Total Life Manager (TLM)

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DESIGN REQUIREMENTS

Tools & Technologies

- Platform: Firefox
- OS: Windows
- IDE: VSCode, MySQL Workbench
- Programming Languages: HTML, CSS, JS, MySQL, Apache, PHP
- 3rd party libraries: React
- Server Software: Linode

Requirements:

A. Total Life Manager (TLM)

A.1. Webpages

A.1.1. Landing Page

A.1.1.1. Buttons

A.1.1.1.1. **“**Create an Account” button

A.1.1.1.2. Login link underneath create an account button

A.1.1.2. Background with a slideshow of royalty free exercise images

A.1.1.2.1. Scrolling images, transitioning every 5 seconds.

A.1.1.3. Greeting

A.1.1.3.1. Text that welcomes the user to the page.

A.1.1.4. Link to FAQ Page, A.1.6.

A.1.2. Login/Create Account Page

A.1.2.1. Input boxes

A.1.2.1.1. Box for login.

A.1.2.1.1.1. Email input form, Linked to database.

A.1.2.1.1.1.1. Email Validation

A.1.2.1.1.2. Password input form, Linked to database.

A.1.2.1.1.3. Button to submit form for authentication.

A.1.2.1.1.3.1. Failed validation

A.1.2.1.1.3.1.1. Dialog box for reentry of information.

A.1.2.1.1.3.2. Login information is verified for format

A.1.2.1.1.4. Forgot password link

A.1.2.1.1.4.1. Links to A.1.2.1.3.

A.1.2.1.1.5. Checkbox for remembering a user’s log in.

A.1.2.1.2. Box for account creation

A.1.2.1.2.1. Input form for email address.

A.1.2.1.2.1.1. Email Validation

A.1.2.1.2.2. Input form for confirming email address.

A.1.2.1.2.3. Input form for password.
A.1.2.1.2.4. Input form for confirming password.
A.1.2.1.2.5. Submit form button.
A.1.2.1.2.5.1. Validate format.
A.1.2.1.2.5.1.1. Failed validation
A.1.2.1.2.5.1.1.1. Dialog box for reentry of information.
A.1.2.1.2.5.2. Submits the form for authentication.
A.1.2.1.3. Forgot password box
A.1.2.1.3.1. Forgot Password Text
A.1.2.1.3.1.1. Text to inform the user to enter an email for account recovery.
A.1.2.1.3.2. Email Input box
A.1.2.1.3.2.1. Email Validation for proper format.
A.1.2.1.3.2.1.1. Assign random code to user for a password via email address.

A.1.3. Dashboard - Home Page
A.1.3.1. Information panels
A.1.3.1.1. Main panel
A.1.3.1.1.1. Circular statistic trackers
A.1.3.1.1.1.1. Each tracker will have an “Input data” button when hovered over
A.1.3.1.1.1.2. Calorie tracker
A.1.3.1.1.1.2.1. Displays a Users entered calorie burn around a ring.
A.1.3.1.1.1.3. Exercise Time tracker
A.1.3.1.1.1.3.1. Displays a Users exercise Time around a ring.
A.1.3.1.1.1.4. Hydration tracker
A.1.3.1.1.1.4.1. Displays a Users entered Water intake around a ring.
A.1.3.1.1.1.5. Sleep Tracker
A.1.3.1.1.1.5.1. Displays a Users entered Sleep time around a ring.
A.1.3.1.2. Calendar Panel
A.1.3.1.2.1. Week view of Calendar
A.1.3.1.2.1.1. Displays 7 day period beginning on the current day.
A.1.3.1.2.2. Links to Calendar page A.1.7.
A.1.3.1.3. Weather Panel
A.1.3.1.3.1. Displays current/daily weather and forecast out to seven days, including national weather alerts.

A.1.3.1.4. Graph Panel

A.1.3.1.4.1. 4-Graph display

A.1.3.1.4.1.1. The users Calorie, Exercise, Sleep, and Hydration graphs will be displayed in the box on a 1 week default scale.

A.1.3.1.4.1.2. Expand Button.

