Cryptocurrencies

by

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5. Topic

Cryptocurrencies, blockchain, blockchain technology, blockchain in Java.

* 1. Problem

Amidst the emergence of blockchain technology, a lot of misconceptions have arisen about cryptocurrencies; what they are and what they do. This project sets out to clear some of these misconceptions and to provide clear preliminary information about blockchain and cryptocurrencies in general.

The biggest problem was the start of the website, and how to create a tracker capable of collecting information to show it to the user in a table. Cryptocurrency research was necessary to find out what our top 10 would be. None of the group had the right skills to fully do the project, but we were all able to learn in the process.

* 1. Motivation

The inspiration behind the project emerged as a curiosity to know more about the world of cryptocurrencies, about what they really are and what are their uses. As well as to put in practice some of our collective skills, like .html programming, JavaScript, Java and investigation skills.

* 1. Description

A web-based page to serve as preliminary reference for cryptocurrencies: the technology behind them, uses, misconceptions; as well as detailed information about exchange rates of cryptocurrencies in real-time using JavaScript applications.

* 1. Scope

The project is a preliminary dive into the world of cryptocurrencies. Its purpose is to share information that serves as a basis to understanding what this new technology is, what it is not, and some of its applications.

The topic can be expanded into more complex areas which can include hosting sites for cryptocurrencies investment, a more powerful tracker of cryptocurrencies exchange rates and more complex and detailed coding material for individual use and hands-on approach.

It is not, however, a site to exchange, mine or sell crypto currencies. The project merely illustrates and compiles some of the information freely available on the internet about the topic, and all source materials were cited in their corresponding sections. All credit goes to the creators and the information presented is merely for educational purposes.

1. Teams and Tasks

Byron Ordonez: his responsibility was to gather information about the topic, as well as drawing a plan of action and collect sources and all materials that were used in this project. He is the author of the main page article, which depicts some of the preliminary information about the world of cryptocurrencies: analysis, applications and some of the most relevant cryptocurrencies currently in the market.

Dewill Melendez: he designed the Tracker section, which collects raw data from a hosting site and displays it in table format with information such as current value of individual cryptocurrencies, and their change in the previous 24 hours. This table updates every ten seconds, providing up-do-the-minute accuracy. Some of his skills include JavaScript, html and php programming.

Alvaro Viera: together with Byron he gathered information that was used in the project. He also provided logistical analysis and feedback of the manner in which this information could be laid out across the project’s sections, as well as the achievable scope of the project. He also helped in the design of the website by providing images, scripts and much needed feedback.

Eric Mateo: designed the website, its sections and aesthetic appearance in a manner that is compelling to the topic. Some of the skills used in this project: html, JavaScript, CSS, php programming. As well as minor Java programming for the blockchain demonstration which is to be included in the final presentation.

1. Project Breakdown
   1. Architecture

The project is a website hosted on Kean’s Eve server. It includes 5 sections:

Main section

Blockchain section

Code-it section

Tracker section

Where to invest section

About-us section

**Main section**

Contains an article that serves as preliminary information about cryptocurrencies. Some of the topics in this material are what are cryptocurrencies, how they work, what is blockchain technology and top 10 cryptocurrencies to know in 2021.

**Blockchain section**

Contains an animated video that briefly explains the inner workings of blockchain technology and its uses.

**Code-it section**

Contains coding material to be used to create a basic blockchain in different programming languages. They include Java, JavaScript, C++ and Python. The coding in this section was taken from other sources. All credit goes to their respective creators.

**Tracker section**

This section contains a table that provides information about the current state of the top 10 cryptocurrencies: value and change over the last 24 hours. This table refreshes every 10s to keep up-to-the-minute accuracy.

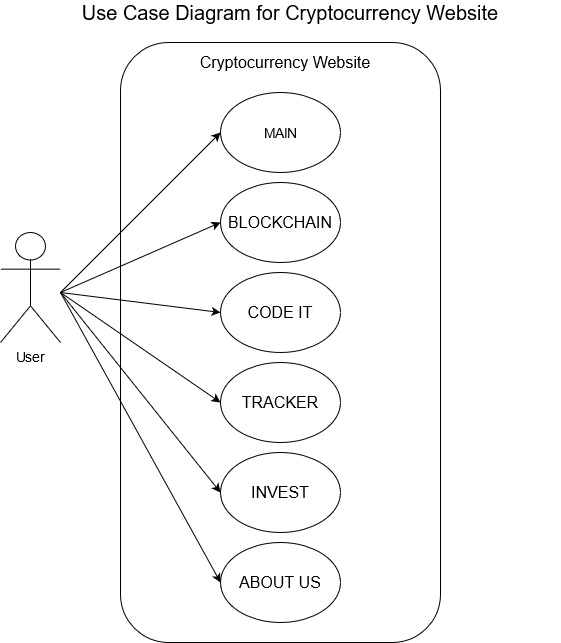
**Invest section**

This section gives the reader three websites that can be used to buy, sell, or trade cryptocurrencies by just signing in and providing a payment method.

