Yessenia Gaspar

CIS129 – Programming & Problem Solving I

08/03/2024

Final Project

**Improving Applications – Creating a Comprehensive Fitness App**

**Step 1: Research and Problem Selection**:

**Identify Problems**:

In this final, we are seeking ways and strategies to create fitness mobile applications that are motivating and interactive with users. Everyone’s fitness journeys will vary and it has been difficult to locate applications that include motivational and consistent reliability to reflect everyone’s preferences. Problems that can arise from poor fitness applications include:

* Motivation and Consistency
* Technical and User Experience

Users tend to struggle with staying motivated to utilize applications to help with their fitness. It could be difficult to gain satisfaction from apps that are not engaging or stimulating enough to sustain consistent use.

With consistent use, users that experience application problems like crashes or bugs may hinder continually use fitness apps. While digital applications have become involved in daily life, fitness applications may have a great impact and opportunity for a broader audience.

**Explore Existing Solutions**:

Recently applications on mobile devices have been introduced and integrated gamification ways to entice users to stay involved in fitness. In regard to *motivation and consistency*, according to Aaya, Faizah, user’s physical activity correlated with gamification elements within mobile fitness apps. “When mobile fitness app users are able to observe their progress, they feel more satisfied and recognize their own physical activity competency, which will drive higher user competency and satisfaction and behavioral motivation.” (Faizah A) In reality, there are game-like elements being included, such as badges, user levels, and achievement points. While reading this portion of the article gamification is a great aspect for motivation. This may increase engagement, track rewards, track progress, and integrate social challenges. However, there are studies showing the difference between gamification integration and social integrations. There are motivating factors and differences for both. In the article, “Walking for fun or for “likes”? The impacts of different gamification orientations of fitness apps on consumers’ physical activities” there was an extensive 7-week study to track between the two. The article stated:

“…Consumer whose aim is to reduce boredom can be more effectively motivated by gamified fitness app focusing on emotional value (i.e., making it fun); on the other hand, a consumer aiming to making physical activity a long-term habit may better achieve her or his goal by using fitness app focusing on social value (i.e., making it social.).” (Tu)

Every user may have different fitness goals and it’s important to note how integrating different techniques to help a broader array of users. Tu explained how applications are used differently between users and helps ensure what aspects each application can offer to everyone.

User experience would rely heavily on ease of use and intuitive interfaces. If an application is created to include multiple ways to keep users motivated and involved, it is important to be sure your codes and applications are reliable and consistent. *Technical issues* including application performance, compatibility, data syncing, and bugs all pose risks to an application’s success. *User experience issues* are mainly relevant and could be hindered by technical issues. These could consist of user interface, customization, and feedback issues. Addressing and preventing these issues can ensure smoother, more engaging, and effective experience for users, and this will lead to higher satisfaction, better user retention, and successful fitness outcomes.

**Justify Your Choice**:

This is important because while utilizing fitness apps in my regular workouts and tracking my progress goals I have experienced multiple issues. There have been occurrences of technical crashes, inaccurate tracking, cluttered interfaces, and emotional impact. Currently, there are fitness apps that have fallen short of running smoothly and limiting crashes. There are inconsistencies with fitness goal tracking such as tracking cardio vs. strength training goals. One issue I found frustrating and emotionally impacting was cluttered and confusing interfaces. These have impacted my motivation and personal tracking routines. Since I am new to fitness and don’t have a mentor, applications have been a main source of motivation and influence.

As a final topic, this is an interesting aspect for coding and programming because it is relevant to my daily life. Also, it could impact others that are already active or others that may need help to become active. Maintaining a consistent fitness routine can be challenging for busy users and new users. A fitness application that effectively, and consistently, motivates users and incorporates a strong interface will provide general benefits to fitness communities. Leveraging features such as gamification, social interactions, and updated interfaces will be more enjoyable, supportive, and effective for users’ health and wellness goals. This is something I have learned by personal experience and would like to have incorporated within my fitness journey.

# References

Faizah A, Hardian AFA, Nandini RD, Handayani PW, Harahap NC. "The Influence of Incentive-Based Mobile Fitness Apps on Users’ Continuance Intention with Gender Moderation Effects: Quantitative and Qualitative Study." 6 May 2024. *Proquest.com.* Ed. K Adapa. Webpage. 3 August 2024. <https://www.proquest.com/docview/3066835846/fulltext/B850B2FD63C74866PQ/1?accountid=13194&sourcetype=Scholarly%20Journals>.

