Bitquote Website

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Problem Specification:

This project aims to design and create a database-driven website that compiles and displays a variety of information and data related to the digital currency, Bitcoin. More specifically, exchange prices will be retrieved from multiple sources, averaged, and displayed to the user in plain text and visually in the form of graphs that the user can modify to suit their needs. The website will also gather and store Bitcoin-related news from multiple sources: Twitter, Reddit, and forum posts. The user will be able to toggle which sources they wish to view. In addition, the user will be able to create an account and login, in order to be able to search the complete database of Bitcoin news. The website will be available in both desktop and mobile-friendly formats.

Student Objectives:

➢ Gain experience with working with existing APIs and APIs of our own creation.

➢ Practice with databases.

➢ Learning/expanding our knowledge of PHP and JavaScript.

➢ Enhance experience in design, implementation, verification, and documentation of a project.

➢ Enhance experience with in depth analysis of a project.

Benchmark Specification:

1. Fetching, storing and displaying Bitcoin exchange data in the database from various exchanges.

2. Gather relevant Bitcoin related tweets from specified Twitter users, news from Reddit, and news from Bitcointalk.com (a Bitcoin forum), store it in the database and display it on the webpage.

3. Allow searching the database.

4. Create a customizable chart of Bitcoin price data from the past n hours.

5. A login system where users can register, login and logout in a secure authentication system. The login system will store sensitive information (passwords) as salted hashes, use cookies and session IDs to control logging in and minimize the consequences of cookie theft, and aim to prevent password bruteforcing through use of a timer after n incorrect password attempts.
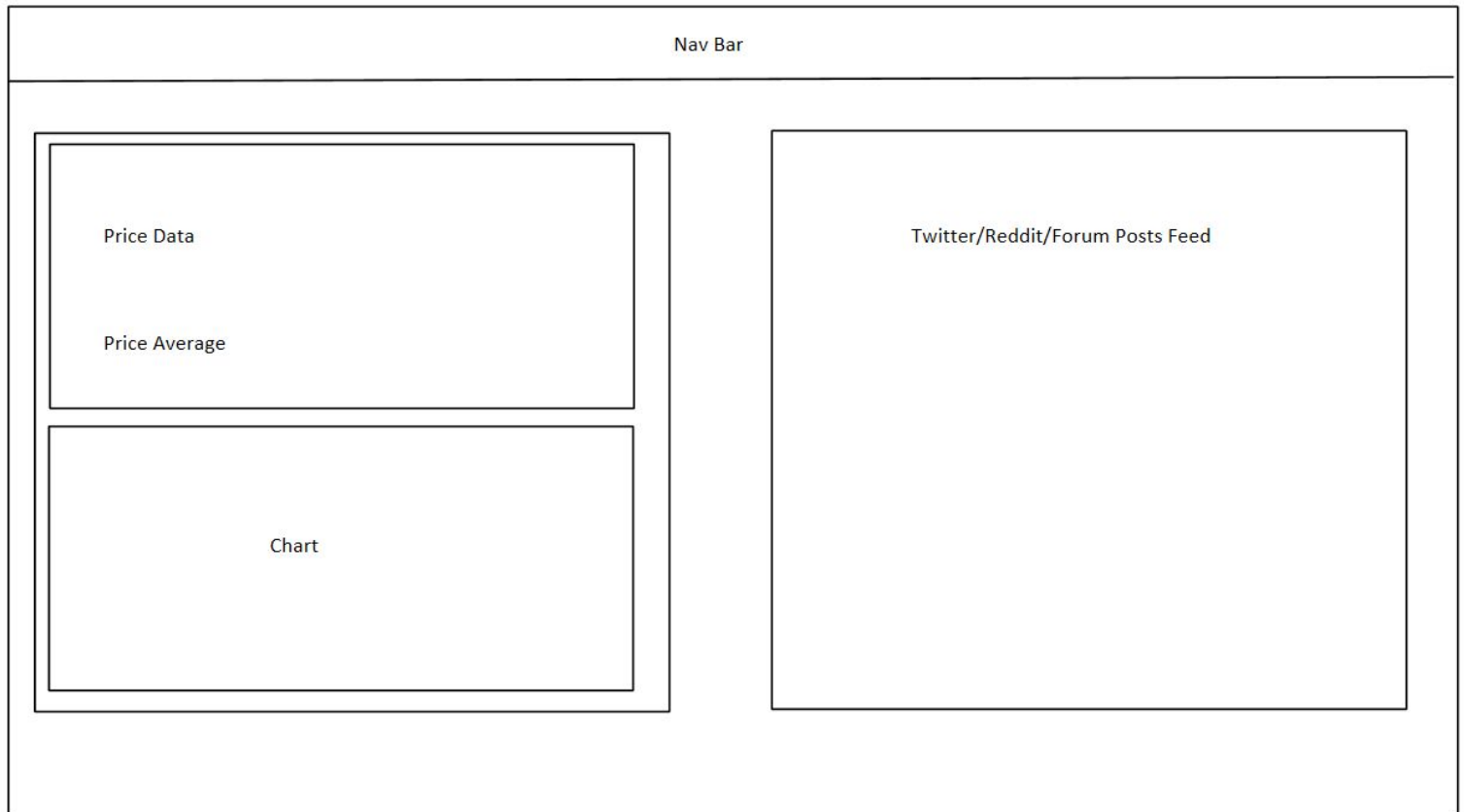
6. Create a mobile-friendly version of the website.