**About-us section**

This section contains information about the objective of the page and its creators.

* 1. Data Analysis



**Code samples.**

Text

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Fig. 1- Source code sample of Tracker page.

Text

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Fig. 2 – Sample of the CSS

A picture containing text, monitor, screenshot

Description automatically generated

Fig. 3 – Sample of the PHP document that collects cryptocurrencies prices.

Text

Description automatically generated with medium confidence

Fig. 4 – Simple explanation of blockchain

Source:

<https://medium.com/programmers-blockchain/create-simple-blockchain-java-tutorial-from-scratch-6eeed3cb03fa>

Text

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Fig. 5 – Basic implementation of blockchain in Eclipse Java.

**Website Sections and Timeline of the Project.**

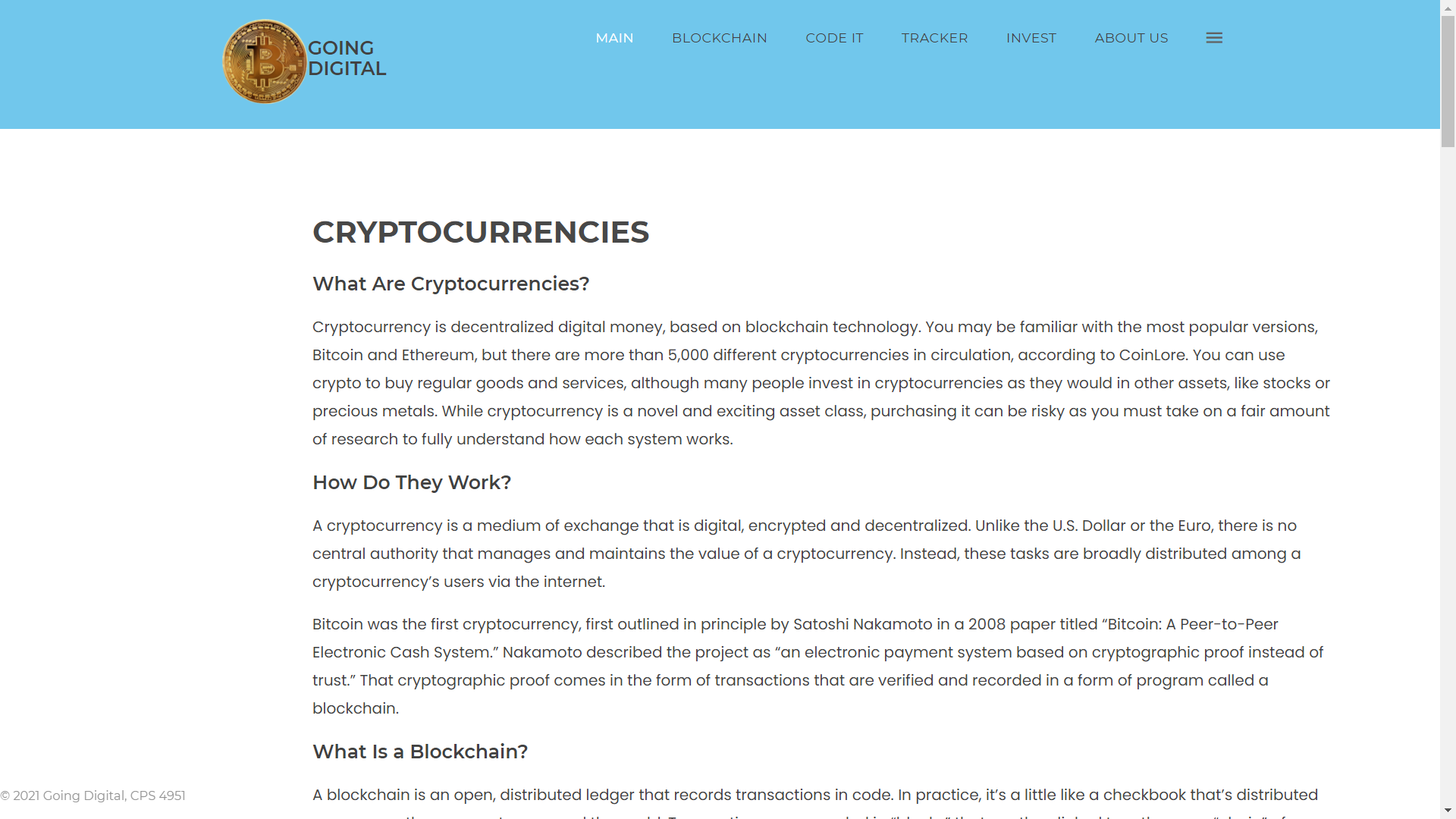
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Fig. 1- Main page article

