

# AN INFORMATIONAL HUB THAT UTILIZES MODERN APPLICATION USER INTERFACES TO ENCOURAGE HEALTHY LIFESTYLES

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## **ABSTRACT**

*The idea for this app is a platform for people and especially athletes to know proper dieting, exercising, and how to recover from workout-related accidents [2]. I had to go online and search up everything I needed to know and sometimes I would get false information from the wrong websites. Athletes should be able to see what is good for them to eat, what kinds of workouts they should do everyday, as well as how to recover from certain injuries that they may sustain. When the user logs in to the app they will see options that say recovery exercise news and nutrition pages that contain all the information they will need. The nutrition page will display some common good foods to eat and their data such as calories, carbs, and more. The exercises page will list several important exercises vital to a good workout. Lastly, the injury page, also referred to as the recovery page, will show users a picture of the human body and allow them to select certain parts of the body to read up on relevant information pertaining to injuries around that area [3]. I also made 2 experiments to help me know and fix the app's blindspot, the first one is a survey i give to my friends to try my app and fill it out, the second one is i follow the workouts and foods on my app for one day and compare to american's daily nutrition and workout plans.*

## **KEYWORDS**

*Fitness, Exercise, Database, Injuries*

## **1. INTRODUCTION**

The idea for this app first occurred to me when I first became an athlete. I did not know much about proper dieting, exercising, and how to recover from workout-related accidents [4]. I had to go online and search up everything I needed to know and sometimes I would get false information from the wrong websites. Athletes should be able to see what is good for them to eat, what kinds of workouts they should do everyday, as well as how to recover from certain injuries that they may sustain [5].

The 3 methodologies i went over they try to accomplish different goals, methodology 1 is about the researching part of my project, the solution they used trustworthy websites to find accurate informations methodology 2 is about the copy right that they did is they used the credible resources and that has no copyright or they ask for the permission to use the information Methodology 3 is usually people making websites rather than a website but its kinda the same the solution they used is that they hire people or has someone they know how to make them to do it.

To fix the problems previously stated, we propose to create an informational hub application that gathers all of the relevant information that athletes need and leave the most important information for them to view [6]. Users would thus not have to go online to millions of websites to find the correct info for an athlete. This is effective because this will save them a lot of time and if it is reliable, it will serve as a useful source for them to seek correct information about anything fitness related. 2 experiments to help me test and fix the app's blindspot, the first one is a survey i give to my friends to try my app and fill it out, the second one is i follow the workouts and foods on my app for one day and compare to american's daily nutrition and workout plans.

## **2. CHALLENGES**

In order to build the project, a few challenges have been identified as follows.

### **2.1. Unfamiliar with the progress**

The major problem might just be that this is the first time I have ever made an app is it unfamiliar to me and challenging and it is the first time I'm using the platform to make anything.

### **2.2. Data collecting**

Another challenge is the data collecting part. It is hard and there's a lot of work to do for collecting effective and accurate data online I have to search in all aspect online and find trustworthy websites to collecting the data and find data for all the food, injuries prevention, recovery, and the workouts [7].

### **2.3. Copyright**

The last challenge is about the copyright I have to find resources online that is accurate trustworthy and has no copy right i think it was a hard time finding them [1].

## **3. SOLUTION**

This application will serve as an information hub that allows users to access important information. Users will first enter through the dashboard and can choose between a page about nutrition, a workout page, and a page about injuries [8]. The nutrition page will display some common good foods to eat and their data such as calories, carbs, and more. The exercises page will list several important exercises vital to a good workout. Lastly, the injury page, also referred to as the recovery page, will show users a picture of the human body and allow them to select certain parts of the body to read up on relevant information pertaining to injuries around that area. This application was made in Flutterflow.

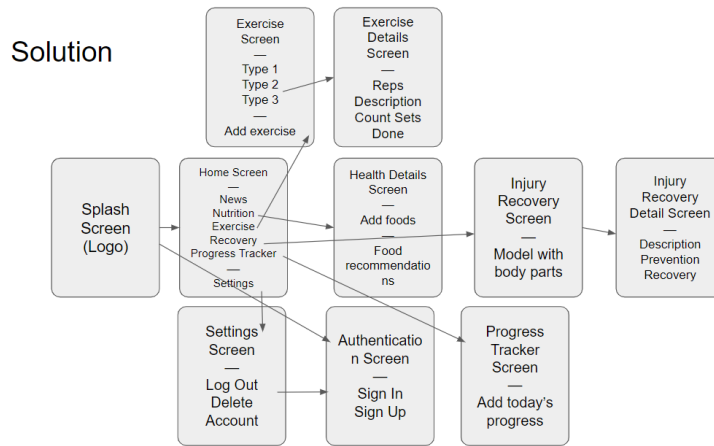


Figure 1. Overview of the solution

The purpose of the exercises page is to provide the user the correct workouts and instructions for them to do. I used online resources and my own knowledge to help me with the workout information [9]. I used Firebase’s Firestore service to input the workout information and it made the whole process easier.

