User Documentation

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A Brief Overview To Users

Welcome to our final Project!

A user can use this application to create and manage software projects.

A user can create a login upon first use, and then continue to use this to login to the application in the future.

Once a user is logged in, then they will be presented with a project page.

On this project page, a user can either create a new project with a name and ID, or a user can log into an existing project (created by either that user or another user) to upload their new code given they possess the respective ID.

Furthermore, once a user enters a project, they can check out certain hardware sets to be able to test their code.

The hardware set page should give an option to check in or check out hardware sets based upon the availability.

Also, there is a page where users can directly download datasets from physionet in order to test their own code.

There should also be functionality to logout, switch users, switch projects, go back a page, etc. on each page.

So, users should get started!

Minimum Hardware and Software Requirements

All you need is access to a web application through google chrome, safari, firefox, etc. with a running network.

How to Start the System

Begin by clicking on this link to our app!

Link to Heroku App: https://final-project-group-8.herokuapp.com/

Walkthrough of the Application and Screenshots explaining Main Features of the System

First, one will sign-up/login.

Below is an example of a possible input.
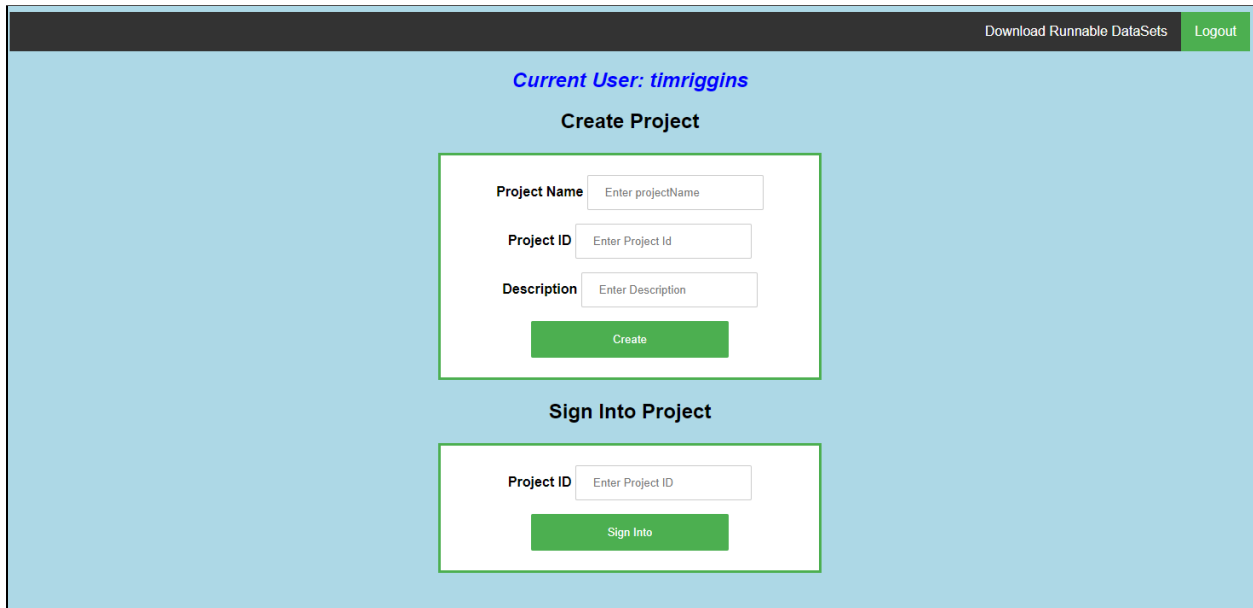
Next, you will be presented with the project login page. Verify that your username is at the top!

You can either create a project or sign into one. Below is an example of a possible Project ID input to sign into an existing project.

Next, you will be presented with the hardware sets. You can either check out or check in sets based upon the availability of each hardware set displayed at the top. You will input the number you want checked in or checked out as well as the Project ID of the project that you are in.