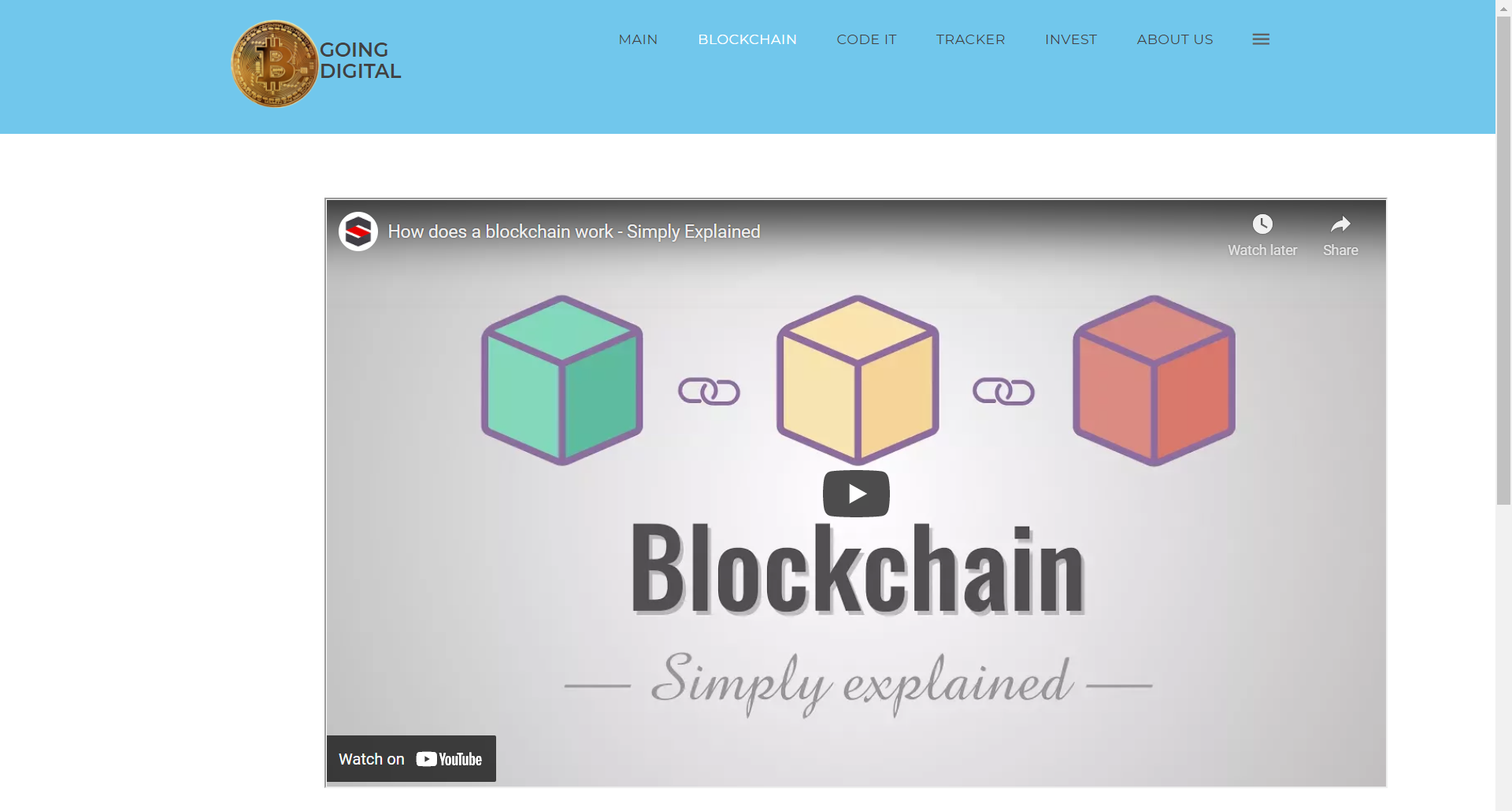
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Fig. 2 - Blockchain section

