SE 3XA3: Test Report
CryptoMetrics

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Contents

List of Tables

List of Figures

1 Functional Requirements Evaluation

The purpose of these tests is to verify if the functional requirements have been met successfully.

1. FT-HP-1: FR-1
   Description: Test to verify the presence of a table to display every cryptocurrency's relevant information
   Result: The home page displays every cryptocurrency's relevant information in a table-like manner.
   Status: Passed.

2. FT-HP-2: FR-2
   Description: Test to verify if searching a cryptocurrency by name filters out the rest
   Result: The cryptocurrencies being displayed are filtered based on user's input.
   Status: Passed.

3. FT-HP-3: FR-2
   Description: Test to verify if searching a an invalid name results in a message being displayed.
   Result: The application displays a message to indicate that the search query did not find any results.
   Status: Passed.

4. FT-HP-4: FR-5
   Description: Test to verify if applying a filter filters the cryptocurrencies appropriately.

Table 1: **Revision History**

Date	Version	Notes
Date 1	1.0	Notes
Date 2	1.1	Notes

Result: The cryptocurrencies being displayed are updated based on the selected filters.
Status: Passed.

5. FT-HP-5: FR-5
   Description: Test to verify if removing a filter also removes its effect from the filtration of the cryptocurrencies.
   Result: The cryptocurrencies being displayed are updated based on the new filters.
   Status: Passed.

6. FT-HP-6: FR-6
   Description: Test to verify if sorting the cryptocurrencies works.
   Result: The cryptocurrencies being displayed are sorted in the order selected and maintain this order on page refreshes.
   Status: Passed.

7. FT-DP-1: FR-3
   Description: Test to verify if the details page displays a chart with historical pricing.
   Result: The cryptocurrency's hourly, weekly, monthly and yearly historical pricing are displayed using a chart.
   Status: Passed.

8. FT-CP-1: FR-4
   Description: Test to verify if the compare page displays a chart with different options.
   Result: A chart is displayed along with options to select different cryptocurrencies for comparison.
   Status: Passed.

9. FT-CP-2: FR-4
   Description: Test to verify if selecting a cryptocurrency for comparison does not allow it to be selected again.

Result: After the first cryptocurrency is selected, the option to select the same cryptocurrency a second time is disabled.
Status: Passed.

10. FT-FD-1: FR-7
    Description: Test to verify if the data fetched from the API is cached for 5 minutes.
    Result: The data fetched is cached for 5 minutes and refreshed after a page change after 5 minutes.
    Status: Passed.

11. FT-FD-2: FR-8
    Description: Test to verify if an error or toast message is displayed in case of API error.
    Result: An error toast is displayed.
    Status: Passed.

12. FT-FD-3: FR-9
    Description: Test to verify if the application retries an API call in case of an error.
    Result: The application waits several seconds and retries the API call.
    Status: Passed.

13. FT-FD-4: FR-11
    Description: Test to verify if the application times out API calls after 10 seconds of no response.
    Result: The application cancels the request and treats it as an error if the API call does not respond in 10 seconds.
    Status: Passed.

14. FT-FD-4: FR-11
    Description: Test to verify if the application times out API calls after 10 seconds of no response.
    Result: The application cancels the request and treats it as an error

if the API call does not respond in 10 seconds.
Status: Passed.

15. FT-UI-1: FR-12
Description: Test to verify if the application adapts to the device's theme automatically.
Result: The application changes the theme of all the elements being displayed when device's theme changes.
Status: Passed.

16. FT-UI-2: FR-10
Description: Test to verify if skeleton placeholders are shown when data is being fetched.
Result: The application displays skeleton placeholders while waiting for an API response.
Status: Passed.

17. FT-UI-3: FR-13
Description: Test to verify if filters are automatically saved and applied after a page is reloaded.
Result: The application automatically saves the filters to cookies and loads them automatically.
Status: Passed.

2 Nonfunctional Requirements Evaluation

The following tests were conducted with a sample group of 10 users who represent the target audience of this product.

2.1 Look and Feel

1. NFT-LF-1: NFR-3
Description: Verify that more than 80% of a sample group agree that the product feels professional, trustworthy, and informative.

Result: 90% of the sample group agreed that the product is professional, trustworthy, and informative.
Status: Passed.