A.1.3.1.4.1.2. Make the graph singularly fill the entire panel or retract to normal size.

A.1.3.1.4.2. Button that links to Graphs Page, A.1.4.

A.1.4. Biometric Graphs Page

A.1.4.1 User Information panel

A.1.4.1.1. This panel will display user biometric data such as height, weight, and current weight goals

A.1.4.1.1.1. User information input boxes

A.1.4.1.1.1.1. Dialog boxes for the user to update current information for the graphs.

A.1.4.1.2. This panel will display the user's name and profile picture.

A.1.4.1.2.1. Change profile picture button.

A.1.4.2.1.1. This will allow the user to select from several open source profile icons. They will not be allowed to upload new pictures.

A.1.4.1.2.2. Change Username Button

A.1.4.1.2.2.1. Allows the user to enter a new screen name.

A.1.4.1.3. Weight goal box

A.1.4.1.3.1. List of weights where a user can select their current goal.

A.1.4.2 User Data Graphs

A.1.4.2.1. Graphs will display information over the options of 1 week, 1 month, and 1 year.

A.1.4.2.2. Calorie Graph

A.1.4.2.2.1. Displays the user’s calories over the selected timeframe. Defaulting at 1 Week display.

A.1.4.2.3. Exercise Graph

A.1.4.2.3.1. Displays the user’s Exercise trends over the selected timeframe. Defaulting at 1 week display.

A.1.4.2.4. Hydration Graph

A.1.4.2.4.1. Displays the user's reported Hydration over the selected timeframe. Defaulting to 1 week display.

A.1.4.2.5. Sleep Graph

A.1.4.2.5.1. Displays the user's reported sleep over the selected timeframe. Defaults to 1 week display.

A.1.4.2.6. Weight Graph

A.1.4.2.6.1. Displays the user's reported weight over the selected timeframe. Defaults to 1 month display.

A.1.5. Meals Page

A.1.5.1. Meal options columns

A.1.5.1.1. 4 column display.

A.1.5.1.1.1. Each column will display a pre-planned meal choice.

A.1.6. Support and FAQ Page

A.1.6.1. FAQ Table

A.1.6.1.1. This table will display common questions a user may have when interacting with the website.

A.1.6.2. Support Section

A.1.6.2.1. This block will list contact information for the website in the form of an email address and phone number.

A.1.7. Calendar Page

A.1.7.1. Calendar that keeps track of user stats for each day they input data.

A.1.7.2. Supports week, month, and year view toggled by dropdown menu.

A.1.7.3. Each day block is clickable and expands to give more detailed information about that specific day.

A.2. Navigation Bar

A.2.1. Hamburger Menu

A.2.1.1. Link to return to the dashboard, A.1.3.

A.2.1.2. Link to the biometric graphs page, A.1.4.

A.2.1.3. Link to user profile editing, A.1.4.

A.2.1.4. Link to Meal Plan page, A.1.5.

A.2.1.5. Link to Calendar Page, A.1.7.

A.2.1.5. Logout button

A.2.1.5.1. Logs out user and redirects to A.1.1.

A.2.2. Link to FAQ Page, A.1.6.

A.3. Server

A.3.1. Linode Server

A.3.1.1. Security

A.3.1.1.1. Server Updates

A.3.1.1.1.1. The server will automatically update as often as possible through Ubuntu unattended upgrades.

A.3.1.1.2. Limited accounts

A.3.1.1.2.1. Users are not logging into the root constantly as there are established sudo privileged Accounts.

A.3.1.1.3. Authentication Key-pair

A.3.1.1.3.1. Local machine will create a 4096 bit RSA key pair.

A.3.1.1.4. Firewall

A.3.1.1.4.1. Ubuntu UFW Firewall configuration.

A.3.1.2. MySQL Database Connection

A.3.1.2.1. Establish the MySQL database on the Linode Server

A.3.1.2.2. This will be where all user data is sent for storage.

A.3.1.3. SQL Injection defense

A.3.1.3.1. The Server will check all entries a user inputs for SQL keywords.