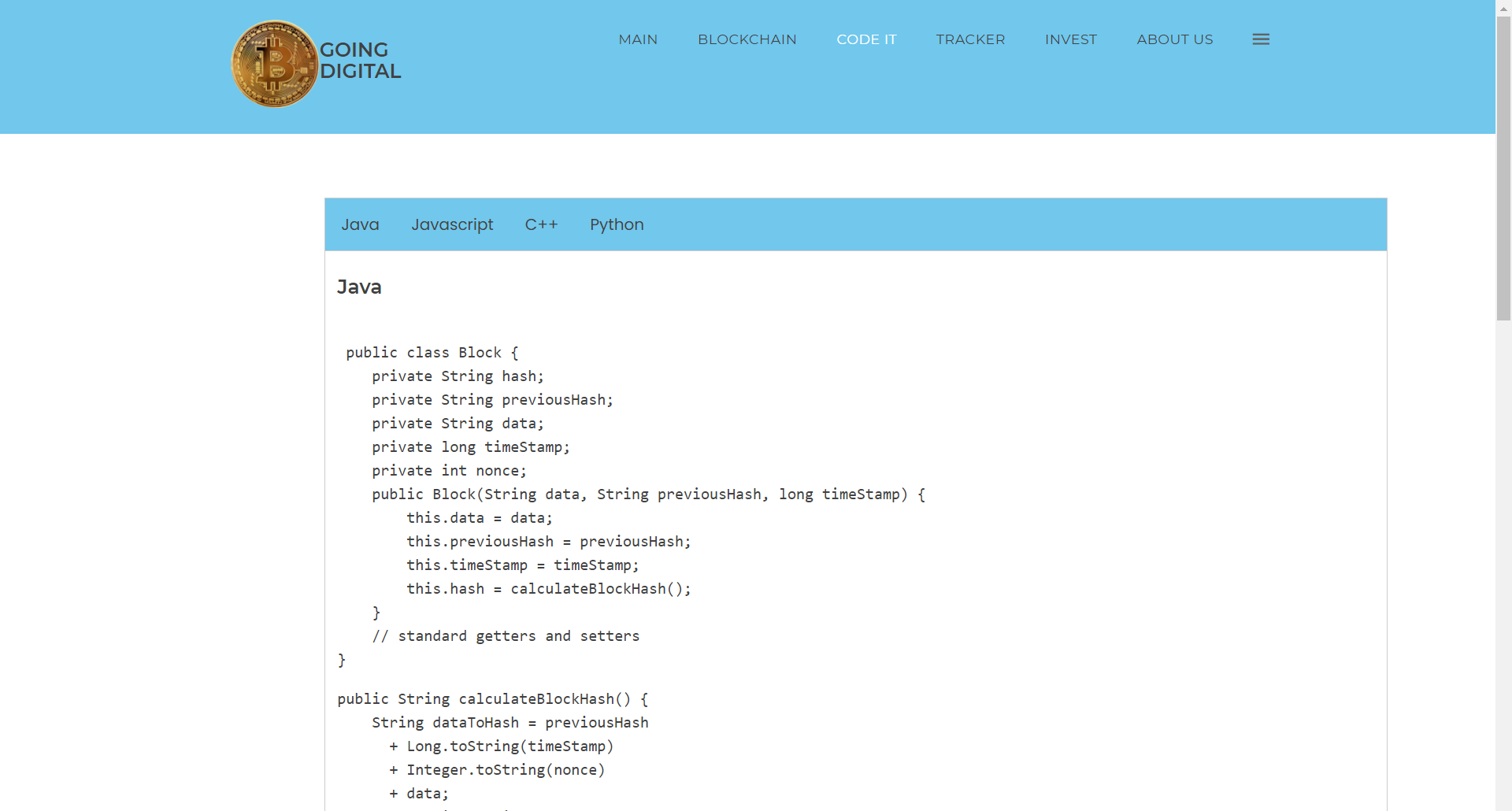
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Fig. 3 - Code-it section