2.2 Usability and Humanity

1. NFT-UH-1: NFR-6
Description: Verify that at least 80% of a sample group is able to navigate through the different pages without training.
Result: 100% of the sample group was able to navigate through the different pages without training.
Status: Passed.

2. NFT-UH-2: NFR-9
Description: Verify that at least 95% of the users recognize the icons used.
Result: 100% of the users in the sample group were able to recognize the icons used.
Status: Passed.

3. NFT-UH-3: NFR-10
Description: Verify that web page adapts to different screen sizes at least 95% of times.
Result: The web page adapted to different screen sizes 100% of times when the users of the sample group were asked to open the web page on their own devices.
Status: Passed.

2.3 Performance

1. NFT-P-1: NFR-11
Description: Verify that the web page initializes and sets up in less than 10 seconds.
Result: This was tested on multiple devices and the web page was

able to initialize and set up in less than 10 seconds.
Status: Passed.

2. NFT-P-2: NFR-12
   Description: Verify that the web page transitions to the different pages within 1 second for 95% of times, and within 5 seconds for the rest of the times.
   Result: The web page transitioned to different pages in less than 1 second for 95% of times.
   Status: Passed.

3 Comparison to Existing Implementation

There have been several changes and new additions separating CryptoMetrics, our project, from Cryptodash, the existing implementation. The existing application primarily displayed a list of cryptocurrencies in tabular form, whereas CryptoMetrics allows users to view this list in both a card view and a table view containing even more columns of information and a mini graph displaying cryptocurrency price changes in the past user specified time. CryptoMetrics also added a product page which allows users to get a detailed view of every cryptocurrency listed in the web app, which was not a part of the existing implementation. Furthermore, the project also adds a page dedicated to comparing cryptocurrencies with one another to indicate changes in projected price increases and decreases to better advise users so they make informed investment decisions. The original implementation did not include any testing within the project's files. Our implementation will be verified rigorously through the use of a test report.

4 Unit Testing

N/A

5 Changes Due to Testing

6 Automated Testing

The tests: `FT-HP-1, FT-HP-2, FT-HP-3, FT-HP-4, FT-HP-5, FT-HP-6, FT-DP-1, FT-CP-1, FT-CP-2, FT-UI-3` were automated using the `cypress` library.

7 Trace to Requirements

Test Case ID	Requirement ID
FT-HP-1	FR-1
FT-HP-2	FR-2
FT-HP-3	FR-2
FT-HP-4	FR-5
FT-HP-5	FR-5
FT-HP-6	FR-6
FT-DP-1	FR-3
FT-CP-1	FR-4
FT-CP-2	FR-4
FT-FD-1	FR-7
FT-FD-2	FR-8
FT-FD-3	FR-9
FT-FD-4	FR-11
FT-UI-1	FR-12
FT-UI-2	FR-10
FT-UI-3	FR-13
NFT-LF-11	NFR-3
NFT-UH-1	NFR-6
NFT-UI-2	NFR-9
NFT-UI-3	NFR-10
NFT-P-1	NFR-11
NFT-P-2	NFR-12

Table 2: **Traceability Matrix**

8 Trace to Modules

Req.	Modules
FR-1	M5.2.23, M5.2.25, M5.2.24, M5.2.26
FR-2	M5.2.17, M5.2.16
FR-3	M5.2.5, M5.2.2
FR-4	M5.2.5, M5.2.10, M5.2.11
FR-5	M5.2.3, M5.2.12, M5.2.13 M5.2.14, M5.2.15, M5.2.18, M5.2.19, M5.2.1
FR-6	M5.2.15
FR-7	M5.2.33
FR-8	M5.2.33
FR-9	M5.2.33
FR-10	M5.2.20
FR-11	M5.2.33
FR-12	M5.2.21, M5.2.22
FR-13	M5.2.30
NFR-1	M5.2.9, M5.2.7, M5.2.8, M5.2.21, M5.2.22
NFR-2	M5.2.30, M5.2.31
NFR-3	M5.2.27, M5.2.28
NFR-4	M5.2.29

Table 3: Trace Between Requirements and Modules

9 Code Coverage Metrics

```
======================== Coverage summary ========================
Statements   : 73.95% ( 213/288 )
Branches     : 64.7% ( 154/238 )
Functions    : 78.98% ( 109/138 )
Lines        : 74.54% ( 205/275 )
==================================================================
```

