CryptoCrawler

Definition

What is CryptoCrawler?

CryptoCrawler is a web scraper that displays useful information and predictions about certain cryptocurrencies. It takes relevant data from https://coinmarketcap.com/ and uses that data to preform different functions.

Why is the system important?

CryptoCrawler helps its users find trends in the cryptocurrency market and make smart investments.

Analysis

Inputs

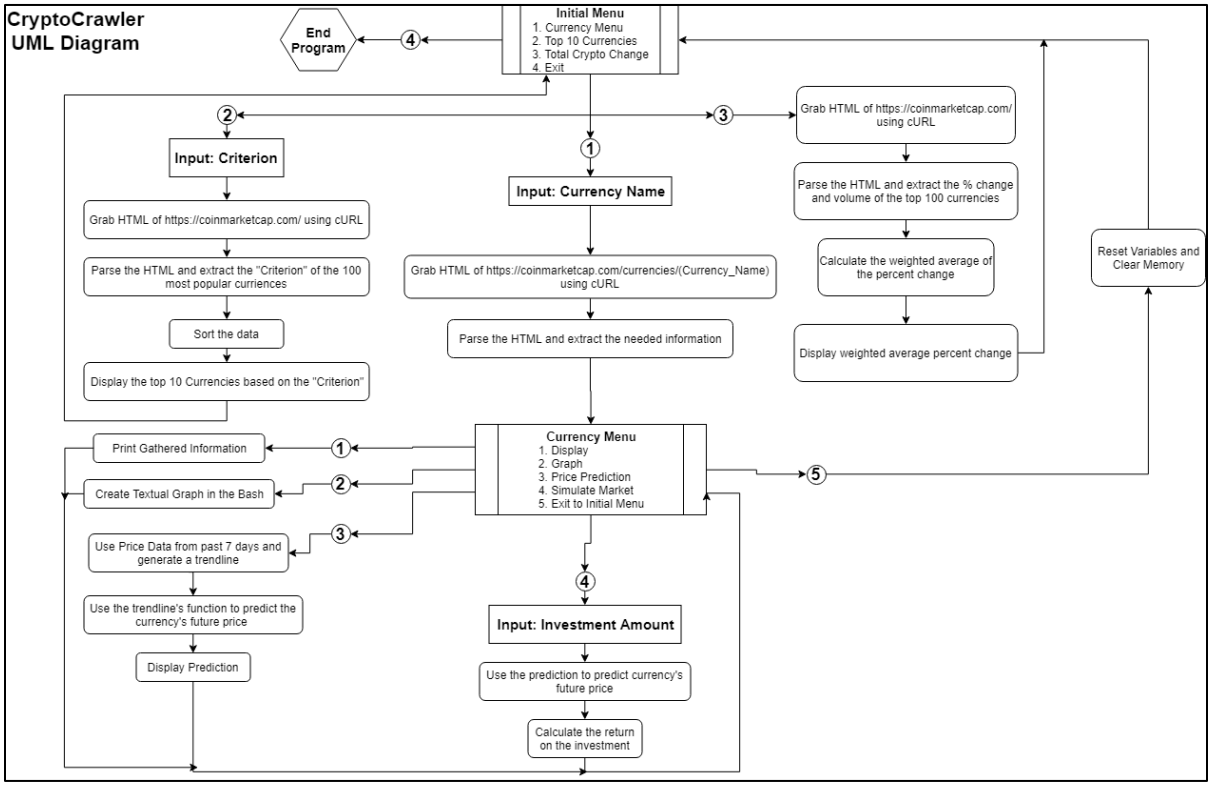
- HTML text file
  - The cURL libraries will generate a text file of https://coinmarketcap.com/ 's HTML
  - This will be parsed through to find the data CryptoCrawler needs to operate
- Menu Choice
  - Menu choice is an input that the user will use to navigate the program
  - The are two different menus that the use will operate the program
- Top Ten Criterion
  - When "Top Ten Currencies" is selected in the first menu the user will be prompted for a certain criterion that the cryptocurrencies will be sorted by
  - The different criterion are: Price, Market Cap, Volume, Circulating Supply, and Percent Change
- Cryptocurrency Name
  - When the user navigates to the second menu they will be prompted to input a cryptocurrency name.
  - This name will be used to when parsing the scraped HTML to find the data about that cryptocurrency
  - All modules that are in the second menu will use this name and accompanying data for their calculations
- Test Investment
  - When "Simulate Market" is selected the user will be prompted to input and amount of money to "invest" in a cryptocurrency.
  - This investment will be paired with the price prediction to calculate an estimated return

Outputs

- Menu
    - The program will display a navigational menu that has choices that will run different modules
- Display Top Ten
    - A list of the top ten currencies that are sorted by the inputted criterion will be displayed when “Top 10 Currencies” is selected

- Total Crypto Percent Change
    - A percentage will be displayed that represents the weighted averages of the top 100 cryptocurrencies percent change
    - This will be useful in determining if the entire cryptocurrency market is increasing or decreasing
- Display Basic Information
    - The data that is retrieved from parsing the HTML will be displayed in the console
    - The data includes the Name, Price, Market Cap, Volume, Circulating Supply, and Percent Change
- Graph
    - A graph will be displayed that plots the past 7 day’s price of a currency
    - This graph will be made of text characters and be displayed in the console
- Price Prediction
    - A simple number that represents the estimated price based on CryptoCrawler’s prediction algorithm
- Return on Investment
    - The return that is made on an investment will be outputted when the user simulates the market
    -