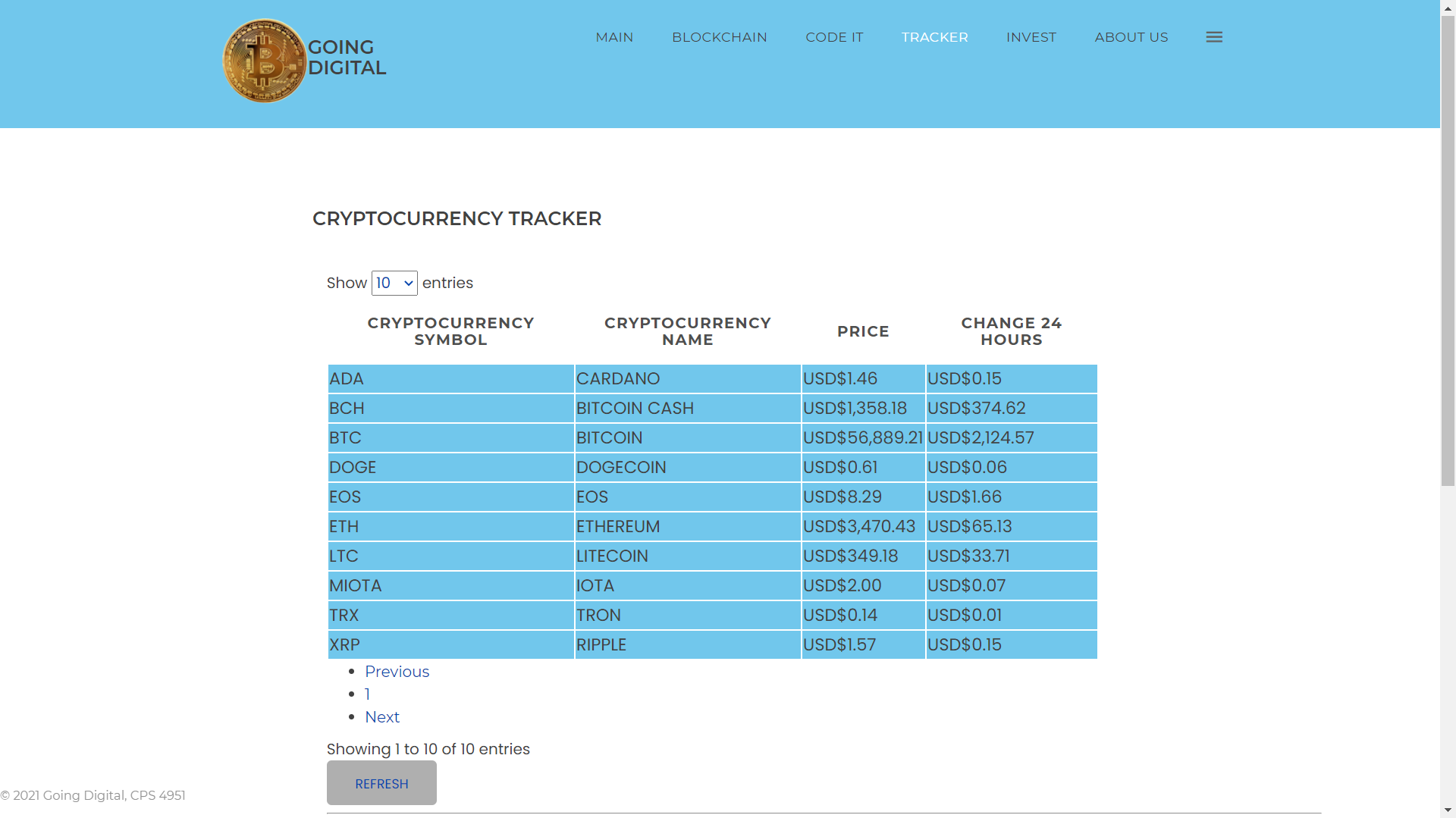
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Fig. 4 - Tracker section

