**PROJECT ANALYSIS**

Revision 1.14

9 November 2014

CMSC 495, Instructor: Dr. Hung Dao

Group 1

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**Revision History**

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| --- | --- | --- | --- |
| **Date** | **Revision** | **Description** | **Personnel** |
| 10/28/2014 | 1.0 | Initial Document | Luis |
| 10/30/2014 | 1.1 | Edits: to b,c,d,e | Tracy |
| 10/30/2014 | 1.2 | Added: Figure 2, f | Tracy |
| 10/30/2014 | 1.3 | A few edits to f, Bold key words and Capitalize first letter, started h, i | Luis |
| 10/30/2014 | 1.4 | Spacing, Punctuation, Additions and Comments to a, c, g, I, j; table format | Stephen |
| 10/31/2014 | 1.5 | Notes in blue. Term replacements throughout | Tracy |
| 11/01/2014 | 1.6 | Notes in red. Reformatted the schedule into an editable format. Added to contextual diagram. Minor edits throughout. | Stephen |
| 11/02/2014 | 1.7 | Additional edits, including diagram | Luis |
| 11/03/2014 | 1.8 | Recommended changes for team approval: Merged B & C into tables. Modified data processing. Modified e, h, j. Fixed the margins of bulletined lists | Stephen |
| 11/05/2014 | 1.9 | Restructuring of sections, minor edits | Tracy |
| 11/09/2014 | 1.10 | Final Edits | All |
| 11/11/14 | 1.11 | Edits based on peer review and Professor feedback | All |
| 11/11/14 | 1.12 | Edited Subsystem Diagram, Fig 2 based on Skype discussion | All |
| 11/13/2014 | 1.13 | Edited WOD to add Content, Notes and URL | Stephen |
| 11/14/2014 | 11.14 | Edited Error Mitigation | Stephen |

**Table of Contents**

I. Analysis 5

A. Outside Systems 5

B. Input Data 5

C. Output Data 6

D. Data Processing 6

1. Main Module 6

2. Lift Module 6

3. WOD Module 6

E. Subsystem Requirements 7

F. Data Interface 8

G. Solution Resolution

H. Potential Risk and Mitigation 9

I. Possible Future Enhancements 9

Figure 1: Contextual Diagram 6

Figure 2: Subsystem Diagram 7

Table 1: Data Table 7

Table 2: Requirements and Subsystems Table 8

Table 3: Risk Mitigation Table 9

**Project Analysis:**

# I. Analysis

1. Outside systems: The **User** will access **PR2** using a keyboard, mouse and visual display.
2. Input data:
   1. User opens application.
   2. Select **Lift.**
   3. Select **WOD.**
   4. Select **Close**.
   5. Input new **1RM.**
   6. Return to **Main Menu** (from **Lift** **Menu)**.
   7. Input New **Time or Notes (**from **WOD Menu**).
   8. Return to **Main Menu** (from **WOD** **Menu**).
3. Output data:
   1. Display **PR2** main menu
   2. Display **Lift** Window
   3. Display **1RM** and percentage increments of **1RM**
   4. Display **WOD** Window
   5. Display last entered **Time, Content, Notes,** and **URL.**
   6. Display **PR2** main GUI: User will be greeted with the applications main GUI and given the option to choose either a specific **Lift**/**WOD** from a jComboBox or the option **Close** using a jButton.
   7. Display **Lift** **Menu**: After choosing a specific lift the user will be able to view their previously entered 1RM for that lift and the corresponding incremented percentages. User will have the option to input new data or return to the main **Menu**.
   8. Display **WODs** **Menu**: After choosing a specific **WOD** the user will be able to view their previously entered fastest **Time, Content, Notes, and URL**  for that **WOD**. The user will have the option to input new data or return to the **Main Menu**.

**Context Diagram**

Figure : Contexual Diagram

Output:

**Lift** window: Displays 1RM and percentage increments of 1RM

**WOD** window: Displays the last Time entered for the WOD

Input: Open PR2

Select **Lift**

Select Workout of the Day (**WOD**)

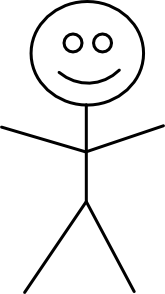
Input New 1 Repetition Maximum (**1RM**)

Return to Main Menu (from **Lift** window)

Input New **Time** (from **WOD** window)

Return to Main Menu (from **WOD** window)

Close/Exit PR2



1. Data Processing:
   1. Main Module: The Main Module will read the data from a data file on the user’s hard-drive. Once the user selects either the Lift Module or the WOD Module, the Main Module will pass the data and control to that module.
   2. Lift Module: The Lift Module will receive the 1RM from the Main Module. The Lift Module will calculate the 1RM Percentages based on the 1RM passed from the Main Module and give the user the option to update the 1RM or return to the Main Module. If the user elects to update the 1RM, the new percentages are displayed and the new 1RM is updated in the data file.
   3. WOD Module: The WOD Module will receive the selected WOD information from the Main Module. The WOD Module will display the current Time, Contents, Notes, and URL for the WOD and give the user the option to update the Time and Notes or return to the Main Module.