Tu, Rungting. "Walking for fun or for “likes”? The impacts of different gamification orientations of fitness apps on consumers’ physical activities." *Sport Management Review* 22.5 (2019): 682. Article. 3 August 2024. <https://eds.p.ebscohost.com/eds/pdfviewer/pdfviewer?vid=0&sid=ce3382e1-c079-4c89-a6e9-40b325ca7fbf%40redis>.

**Step 2. Design a Solution**

**Propose a Software Solution:**

Let us propose a new fitness program idea, named CoreJourney! My goal is to create a new program application with enhanced user engagement, motivation, and satisfaction through advanced features and an optimized user experience. In this project, I have referred to some of the personal issues I have stumbled on while using the apps:

* + FitNotes, motivation and social issues
  + FatSecret, crashes and ‘premium’-locked features
  + MyNetDiary, confusing interface

Key features with CoreJourney will aim to include personalized social and gamification options, as well as enhanced user experience. Improvements I would like to incorporate will offer tailored gamification to adapt user goals and preferences, this way we can allow users options around gamification. Then we will also integrate social features to enhance friendly motivation and support systems, and incorporate codes to ensure smoother, user-friendly experiences. Based on the applications I have experienced, CoreJourney will adapt to create a broad and useful interface for everyone’s fitness journeys. It is important to reference Tu’s previous quote that there is a difference between gamification and social elements. I will include portions that can tailor gamification options and social logins. For instance, it would be great to allow users to turn gamification on or off. This way if users don’t want those elements, then they are able to opt out and only utilize the social aspect of CoreJourney. With my proposed ideas and approach there will be elements to allow personalization for all users.

**Pseudocode**:

|  |
| --- |
| ## **Social Integrations**  ## User registration and set logins and profile  Def register\_user():  If user\_exists  Print (“User already exists.”)  Else:  Create\_user\_profile  Initialized goals  Print (“Registration successful”)  Def save\_user\_profile():  User\_name = entry\_name.get()  User\_age = entry\_age.get()  User\_weight = entry\_age.get()  User\_weight\_goal = entry\_weight\_goal.get() |
| ## **Gamification** – Include element to Opt in or Opt Out  ## Generate Personalized Goals and Challenges based on gamification options  Def generate personalized challenges():  Goals = get\_usergoals  Progress = ger\_user\_progress  Challenges = check\_user\_gamification\_preference  ## Generate challenges on preference  If check\_user\_gamification\_preference:  No gamification = create\_non\_gamified\_challenges  Else:  Yes gamification = create\_gamified\_challenges  Return challenges  ## Check if user wants gamification – opt in or opt out  Def check\_user\_gamification\_preference():  Return = get user gamification in setting  #Gamification on or off can be in application settings. For users that don’t want the game elements like badges and achievements. |
| ## **Social Integrations**  ## Include ways to track and share progress, achievements, and feedback.  ## Track Progress  Def track\_progress():  Update\_user\_progress  Update workout\_data  Metrics = calculate\_progress\_metrics  Notify user of milestone  ## Share achievement  Def share\_achievement():  Update achievement  Post\_to\_social\_feed  Notify\_friends  Allow\_feedback\_Comments  Allow\_feedback\_emojis  Update\_user\_profile  ## Provide feedback and analysis  Def provide\_feedback():  Data\_analysis = analyze\_workout\_data  Feedback = generate\_feedback  Display\_feedback\_to\_user  Display\_motivation\_feedback |
| ## Incorporating exception handling, input validation, and code reviews would help identify problems and improve overall code quality. Incorporate these techniques where needed while developing. Overlooking and carefully checking all areas of improvement can help create a more robust and reliable application. Practicing these tools will reduce the likelihood of errors, bugs, and crashes. Thus, creating an application environment that is user friendly and reliable. |

**User Interaction:**

Users can begin logging into the application with their social media accounts or email. This is a basic way to incorporate social media and connect with friends and other users. On this basis it will allow more feedback, connections, and communal motivation factors. Users would be able to turn on or off gamification elements. This would create a difference between users that prefer game reward elements versus social reward elements. That way there are different paths of motivation via the application -preferences are now based on each user.

With connected social media and gamification options there are three ways CoreJourney will try to engage, connect and motivate users. These are the main ways the application can interact with each user and improve fitness satisfaction and journeys.

1. Interactive Profile Dashboard
   1. Profile data and social media. Track real-time progress and real-time goals
   2. Incorporate visual tracking such as graphs, achievements, and summary statistics
2. Gamification Settings and Notifications
   1. Allow custom options for gamification versus social integrations
   2. Receive gamification rewards, badges, achievements and various challenges
3. Social Integrations and Notifications
   1. Allow connection with friends for community leaderboards, challenges, or participation events.
   2. Share achievements or share exercise