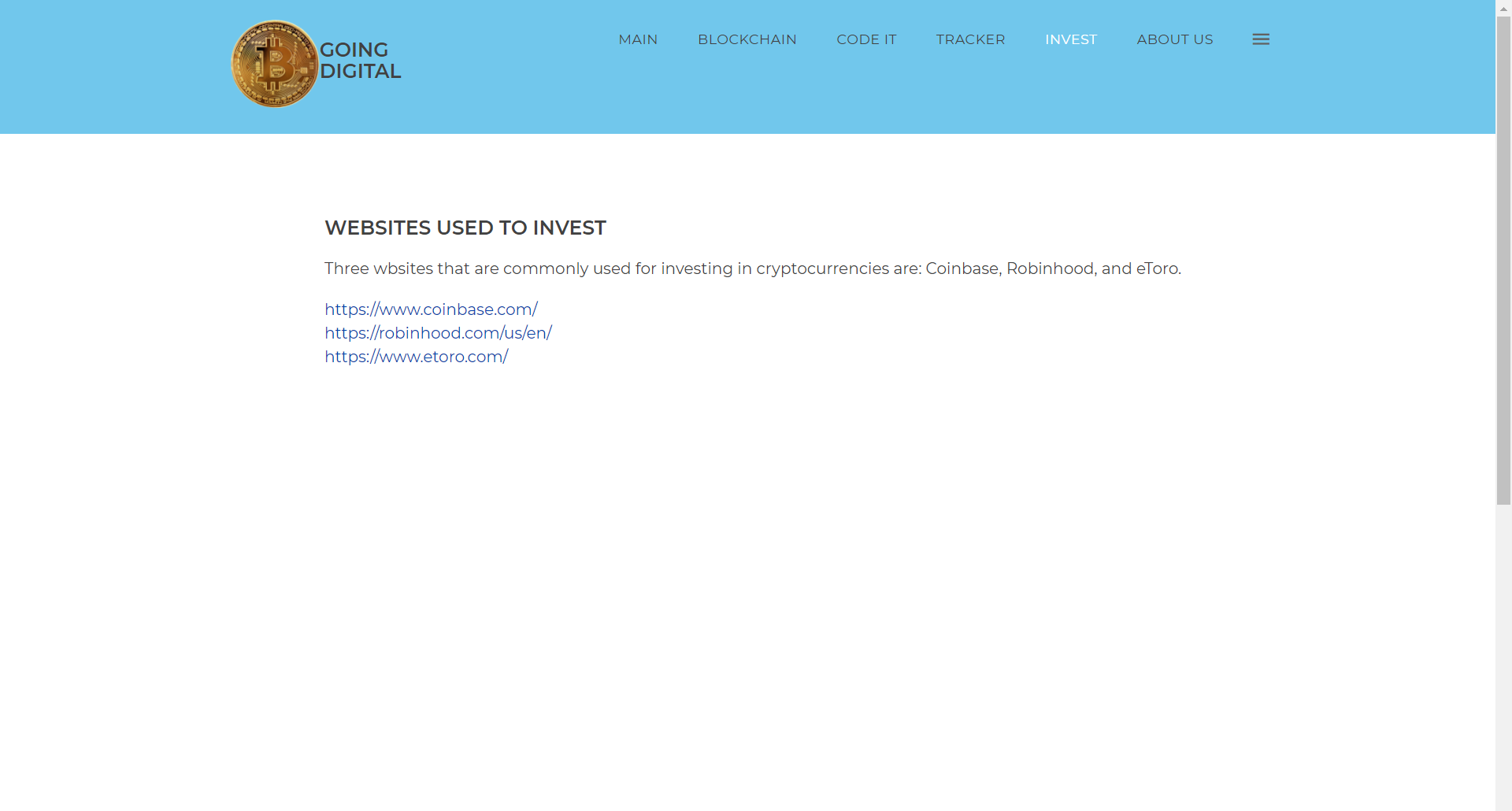


Fig. 5 - Invest section

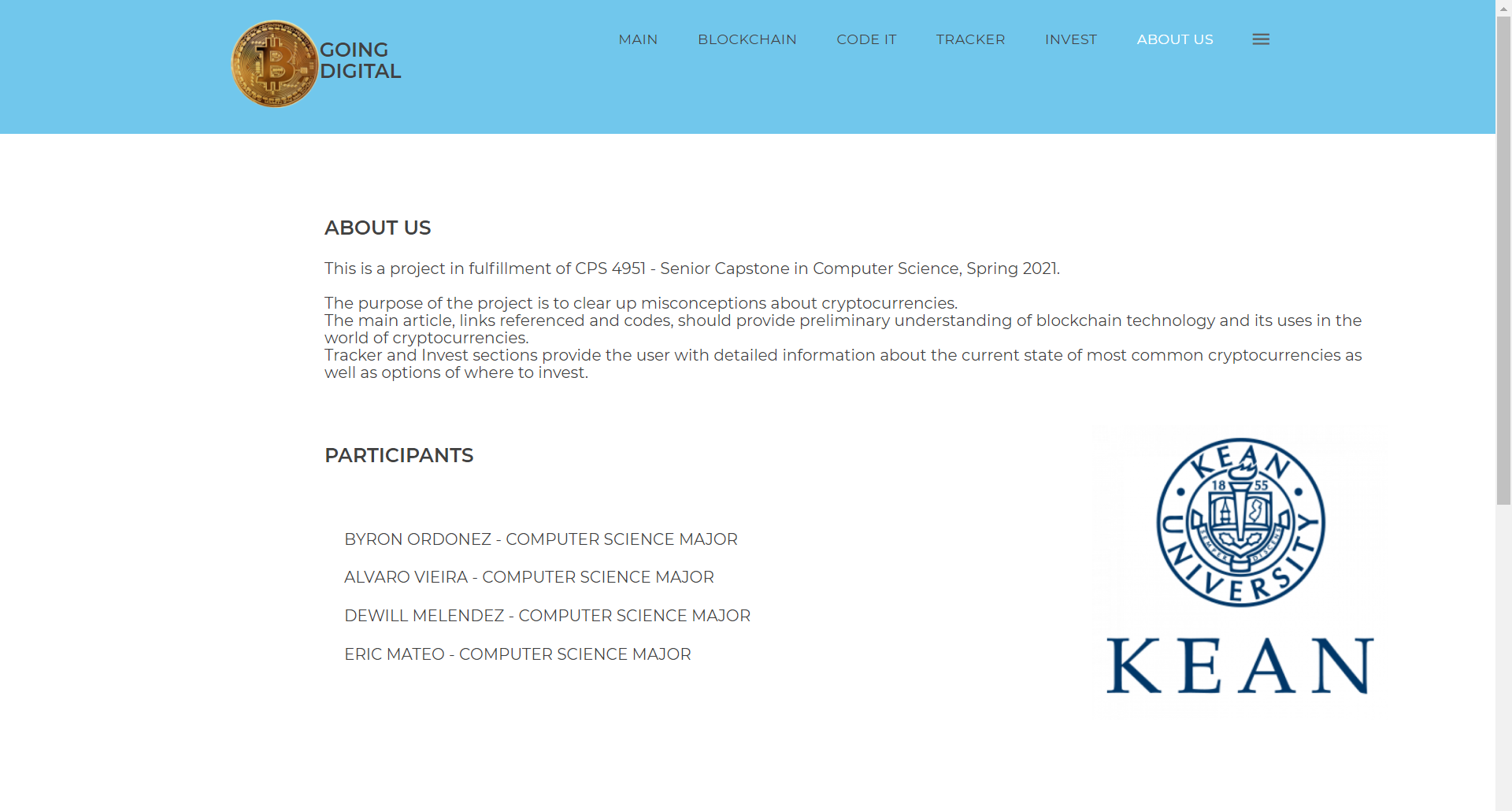
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Fig. 6 – About us section

Chart

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Fig. 6 – Timeline of the project

1. Challenges and Takeaway

Discuss which parts of the project proved most difficult and why. Also discuss the less useful or practical portions, as well as elaborating on any obstacles you faced and how you overcame them. Explain how your project plans changed and why. Describe what you learned.

The tracker section was the most difficult throughout the whole project. Mainly because of our php programming skills at the time, and the time constraints that other class projects, family and work responsibilities presented for each of the participants. But it also helped us expand our skills and make use of them, at least for a basic project such as this.

The least practical portion of the project was the blockchain section. Currently it only includes a brief video (not made by us) that explains blockchain technology. This section could have been moved someplace else on the website or been expanded upon with more content. It stayed that way because we had many ideas that could not be implemented due to time constraints. Initially, the idea for this section was to contain more sophisticated information about blockchain technology after the reader had read the main article. The video was going to be part of the main article, and this section would be filled with more engineering-based articles and illustrations about the inner workings of blockchain, as well as other topic-related articles like hash functions, cryptography and distributed technologies.

All these ideas had to be scrapped due to time limitations and to keep a realistic scope of what could be achieved with this project with current skill levels, available information and technologies. To go through all the information that would result of further diving into the topic would have been an insurmountable feat.