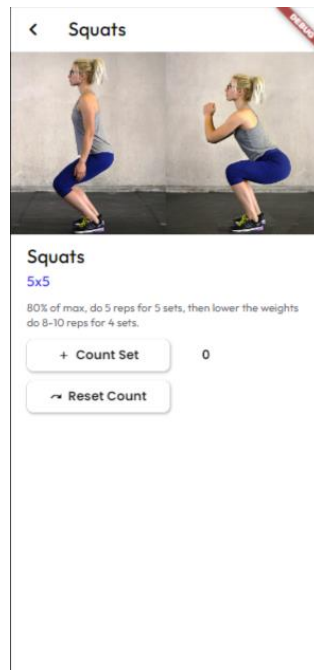


Figure 2. Screenshot of squats



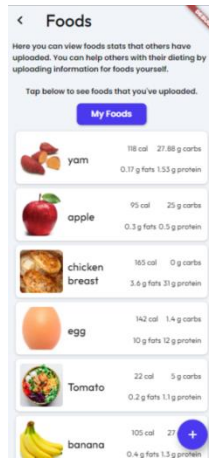


Figure 4. Screenshot of foods

```
padding: EdgeInsets.zero,
primary: false,
shrinkWrap: true,
scrollDirection: Axis.vertical,
itemCount: listViewNutritionRecordList.length,
itemBuilder: (context, listViewIndex) {
  final listViewNutritionRecord =
    listViewNutritionRecordList[listViewIndex];
  return Padding(
    padding: EdgeInsetsDirectional.fromSTEB(16, 0, 16, 0),
    child: Container(
      width: double.infinity,
      decoration: BoxDecoration(
        color: Colors.white,
        boxShadow: [
          BoxShadow(
            blurRadius: 3,
            color: Color(0x41D0429),
            offset: Offset(0, 1),
          ),
        ],
        borderRadius: BorderRadius.circular(8),
      ),
      child: Padding(
        padding:
          EdgeInsetsDirectional.fromSTEB(8, 8, 8, 8),
        child: Row(
          mainAxisAlignment: MainAxisAlignment.max,
          children: [
            Padding(
              padding: EdgeInsetsDirectional.fromSTEB(
                0, 1, 1, 1),
              child: ClipRect(
                borderRadius: BorderRadius.circular(9),
                child: Image.network(
                  listViewNutritionRecord.imageUrl,
                  width: 88,
                  height: 88,
                  fit: BoxFit.cover,
                ),
              ),
            ),
            Expanded(
              child: Padding(
                padding: EdgeInsetsDirectional.fromSTEB(
                  8, 8, 4, 8),
                child: Column(
                  mainAxisAlignment: MainAxisAlignment.max,
                  mainAxisAlignment:
                    MainAxisAlignment.center,
                  crossAxisAlignment:
                    CrossAxisAlignment.start,
                  children: [
                    Text(
                      listViewNutritionRecord.name1,
```

Figure 5. Screenshot of code 2

This code is inside the widget for ListView. The ListView lists the food, calories, and macronutrients in the nutrition database. Then an itemBuilder builds each item counted in the database. Line 6 sets the variable to the value at the current index in the nutrition database list. We use this variable for the rest of the screenshotted code to build each item at each index [14]. Inside the rows inside the Containers, we are taking the image from the database to display as a network image (line 35) and taking the name from the database to display next to it (line 55). In the bottom right hand corner of the screen, there is a button where you can add your own food information. You could input the calories and stuff to make it another option. On submission, the food information you entered would be uploaded to the Firestore database.

The purpose of this component is to use a model to show athletes or people how to recover or prevent an injury from sports or daily life. This component contains several common injuries that you might get from playing a sport or an accident, it has detailed and professional information on how to recover from the injury, as well as how to prevent an injury.