Logic/Flow



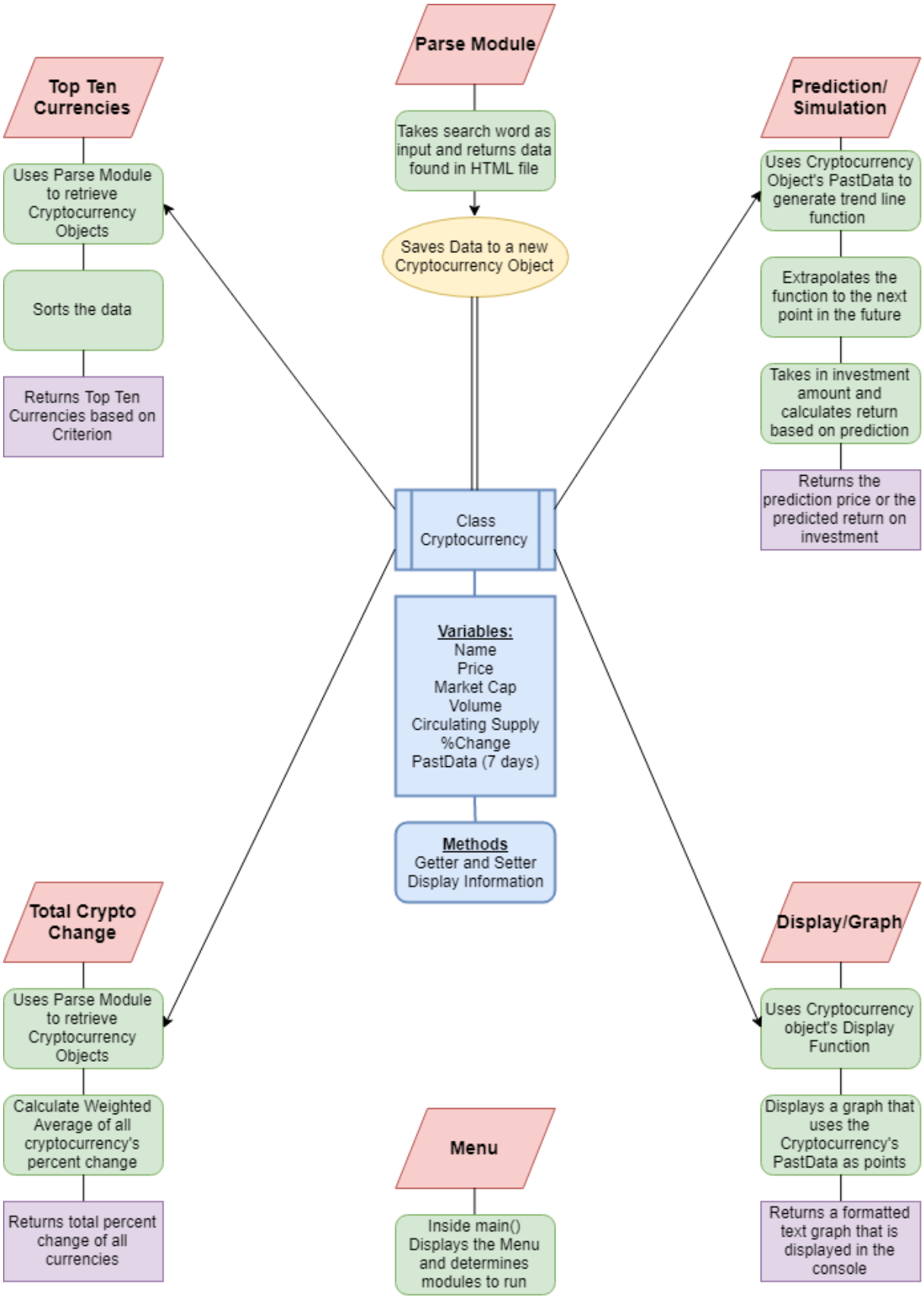
Design

Modules (6)

1. Retrieve HTML text with cURL libraries and parse the text for key phrases
    a. This will be the basis of the project and what retrieves the data for the other modules to use.
2. Menu System
    a. The menu system that the user interacts with.
3. Top Ten Currencies
    a. Uses the 1st Module to retrieve information and sort the information based on an input.
4. Total Crypto Change
    a. Uses the percent change and volume of the top 100 cryptos to generate a weighted average that can be used to compare to cryptocurrency as a whole.
5. Display/Graph
    a. Displays the basic information about the chosen currency as well as displays a graph from the prices of the past 7 days.
6. Prediction Module/Simulate Market
    a. Uses the past 7 days prices to generate a trend line that will be used to predict future price

b. Simulate Market will use the prediction module to calculate the estimated return on a given investment

Classes and Methods UML



Execution Plan

Dividing of Tasks

- Every person will get one module and one difficult module will have two people working on it
    - *Parsing Module*: Cale Fitzwater
    - *Total Crypto Change*: Rohan Kharwadkar
    - *Prediction/Simulation*: Ryan Jairam
    - *Display/Graphs:* Ben Berlin
    - *Top Ten Currencies:* Scott Richardson and Elijah Candelaria
    - *Menu:* Victor Tan

Makefile

- g++ CryptoCrawler.cpp
- Make files will only compile the files that were changed

Deadlines

Working Parse Module: March 25

Working Cryptocurrency Class: March 25

Menu: April 1

Every Other Module: April 8