Table : Data Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MAIN MODULE** | | | | |
| **User Inputted Data** | **System Data** | | | **Output Data** |
| Select Lift Module | Passes current Lift information to the Lift Module | | | Selected Lift Displayed |
| Select WOD Module | Passes current WOD Information to the WOD Module | | | Selected WOD Displayed |
| Exit Program |  | | | Display Confirmation Dialog |
|  |  | | |  |
| **LIFT MODULE** | | | | |
| **User Inputted Data** | | **System Data** | **Output Data** | |
| Enter New 1RM | | Receives 1RM from Main Module | Display 1RM Percentages | |
| Return to Main Module | | Updates new 1RM for Lift |  | |
|  |  | | |  |
| **WOD MODULE** | | | | |
| **User Inputted Data** | | **System Data** | **Output Data** | |
| Enter New Time | | Receives Time, Content, Notes, and URL from Main Module | Display Time, Contents, Notes, and URL for WOD | |
| Return to Main Module | | Updates New Time and Notes for WOD |  | |

1. Subsystem Requirements:

Select Lift or WOD

New Notes or Time

New 1RM

System

Selected Lift Data

Selected WOD Data

Changed 1RM

Changed Time or Notes.

Figure : Subsystem Diagram

|  |  |  |
| --- | --- | --- |
| **Requirement** | **Description** | **Recommended Subsystems** |
| 1 | Shall be an interactive app available to the user in the form of a GUI. | Main Menu - Processes Input |
| 2 | Shall allow the user to choose a *Lift* from a drop down menu. | Lift Module - Process Input, Displays Output |
| 3 | Shall allow the user to choose a *WOD* from a drop down menu | WOD Module - Process Input, Displays Output |
| 4 | Shall allow the user the option to quit the application. | Main Menu - Processes Input, Processes Output |
| 5 | Shall allow the user the option to enter a new 1RM for a lift. | Lift Module - Process Input, Displays Output |
| 6 | Shall allow the user the option to enter a new fastest Time and new Notes for a named WOD. | WOD Module - Process Input, Displays Output |
| 7 | Shall store the users input for 1RM and display it the next time the user enters the app. | Main Menu - Processes Input, Processes Output |
| 8 | Shall calculate the incremented percentages of the users 1RM. | Lift Module - Processes Input |
| 9 | Shall display the calculated incremented percentages of the users 1RM. | Lift Module - Display Output |
| 10 | Shall store the users input for fastest time and display it the next time the user enters the app. | Main Menu - Process Input, Lift & WOD Display Output |
| 11 | Shall give the users the option to return to the main menu. | Lift & WOD Modules - Process Input |

Table : Requirements and Subsystems Table

1. Data Interface: Data interface between each subsystems (and which subsystem processes the inputs, which subsystem does the output):
2. The **Main** subsystem receives the following input data from **User**: **Lift** selection, **WOD** selection, option to quit. **Main** receives **Lift** and **WOD** data from **Data File.**
3. The **Lift** subsystem receives **Lift** object from **Main**, accepts input from **User** to change **1RM** value. This subsystem will calculate incremented percentages based off the input data and display the results to the **User**.
4. The **WOD** subsystem receives **WOD** object from a file and accepts **User** input to change **Time** and **Notes** value.
5. The **Data File** subsystem stores input data retrieved from either the **Lift** subsystem or the **WOD** subsystem.
6. The Display subsystem displays to the **User**, via **menu,** their data entry and the conversion of **1RM** into incremented percentages. The close option is also displayed to the **User**.
7. Solution resolution: A Review of this Project Analysis indicates that all of the Project Requirements identified in paragraph 2 of the Project Requirement, published 2 November, have been addressed. The validation of the solution will occur during the project testing phase, beginning on 3 December 2014.
8. Potential Risk and Mitigation:

|  |  |
| --- | --- |
| **Risk** | **Mitigation** |
| User Input Error (1RM) | Create error handling input validation that prompts the user to enter a valid 1RM |
| User Input Error (Time) | Create error handling input validation that prompts the user to enter valid Hours, Minutes and Seconds. |
| User Exits Improperly | Disable the System Close button and prompt the user to exit properly. |
| Data File IO Error | Code error handling routines to validate all data file IO. |
| Data File Corruption | Create backup copy of valid Data File; Restore backup copy if primary Data File is corrupted. |

Table : Risk Mitigation Table

1. Possible future enhancements (new features):
2. Provide user with ability to add unlisted **Lift**s and **WOD**s.
3. Provide user with ability to view historical data from **1RM**s and **Time**(s).
4. Provide the user the option to subscribe to the web-based service that they could access through their mobile device.
5. Provide the user to option to upgrade to PR2-Live, which would include a social media aspect where they could compete with their contacts through the web-based application.