Figure 6. Screenshot of game 3

```
Stack(
  children: [
    Align(
      alignment: AlignmentDirectional(0, 0),
      child: Image.network(
        url: 'https://media.istockphoto.com/151812402/photo-man-muscular-system-anterior-view-isolated.jpg?o=41221118-484-384-384',
        width: 100,
        height: 100,
        fit: BoxFit.cover,
      ),
    ),
    Align(
      alignment: AlignmentDirectional(0.12, -0.50),
      child: Padding(
        padding: EdgeInsetsDirectional.fromSTEB(0, 10, 0, 0),
        child: TextButton(
          onPressed: () => {
            var confirmDialogResponse = await showDialog<bool?>({
              context: context,
              builder: (BuildContext) {
                return AlertDialog(
                  title: Text('Knee'),
                  content: Text(
                    'Fractures, dislocations, tears, and sprains',
                  ),
                  actions: [
                    TextButton(
                      onPressed: () => Navigator.push(
                        alertDialogContext, false),
                      child: Text('Cancel'),
                    ),
                    TextButton(
                      onPressed: () => Navigator.push(
                        alertDialogContext, true),
                      child: Text('Details'),
                    ),
                  ],
                );
              },
            );
            // If (confirmDialogResponse) {
            context.override(
              'url',
              'bodyPart': serializeParam(
                'Knee',
                ParamJsonString,
              ),
              'injury': serializeParam(
                'Fractures, dislocations, tears, and sprains',
                ParamJsonString,
              ),
              'injuryRecoveryInfo': serializeParam(
                'Recovery includes rest, ice, compression, and elevation. General rest is necessary for healing and limits at least every two hours for 48 minutes in a time, stay on elastic bandage or compression wrap around your knee.',
            );
          }
        ),
      ),
    ),
  ],
);
```

Figure 7. Screenshot of code 3

The page is one large image of a human body. We use a stack, which allows widgets to take up the same space as another widget on the page. Using this stack widget on top of the image, we can overlay on top of it several invisible buttons in locations such as the ankles, the head, the chest, and more. When the user selects an area, an alert dialog will pop up and prompt the user to visit that injury's specific page. If the detail button is pressed, then the `confirmDialogResponse` is set to true and the if statements at the bottom of the screenshot will run. There is only one page, but it passes along special parameters that allow the injury displayed to differ. The parameters are

the name of the injury, the treatment for the injury, an image of the injury, and prevention advice for the injury in question.

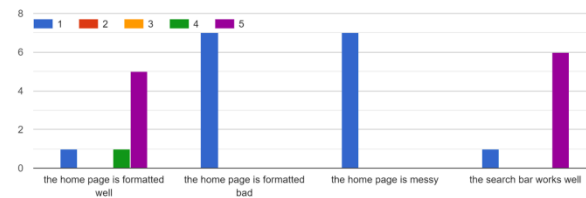
## 4. EXPERIMENT

### 4.1. Experiment 1

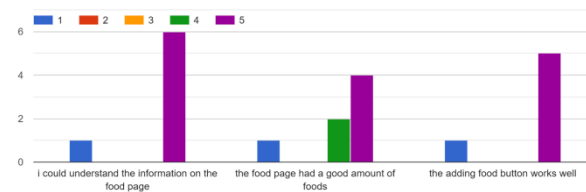
The blind spot is the user's experience, it is important to my program because that's how I can revise and update my app. The purpose of the app is to be used by the user so the goal is to make the user have a good experience using the app.

I will set up a google form that has all the questions about the app that might need to be adjusted or revised, and have my friends at school fill out the form so I could collect the data. The experiment is set up this way because making a survey is the easiest way to collect data, and is the most effective. I'm collecting data from my friends who use my app. There are 6 sections in this survey: how well is the home page formatted, how well is the nutrition page formatted, does the sign in page work well, how's the buttons in the exercise page work, and the injury information on the human model. The last question is about the app in general and how the participants feel.

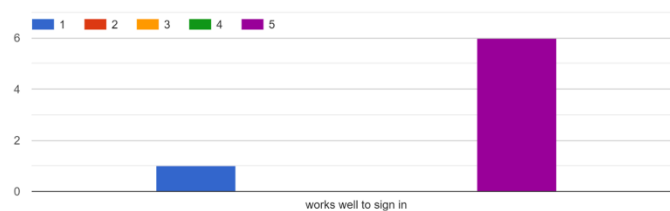
on a scale 1 to 5 how was the home page formatted (1 means strongly disagree 5 means strongly agree)