However, the knowledge acquired for this project can be applied to other projects. The materials, information and coding are valuable assets for future references. And finally, this topic serves as inspiration for all of us that want to dive deeper into this technology and get involved with it in our future professional paths.

1. Future work

Discuss changes that could improve the project. Include potential features that would enhance any aspect of the system (how and why), advancements that could be possible with increased resources and any other improvements that would enhance the current state of the project.

As stated above, the blockchain section could be expanded to include further information about blockchain technology and related articles for more knowledgeable users to read into.

The coding section could be expanded to include more advanced material, with more detailed steps and links to GitHub so users could test their skills and understanding of the topics gathered in the previous sections.

The tracker section has the potential to be expanded to include many more cryptocurrencies, not just the top 10. As well as more detailed graphic information such as graphs, icons and parameters.

1. Additional Notes

The languages used in this project:

* JavaScript
* HTML
* PHP
* Java

Applications used:

* Sublime Text
* Notepad++
* Visual Studio Code
* Eclipse IDE
* SSH Secure File Transfer Client

Hosting website:

Eve.kean.edu

1. References

**Main page article**

[1] Luke Conway. 2021. The 10 Most Important Cryptocurrencies Other Than Bitcoin. (January 19, 2021). Retrieved March 2, 2021 from

<https://www.investopedia.com/tech/most-important-cryptocurrencies-other-than-bitcoin/>

[2] Wikipedia.org. 2021. Bitcoin. (April 25, 2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/Bitcoin>

[3] Ripple.com. 2021. XRP: The Best Digital Asset for  Global Payments. (2021). Retrieved April 28, 2021 from

<https://ripple.com/xrp>

[4] Wikipedia.org. 2021. Ethereum. (April 25,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/Ethereum>

[5] Wikipedia.org. 2021. Dogecoin. (April 26,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/Dogecoin>

[6] Wikipedia.org. 2021. Binance. (April 25,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/Binance>

[7] Wikipedia.org. 2021. Cardano. (April 24,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/Cardano_(cryptocurrency_platform)>

[8] Wikipedia.org. 2021. Litecoin. (April 26,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/Litecoin>

[9] Wikipedia.org. 2021. Bitcoin Cash. (April 25,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/Bitcoin_Cash>

[10] Wikipedia.org. 2021. Tron. (April 25,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/TRON_(cryptocurrency)>

[11] Wikipedia.org. 2021. EOS. (April 25,2021). Retrieved April 28, 2021 from

<https://en.wikipedia.org/wiki/EOS.IO>

**Blockchain**

Simply Explained. 2017. How does a blockchain work - Simply Explained. Video. (Nov 13, 2017). Retrieved March 2, 2021 from

https://www.youtube.com/watch?v=SSo\_EIwHSd4

**Code It**

Java code

Kumar Chandrakant. 2020. Implementing a Simple Blockchain in Java. (August 13, 2020). Retrieved April 5, 2021 from

<https://www.baeldung.com/java-blockchain>

JavaScript code

Krunal. 2018. How to Create Blockchain in JavaScript. (December 14, 2018). Retrieved April 6, 2021 from

https://appdividend.com/2018/12/15/how-to-create-blockchain-in-javascript/

C++ code

Jonathan Vargas. 2018. Build a Blockchain with C++. (December 3, 2018). Retrieved April 8, 2021 from

<https://medium.com/@vargasjonathan9517/build-a-blockchain-with-c-e164d8319557>

Python code

Daniel van Flymen. 2017. Learn Blockchains by Building One. (September 21, 2017). Retrieved April 9, 2021 from

https://hackernoon.com/learn-blockchains-by-building-one-117428612f46

**Tracker**

Tracker retrieves raw data from:

<https://min-api.cryptocompare.com/data/pricemultifull?fsyms=BTC,ETH,LTC,XRP,MIOTA,DOGE,BNB,ADA,BCH,TRX,EOS&tsyms=USD&api_key=f679c0c70cac07a0a06add6df125f7fd5589a20eb1e5c4e0bfc6862f56414e6e>

**Where to Invest?**

Coinbase.com. 2021. Coinbase. (2021). Retrieved April 28, 2021 from

<https://www.coinbase.com/>

Robinhood.com. 2021. Investing for Everyone. (2021). Retrieved April 28, 2021 from

<https://robinhood.com/us/en/>

eToro.com. 2021. Welcome page. (2021). Retrieved April 28, 2021 from

https://www.etoro.com/