A.3.1.4. Backups

A.3.1.4.1. The server will backup once a week on a set schedule.

A.4. Database

A.4.1. MySQL Database

A.4.1.1. Server based MySQL database for user account information.

DESIGN DESCRIPTION

Total Life Manager(TLM) is a streamlined web server application that allows users to track nutritional and health goals. The website provides tools for a user to identify habits, learn about positive choices, and plan for future health milestones. Along with tools for tracking fitness and exercise, the website offers pre-planned meal recommendations and motivational quips to help bolster positive mental and nutritional attitudes. The website will track all the user's entered information and build charts and graphs to help the user digest the information instead of getting confused and discouraged. The user can benefit from the site as a whole-life tool because important information to daily life that helps keep track of important events or goals, such as the weather and a calendar, will be available on the dashboard.

The service provides several key sources of feedback for a user striving to track or adjust habits in their life. The user's first introduction to the service will be our landing page that all users will see when they first arrive at the website. This page will display pictures and text for TLM and will have several buttons that the user can interact with. From here the user can either create an account, or login in to their existing account. If they wish to interact with the website without an account, they can alternatively hit the support and FAQ button at the top. Upon selecting anything account related they will be taken to the login and account creation screen. The user can enter their login information or fill out the account creation form that is placed adjacent to the login box.

Once a user is signed into the website they will be taken to the Dashboard page. The dashboard will display various information in widget style containers that will let the user see a broad overview of their information. The dashboard is the website's home screen and will provide all the necessary redirects to the remainder of the website. The user can interact with any of the widgets and go to a full screen version of the widget on it's own individual webpage. To start, if the user selects the graphs in the center showing their health information they will be

taken to the Biometrics graphs page. This page will display all the user's graphs related to the various information the user has input to the service. This will include individual graphs for the user's calories, the time they spent exercising, the time they spent asleep, the amount of water they have consumed, and their basic health information.

From the dashboard, a user can also access pre-prepared meal plans. The meal plans page will display basic meal plans for a user to review. Another page that can be accessed from the widgets on the dashboard is the calendar screen. The widget will display a basic view of the calendar but will redirect to a larger full screen calendar. The user can use this page to track their trends and make custom events. The final page a user can access is the Support and FAQ page. This page is accessible at any point regardless of login status and will help guide the user on basic information about the website.

Diving into a more thorough description, the user's initial interaction is the landing page. This page will display a scrolling slideshow of pictures that transitions every 5 seconds. This will keep the homepage fresh but on topic in order to capture the user's interest. A dialog box will prompt the user to login to an existing account or to create a brand new account. Regardless of the user's selection they will be redirected to the login and signup page. The user can also select the support and FAQ button on the top of the page to go directly to this page for basic information on the service, and contact information. (See Figure 2).

The login and signup page will display two boxes where the user can decide which option they wish to use. The first box will have email and password boxes where a user can enter their login information for a pre-existing account. The user can submit this information with a button that is only for submitting an existing login. The remaining option for the user is to fill out the second box's contents for creating a new account. This box will list email and password boxes similar to the existing account boxes, but will additionally list boxes to confirm the user's input information. This means a second box below the original email box where the user will confirm their email, as well as a confirm password box below the first password box. As

mentioned previously, both options will lead to the dashboard upon successful validation and authentication.

The dashboard will show all the user's information in a layout of widget-style containers with previews of all information that the user can expand or go to different pages. The main module will display the user's current calorie, exercise time, sleep time, and hydration information in a collection of rings. The rings will display the user's goals as a circular meter representing a percentage of the user's target goals. These rings will update as the user inputs information for each category. When the rings are hovered they will prompt the user to input the information, or they can do it later on the Biometrics graphs screen.

Additionally, the dashboard will display three other widgets that will display various information. The first will be a calendar box that the user can see a compact version of the full calendar page. The compact version will display a seven day view, which can be clicked on to redirect to the calendar page for a full view. The next module is the weather widget, that shows the current day's weather information. This will include the current temperature in the user's region, and the chance of rain. The user can alter the widget to show a seven day forecast, and the panel will display any action national weather service alerts in the user's area. The remaining box is the graphs widget for a preview of the user's graphs from the biometrics screen. The user will initially see the calorie graph set to a seven day view. The graphs widget will have the ability for the user to transition to a preview of either calories, exercise time, sleep time, and hydration graphs. Once clicked, the user can go directly to the user Biometrics Graphs page.