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Line #s
All files	74.22	64.7	79.13	74.82	
components/button	85.71	87.5	75	85.71	
Button.js	100	83.33	100	100	23
FilterButton.js	100	100	100	100	
ToggleButton.js	66.66	100	50	66.66	31
index.js	0	0	0	0	
components/cards	100	72.72	100	100	
CryptoChartCard.js	100	72.72	100	100	69-109
components/cards/skeletons	100	100	100	100	
CryptoChartCardSkeleton.js	100	100	100	100	
components/charts	72	64.28	80	75	
CompareChart.js	68.18	64.28	75	71.42	25-32
CryptoRowLineChart.js	100	100	100	100	
components/content	100	100	100	100	
Container.js	100	100	100	100	
Main.js	100	100	100	100	
Wrapper.js	100	100	100	100	
components/dropdown	97.05	85.71	94.44	96.96	
Dropdown.js	100	75	100	100	30
DropdownItem.js	100	100	100	100	
FilterDropdown.js	100	83.33	100	100	52
FilterDropdownItem.js	100	85.71	100	100	24
SecondaryFilterDropdown.js	50	66.66	50	50	45
components/filters	100	100	100	100	
Filter.js	100	100	100	100	
Filters.js	100	100	100	100	
index.js	0	0	0	0	
components/inputs	100	88.46	100	100	
Input.js	100	94.44	100	100	39
SearchInput.js	100	75	100	100	16-17
components/navbar	66.66	50	50	80	
Navbar.js	66.66	50	50	80	53
components/radio	100	75	100	100	
Radio.js	100	100	100	100	
RadioForm.js	100	75	100	100	15
components/sidebar	100	100	100	100	
Sidebar.js	100	100	100	100	
SidebarItem.js	100	100	100	100	
components/skeletons	100	100	100	100	
PlaceholderSkeleton.js	100	100	100	100	

```
components/table             |    100 |    100 |    100 |    100 |
 Table.js                    |    100 |    100 |    100 |    100 |
 TableBodyWrapper.js         |    100 |    100 |    100 |    100 |
 TableCell.js                |    100 |    100 |    100 |    100 |
 TableHeader.js              |    100 |    100 |    100 |    100 |
 TableHeaderWrapper.js       |    100 |    100 |    100 |    100 |
 TableRow.js                 |    100 |    100 |    100 |    100 |
 index.js                    |      0 |      0 |      0 |      0 |
components/tabs              |    100 |    100 |    100 |    100 |
 Tab.js                      |    100 |    100 |    100 |    100 |
 Tabs.js                     |    100 |    100 |    100 |    100 |
 index.js                    |      0 |      0 |      0 |      0 |
components/titles            |    100 |    100 |    100 |    100 |
 BoldGradientHeading.js      |    100 |    100 |    100 |    100 |
constants                    |    100 |  45.45 |    100 |    100 |
 constants.js                |    100 |  45.45 |    100 |    100 | 18-19,41-91
 index.js                    |      0 |      0 |      0 |      0 |
cypress/plugins             |    100 |    100 |    100 |    100 |
 index.js                    |    100 |    100 |    100 |    100 |
hooks                        |     80 |  57.14 |  88.88 |  79.16 |
 index.js                    |      0 |      0 |      0 |      0 |
 useFilters.js               |     80 |     40 |    100 |  78.57 | 16-21,30
 useOnClickOutside.js        |     80 |    100 |     75 |     80 | 14-15
pages                        |  79.03 |  82.35 |  71.42 |  82.45 |
 _app.js                     |   62.5 |    100 |     25 |    100 |
 compare.js                  |    100 |    100 |    100 |    100 |
 index.js                    |  81.13 |  82.35 |  78.26 |  80.39 | 57,61,70,127,181,418-423
pages/coins                  |  44.44 |  86.36 |  33.33 |  44.44 |
 [coin].js                   |  44.44 |  86.36 |  33.33 |  44.44 | 24,186-194
queries                      |  70.96 |  21.42 |  76.19 |     70 |
 index.js                    |      0 |      0 |      0 |      0 |
 queries.js                  |  70.96 |  21.42 |  76.19 |     70 | 24,41-48,64,96,122
utils                        |  30.43 |   14.7 |  46.66 |  28.88 |
 index.js                    |      0 |      0 |      0 |      0 |
 utils.js                    |  30.43 |   14.7 |  46.66 |  28.88 | 9,34-48,57-108
```

10   Appendix

The project's updated Gantt chart is located here.