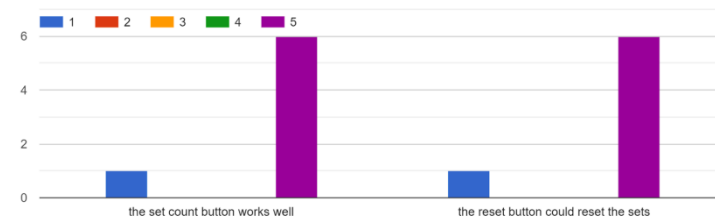
on a scale from 1 to 5 how well is the nutrition page formatted (1 means strongly disagree 5 means strongly agree)



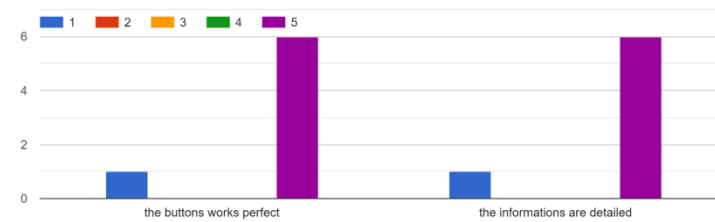
The authentication page



on the scale 1-5 answer the questions about the exercise pages



on the scale 1-5 rate the invisible buttons and the informations on the model



how well is this app in general  
7 responses

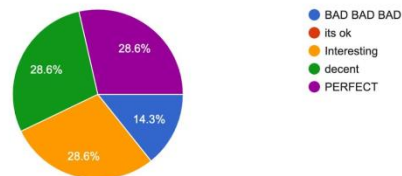


Figure 8. Figure of experiment 1

Respondents did not think the page was formatted poorly or was messy. When asked if the home page was formatted well, respondents on average gave a 4.3. They gave a 4.4 when asked about the search bar being formatted well. Respondents liked the food page. When asked about the clarity of the page, they on average gave a 4.4. When asked about the choice of foods, respondents gave a lower 4.1, but this content is user-generated so it is acceptable. When asked about whether the food uploading worked well, respondents gave a 4.3. Respondents on average gave a 4.4 when asked if the login page was easy to use. Respondents liked the injuries page, and gave a 4.4 when asked about how well it was formatted and how detailed the instructions were respectively. Respondents were asked in general to give this application a rating, and on average the score was a 3.6, with more than half of the responses in total being at least a 4 rating.

## 4.2. Experiment 2

Another thing to check with this application is that the exercises and foods encouraged by the application are actually healthy for its users. The utility of this application hinges on how healthy these exercise and diet routines are for its users.

For this experiment, I would, for one day, use the application to help create my exercise and dieting routine. I would select a few exercises and a few foods from the app. I would then use the



logging function of the app to track what foods I ate in terms of calories, macronutrients, etc. and the amount of exercises that I did. At the end of the day, I will analyze the statistics from my dieting and exercising routine and compare it to the diet and exercise of a standard American. The average American has a sedentary lifestyle, so it is important to make sure that this application can help them lose weight.

I used the app for 1 day and I did 5 sets of bench press and 5 sets of curls and 5 sets of squats and 5 sets of push ups , that is a total of 850 calories burned today from the work outs. I ate 200 grams of chicken breast(330cal), 8 eggs (1136) 300 grams of yam(354 cal) , 5 bananas(420) and 2 apples(190) . Those add up to 2430 cal.

- Kids 6-17 years old should get at least 60 minutes per day of moderate- to vigorous-intensity physical activity, mostly aerobic.
- Include vigorous-intensity activity at least 3 days per week.
- Include muscle- and bone-strengthening (weight-bearing) activities on at least 3 days per week.
- Increase amount and intensity gradually over time.

I have met all these goals that the american heart association has recommended and surpassing this recommendation because i have been playing high school football so my workouts are intense

From the data I got using the app my calories burned is average and the food I'm eating for the day is more than the average American eats in some aspect like protein because I worked out so I need that protein to recover it.

## 5. RELATED WORK

I founded this paper that has similar problems in solving is about the researching part of my project, the solution they used trustworthy websites to find accurate informations [11].

Another paper i found that has the same problem i have is about the copy right that they did is they used the credible resources and that has no copyright or they ask for the permission to use the information [12].

And the last problem that I found similar to mine is the app making part, usually people make websites rather than a website but it's kinda the same the solution they used is that they hire people or has someone they know how to make them to do it [13].

## 6. CONCLUSIONS

There were some limitations when making this application. Since this is the first time that I am using flutterflow, there are several features that I have never used and my resources are limited as well [15]. I believe that I can work more on a better user interface and home page that could look better. I also think a better app icon could be made for this application.

Overall this application will serve as a good proof of concept for an information hub that all prospective fitness oriented people will enjoy to use. It features a breadth of features that allow for easy access to useful information about nutrition and proper exercise.

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