-friendly for all users. Not only did I focus on the technical aspects of the app, I also took into account the overall user experience by ensuring that the user interface (UI) was easy to navigate and that the website loaded quickly and was secure. These factors are critical when developing an application that is expected to cater to a diverse audience, and I made sure to take extra care to ensure that all users could use the app without any hindrances.

Implementation Phase:

In the implementation phase, I started coding and creating the crowdfunding application based on the requirements identified in the previous phase. I used appropriate technologies and frameworks to optimize and well-document the code for future updates and maintenance. Regular testing was conducted to meet the required standards. During this phase, I also conducted research to identify the best practices in crowdfunding application development and incorporated them into the project.

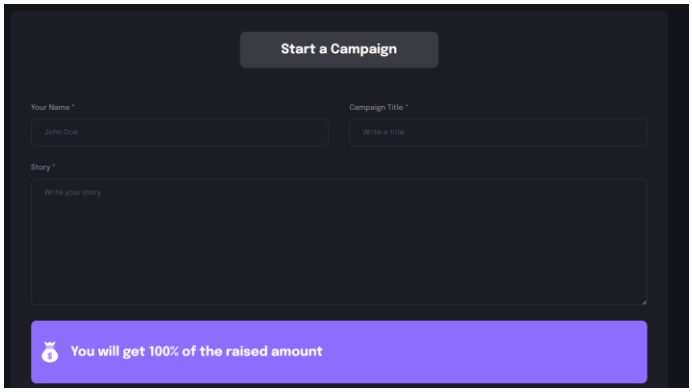
Monitoring and Controlling Phase:

In the monitoring and controlling phase, I monitored the progress of the crowdfunding application development and aligned it with the project's goals and objectives. I identified potential risks or issues and developed a mitigation plan to address them. Regular communication with the supervisor and other stakeholders ensured that the project stayed on track. Additionally, I conducted continuous user testing and gathered feedback for the application to improve its functionality and user experience.

Closing Phase:

After ensuring that the completed crowdfunding application met the user's needs, I delivered it to the client or target audience. I conducted a post-project review to assess the project's success and identify areas for improvement in future projects. During this phase, I also created user manuals and training materials to help users understand and utilize the crowdfunding application. Finally, I archived all project documentation and made the code accessible to future developers for potential updates and improvements.

For the create a campaign part I made it a simple design and user friendly you enter your name the photo you wish to use for the photo for your campaign



Testing Plans:

Platforms

Our application will be available on both mobile devices and as a web app, which requires extensive testing to ensure all features work properly and are the appropriate size for each platform.

Validation

Validation is an essential function of security, as it ensures that only users with the correct credentials can access the admin page. We will thoroughly test this feature to ensure that it is functioning as intended.

Security

Security is a critical aspect of any application, as numerous security breaches can ruin its reputation. We will conduct a series of security tests to ensure that there are no vulnerabilities that could allow a user to breach our orders database through the website and gain access to the admin side of the app. We will take all necessary precautions to ensure that our application is secure and user data is protected.

Maintenance:

As the creator of this crowdfunding application, I understand that maintaining the project is crucial for its long-term success. However, before considering maintenance, I need to ensure that the project is fully completed and all bugs have been eliminated. I plan to enhance the features of the project and possibly add new ones, which would require a significant amount of time and effort. Currently, the website is only accessible on local machines and GitHub, so any bugs can be fixed and uploaded to GitHub. Unfortunately, it's not possible to release updates that would automatically update the website for all users.

Despite these challenges, I am committed to ensuring that our application remains up-to-date and functioning properly.

Limitations:

Initially, our plan for the crowdfunding website was to include a fully functional Account section that would allow users to register and log in. However, due to the fact that I had to work on the project alone, I faced significant stress and time constraints, which made it difficult to achieve all of my goals. Currently, users can successfully register and log in to the website, but they are unable to view their specific holdings because I did not have any help during the development process. Although everyone can still add, update, delete, and view data stored on the database, they cannot see individual data. We will work to address this limitation in the future.

One of the major challenges I encountered during the project was implementing the login feature. It took a lot of time and effort to address the numerous errors and issues that arose, and I had difficulty retrieving data from the MongoDB schema. Ultimately, I had to do a lot of research to try and resolve the problem. However, due to the limited time available, I decided to focus on other components of the website and leave the login feature for later if time permitted. Despite these challenges, I am committed to ensuring that our application functions properly and meets the needs of our users.

Planned Future Development

Deploy to iOS/Android

After fully completing the app, we plan on deploying the app onto the mobile market. While Android has the biggest share of the market, we also want to include iOS, especially with React allowing you not needing to use Apple's own app language (Swift). We can also expand our reach by looking into developing on other platforms such as Windows and Mac OS.

Expansion

If my website grows, we might need to use our own database that’s stored on a separate machine and not using an online service. We can also implement new features to provide more options for the user to customize their experience. For example, we could add a feature to allow users to track their donations and contributions made to their favorite projects. We could also add social media integration to allow users to share their favorite projects with their friends and followers.

User Feedback

You can get tunnel vision when developing when designing any piece of software and you always need another set eyes to help you see the whole picture. User feedback is very valuable and can help you create the best app you can, and I would seek to get more user

feedback in the future. One way to do this is by conducting user surveys to gather feedback on what users like and dislike about the app. We can also implement a feature to allow users to give feedback directly within the app, making it easier for them to share their thoughts.

Conclusion:

In conclusion, this crowdfunding project was a challenging but fulfilling experience. Throughout the project management cycle, I was able to develop critical project management skills such as planning, requirements gathering, implementation, monitoring and controlling, and project closure. Despite the challenges I faced in working on the project alone, I was able to create a functional crowdfunding application that met some of the key requirements I had set out in the planning phase.

Going forward, I plan on continuing to develop my skills as a project manager and web developer. I will look for opportunities to collaborate with others to further improve the crowdfunding application and create new projects. I am excited to see where this journey takes me and what new challenges and opportunities lie ahead.

References:

https://medium.com/@melsatar/software-development-life-cycle-models-and-methodologies-297cfe616a3a

https://colibriwp.com/blog/website-layout-design-ideas/

thirdweb: The complete web3 development framework

The crypto wallet for Defi, Web3 Dapps and NFTs | MetaMask

JavaScript Auto-filling one field same as other - GeeksforGeeks