Tools List:

➢ PHP

➢ Javascript

➢ Notepad++/Geany

➢ Apache for hosting the website

➢ MySQL

➢ Web browser to access website

➢ Weblab server

➢ Git

Solution Design:

➢ Users will be able to log in and customize their view

Site Format:

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┌─────────────────────────────────────────────────────────────────────┐
│                              Nav Bar                                  │
├─────────────────────────────────────────────────────────────────────┤
│  ┌──────────────────────────────┐   ┌──────────────────────────────┐ │
│  │ ┌──────────────────────────┐ │   │                              │ │
│  │ │                          │ │   │                              │ │
│  │ │ Price Data               │ │   │  Twitter/Reddit/Forum Posts  │ │
│  │ │                          │ │   │  Feed                        │ │
│  │ │ Price Average            │ │   │                              │ │
│  │ └──────────────────────────┘ │   │                              │ │
│  │ ┌──────────────────────────┐ │   │                              │ │
│  │ │                          │ │   │                              │ │
│  │ │         Chart            │ │   │                              │ │
│  │ │                          │ │   │                              │ │
│  │ └──────────────────────────┘ │   └──────────────────────────────┘ │
│  └──────────────────────────────┘                                     │
└─────────────────────────────────────────────────────────────────────┘
```

➢ Display Bitcoin price data.

➢ Search twitter and reddit for bitcoin news.

➢ Compatible with mobile devices.

System Architecture Design:

Server

Apache

PHP

Crontab

MySQL

Database

Client

Web browser

JavaScript
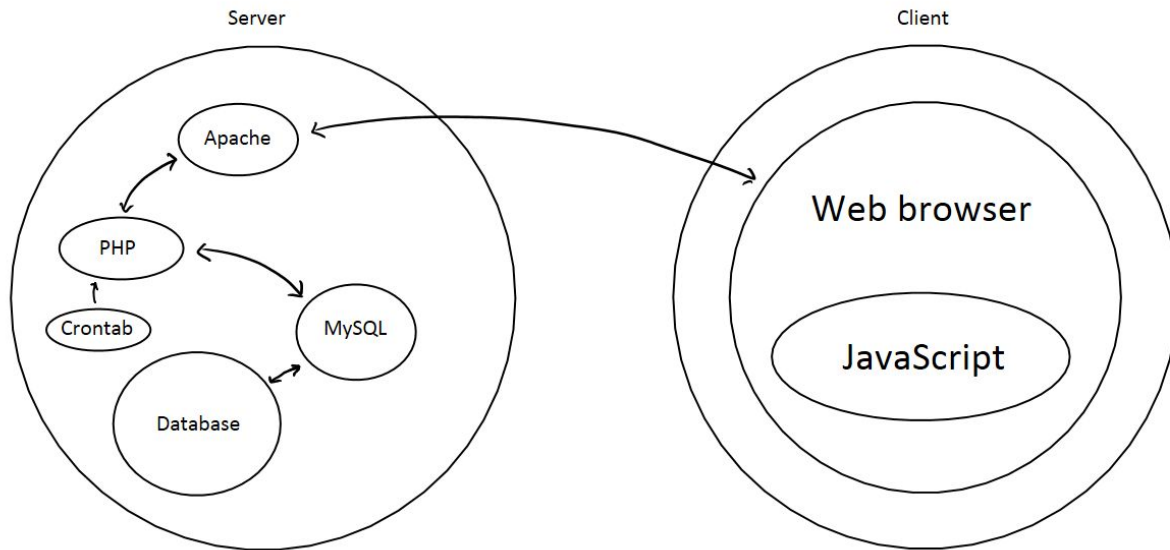
Time Schedule:

Weeks 1 and 2:   Design index page and database structure. Reach

                              Benchmark 1.

Weeks 3 and 4:   Implement Bitcoin news feed (Benchmark 2).

Weeks 5 and 6:   Implement search functionality (Benchmark 3) and

                              customizable chart of bitcoin prices (Benchmark 4).

Weeks 7 and 8:   Create secure login system (Benchmark 5), and mobile

                              friendly view (Benchmark 6).

Weeks 9 and 10:   Extensively test the website functionality.

Weeks 11 and 12: Create documentation and screenshots of project functions.

Weeks 13 and 14: Write project analysis and combine project documents into a

                              full project report and presentation.

Week 15:   review and finalize project deliverables.

List of Deliverables:

➢ Original Proposal and Presentation Files (From CSC 520).

➢ Source code.

➢ Functioning website hosted on weblab server.

➢ Presentation Documents (From CSC 521)

➢ Presentation of the project in powerpoint format.

➢ Comprehensive report of the project, including but not limited to the

following:

○ List of any areas of the proposal (if any) that were not completed,

including reasons why

○ Project *Post Mortem*

○ Project Journal

○ Documentation of website functionality

○ All Amendments to the original proposal approved by the project

advisor

Collaboration/Team Roles

David: Creating the secure login system and writing the project documentation.

Matt: Fetching, storing and displaying Bitcoin exchange data and news in the database. He will be implementing the database search function as well.

William: Responsible for producing the UML diagrams for implementation. He will also be responsible for graphs and designing the desktop and mobile layouts of the website.

Grading Scheme:

15% Functioning Website

15% Secure Login

15% Mobile friendly design

15% Source code quality and appropriate comments

15% Documentation

15% Presentation

10% Other Supporting Items included in report (Journal, Post Mortem, etc)