

Data Visualisation of Ethereum Currency

**Kittitat Bamrung**

**N00201327**

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Creative Coding Part 2

CA 2 – Bar Charts Project

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# Methodology:

These are all the method utilised in the Continuous Assignment (CA):

## If and Else Conditional Statements

The If and Else functions are both usable in the p5 library and classic JavaScript (JS) and could be called to check if a statement is true or false i.e. a Boolean. The statement also needs to be placed between the parenthesis, in order for the function to run without failed. These conditional statements will be seen throughout my code as I have to used them to show and hide my chart labels and values (fig 1).

Graphical user interface, text, application, email

Description automatically generated

Figure 1 If and Else statement to show/hide bar values and labels

They are also implemented to do the bar animation (fig 3) which increase the data’s value from 0 to a value of the bar.

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Figure 2 An if statement to animate the bars

Chart, histogram

Description automatically generatedChart

Description automatically generated

Figure 3 The translating animation(left) and resulting animation (Right)

## Min() and Max()

The min() and max() functionality are accessible when importing the p5 library into the workspace. The method simply behaves as an opt that ran through the given array and pick out if either the largest or smallest value in the array.

Figure 4 maxValue variable

Taken this statement in the candle stick chart for instance, the variable is storing the max value (fig 4) in the listValues array.



Figure 5 The output is logged in the console

The output result (fig 5) can be seen above which logged the largest number in the set.

## For loop

Graphical user interface, text, application

Description automatically generatedThe implementations of the For Loop could be seen re-occurring throughout the libraries of charts among different classes in my CA. For Loop is a P5 function which iterates through statements by the amount of time declared in the parameter. This method is used in order to extract various data to the extent of encapsulating it to a number of functions such as drawBar() method (fig 6) in the horizontal bar chart class. The class draws each bar by a specific amount received from those extracted data by giving the loop the length of the data, in this case would be the length of the array, which in turn would allow me to also add spacing between bars and display its values on top of the given bars.

Figure 6 The for loop iterating through statements

The resulting chart (fig 7) is presented below.

Chart, bar chart

Description automatically generated

Figure 7 Resulting chart

## ArrayName.map()

This function is the classic method available for usage in the array which originated in JS. The functionality of this method allows us to redesign how our array represent data in a way that diverse the data in either a minor or major manner. For instance, this function has been applied to the StackBarChart class, in which the array is called and re-mapped into a new variable. I can then pull these freshly crafted data and applied to all necessarily functions and display it to view.



Figure 8 variable containing max function

The max function of p5 is used to return the largest number and store it in the maxValue variable (fig 8).

Logo, company name

Description automatically generated with medium confidence

Figure 9 Scaling data to a new range

This variable is then used in the scaleData() method (fig 9) to re-scale the data value to the height of the chart. The result (fig 10) as shown below.

Chart, histogram

Description automatically generated

Figure 10 The result of scaleData() method

## ArrayName.reduce()

Likewise, the reduce function is a method derived from vanilla JS. This callback function allows us to derive each element in the array that has a unique condition such that, in my case, each data value encapsulated in the objects could be extracted and add to get the total value for each object in the array or to do some sort of calculations before returning the new values.

Text

Description automatically generated

Figure 11 Declaring a variable to store the data set

The function is encapsulated within the For Loop to iterate through the data array (fig 11), so that the object variable in the class can be called which in this case is the values property. The function produces outputs of previous and current array values.

Text

Description automatically generated

Figure 12 Array.Reduce method

These values are then get added together and store in a new array called tempArray (fig 12). The results has been logged to check for possible errors (fig 13).



Figure 13 The console.log of the total values

The array would be further utilised in the scaleData() method which takes in two parameter(param), in which the \_num param takes the current value inside each object in the each array index and map it to the chartHeight while the old max range i.e. \_array will be the added total value implemented using the reduce method (fig 14).

A picture containing chart

Description automatically generated

Figure 14 scaleData revised to work with stacked bar chart



Figure 15 scaleData method to used to create the bars

This is the result of the calculation and coding using the array’s reduce function (fig 16).

Chart, bar chart, treemap chart

Description automatically generated

Figure 16 Result of the calculations

# Github Repository Link:

<https://github.com/Kittitat-13amrung/CC2>

# References

* The Coding Train. (2017, October 16). *7.4: Mouse Interaction with Objects - p5.js Tutorial* [Video]. YouTube. <https://www.youtube.com/watch?v=TaN5At5RWH8>
* The Processing Foundation. (2000). *reference | p5.js*. P5 JS. Retrieved March 6, 2022, from <https://p5js.org/reference/>
* Yahoo Finance. (2022, March 6). *Ethereum Currency Data*. Retrieved March 6, 2022, from https://finance.yahoo.com/quote/ETH-USD?p=ETH-USD
* Mozilla. (2022, February 18). *Array.prototype.reduce() - JavaScript*. Mozilla.Org. Retrieved March 6, 2022, from https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global\_Objects/Array/Reduce
* *How to read candlestick charts*. (n.d.). Coinbase. Retrieved March 6, 2022, from https://www.coinbase.com/learn/tips-and-tutorials/how-to-read-candlestick-charts