The remaining components on the dashboard are a combination of visual and functional. The dashboard will have a banner across the top that displays a random motivational quip that is selected when the user loads the page, similar to a message of the day(MOTD) system. Near the banner will be a drop-down style hamburger menu for page navigation. This hamburger menu will be present on all pages except the support and FAQ page and the Landing and login

screens. It will link to the Dashboard, Biometrics page, Meal plan page, Calendar page, and an option for logging out. Separately there will always be a button linked to the support and FAQ page on all pages.

The next main page is the Biometrics Graphs page. This page will most notably display the users data charted onto graphs that a user can manipulate the range of. This will include graphs for calories, exercise time, sleep time, hydration, and weight over time. The graphs will have the option to see data over one week, one month, or one year. Also on the page, there will be a user information panel. This will display the user's entered height, current weight, current weight goals, user name, and profile picture. The user can select to change their profile picture from a pre-established picture collection, and can change their username to anything they enter. The user will click a button for creating a new username and will be prompted with a dialog box to change the name.

The user can utilize the navigation menu to access the Meals page from here. The Meals page will display a column layout of several meal options for the user to review. This information will be static on the page and will be a pre-selected range of meal options. The meal page is meant to give the user an idea of better nutritional choices, and not just outright be a meal preparation service. The last main page the user can access is the Calendar page. The calendar page will display a full screen calendar that the user can view in either a 1 week, 1 month, or 1 year format. This will show events that a user has created and will allow them to see any upcoming goals they have set on the weight goal section of the Biometrics Graphs page.

Outside the main application is the Support and FAQ page. This can again be accessed at any time from the navigation bar and is indifferent to the user's login status. This page will list several frequently asked questions that a user might inquire about when using the service. If the questions do not satisfy the user, then at the end of the page there will be a contact information block which will give basic information on how to reach the team.

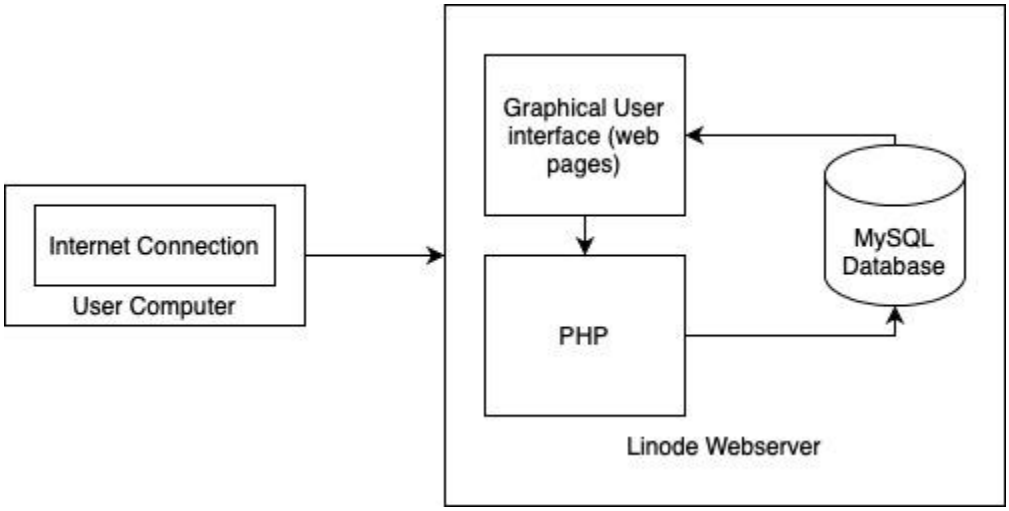
This system will utilize the LAMP stack architecture. The operating system is an Ubuntu Linux machine running on a linode server. The server will communicate to the Database with Apache and PHP, which are our server and programming language combination. They will ultimately reach our database, which we opted to use MySQL as it is the most documented on our server host, and it is the only database our team has experience with. Our basic design follows a user with multiple user data entries. (See Figure 3.)

To wrap the system up, the web application will track user data through user input and display it in a neat and simple format. The user will be able to expand all modules on the dashboard or view them on their unique web page with more detail. At any point on the bottom of the hamburger the user can log out of the service and will be required to login again from the login page or landing page prompt. The user will be able to access this website at any time while the linode is operational and will be able to analyze their habits and make changes for the betterment of their health.

APPENDICES

A. Block Diagram

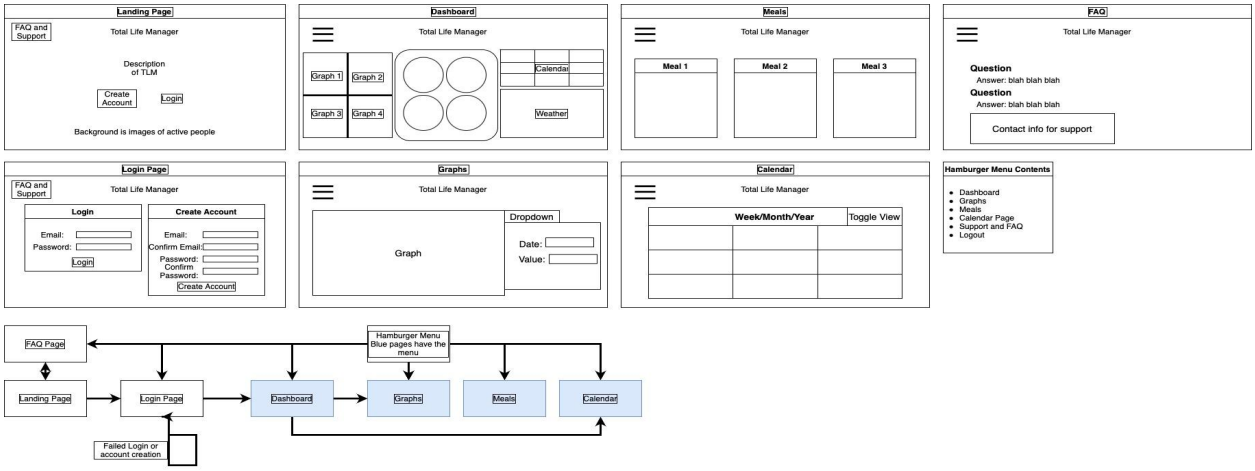
a. Figure 1.

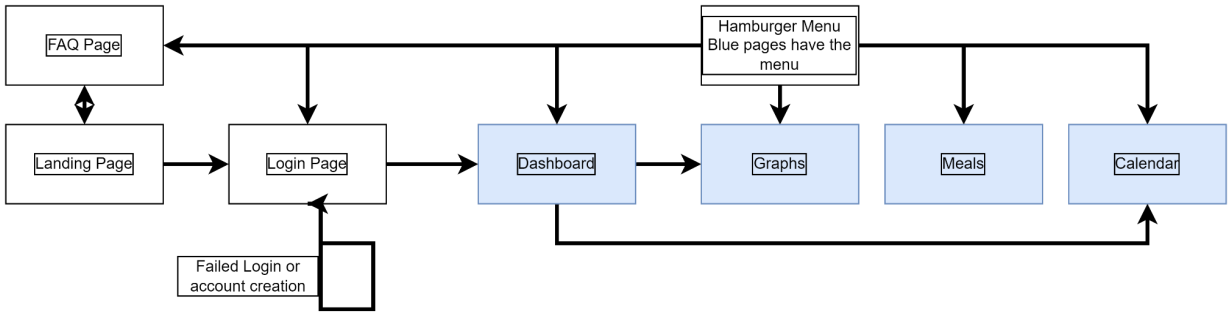


B. Component Diagram

C. User Interface Diagram

a. Figure 2. See interface.png





D. Storage Documentation

a. Figure 3.