HW SET FORM

Availability of HWSet1: 11

Availability of HWSet2: 80

Project Name: FinalProject2

Number of HWSet1 Checked Out: 52

Number of HWSet2 Checked Out: 8

Checkout Hardware Sets

[Enter Amount for Set1]

Project ID: 0001

[Enter ID]

[Checkout1]

[Enter Amount for Set2]

Project ID: 0001

[Enter ID]

[Checkout2]

Checkin Hardware Sets

[Enter Amount for Set1]

Project ID: 0001

[Enter ID]

[Checkin1]

[Enter Amount for Set2]

Project ID: 0001

[Enter ID]

[Checkin2]

As you check in or check out, you will see the availabilities update as well as the number of sets checked out by the project you are in.

Checkout Hardware Sets

valid!

5

Project ID: 0001

0001

[Checkout1]

Enter Amount for Set2

Project ID: 0001

Enter ID

[Checkout2]

These are examples of potential outputs displayed at the top.

Next, at the top of the page, you may have noticed the link to the page "Download Runnable DataSets." Upon clicking this, there is a list of datasets from physionet with their descriptions. You can directly click on the link, and then downloads should begin immediately. This is used for testing.

Download and Test with DataSets from Physionet!

Abdominal and Direct Fetal ECG Database:

Multichannel fetal electrocardiogram recordings obtained from 5 different women in labor, between 38 and 41 weeks of gestation.

AF Termination Challenge Database:

ECG recordings created for the Computers in Cardiology Challenge 2004, which focused on predicting spontaneous termination of atrial fibrillation.

ANSI/AAMI EC13 Test Waveforms:

The files in this set can be used for testing a variety of devices that monitor the electrocardiogram. The recordings include both synthetic and real waveforms.

BIDMC Congestive Heart Failure Database:

Long-term ECG recordings from 15 subjects with severe congestive heart failure.

BIDMC PPG and Respiration Dataset:

ECG signals extracted from the MIMIC-II Matched Waveform Database, with manual breath annotations added by annotators using impedance respiratory signal.

Brno University of Technology ECG Quality Database (BUT QDB):

The database is intended for the development and objective comparison of algorithms designed to assess the quality of ECG records. It also enables objective comparison of results between authors.

CHB-MIT Scalp EEG Database

EEG recordings from pediatric subjects with intractable seizures, collected at the Children's Hospital Boston.

CiPA ECG Validation Study:

ECG effects of ranolazine, verapamil, lopinavir+ritonavir, chloroquine, dofetilide, diltiazem, and dofetilide+diltiazem in a small clinical study.

Combined measurement of ECG, Breathing and Seismocardiograms:

ECG and seismocardiogram data collected from 20 presumed healthy volunteers.

Congestive Heart Failure RR Interval Database:

This database includes beat annotation files for 29 long-term ECG recordings of subjects aged 34 to 79, with congestive heart failure (NYHA classes I, II, and III).

After all of this, at the top, there are selections to return back a page, switch project, or logout. Now, it is your turn to play around with our application for your best use!

Explanation of Error Messages

There could occur error messages based on types of input.

For example, if you input the wrong login, there can appear "Invalid Password" or "Invalid Username," which is self-explanatory. Also, if you attempt to sign-up with an existing username, the error message "Username taken" will be displayed.

Also, if you enter a Project ID that does not exist, it will alert "ProjectID not found," and if you create a project with an existing ID, the "ProjectID taken" error message will be displayed.

Current User: timriggins

Create Project

ProjectID taken!

Project Name	ExampleProject
Project ID	0001
Description	This is an example.

Create

Furthermore, the hardware set page should alert with errors that display "valid" or "invalid" based upon checkout and checkin requests. Additionally, the correct Project ID must be entered with every checkin and checkout request, else the "Please enter the correct Project ID" error message will be displayed.

Checkout Hardware Sets

Please enter the correct Project ID!

4

Project ID: 0001

00000

Checkout1

Enter Amount for Set2

Project ID: 0001

Enter ID

Checkout2

Troubleshooting Questions and Developer Contact Information

For further questions or development problems, contact the developers below:

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Implementation Information

Front End: implemented with HTML

Back End: implemented with Python Flask deployed to Heroku

Databases (Four created using MongoDB):
HWinfo
currentinfo
logininfo
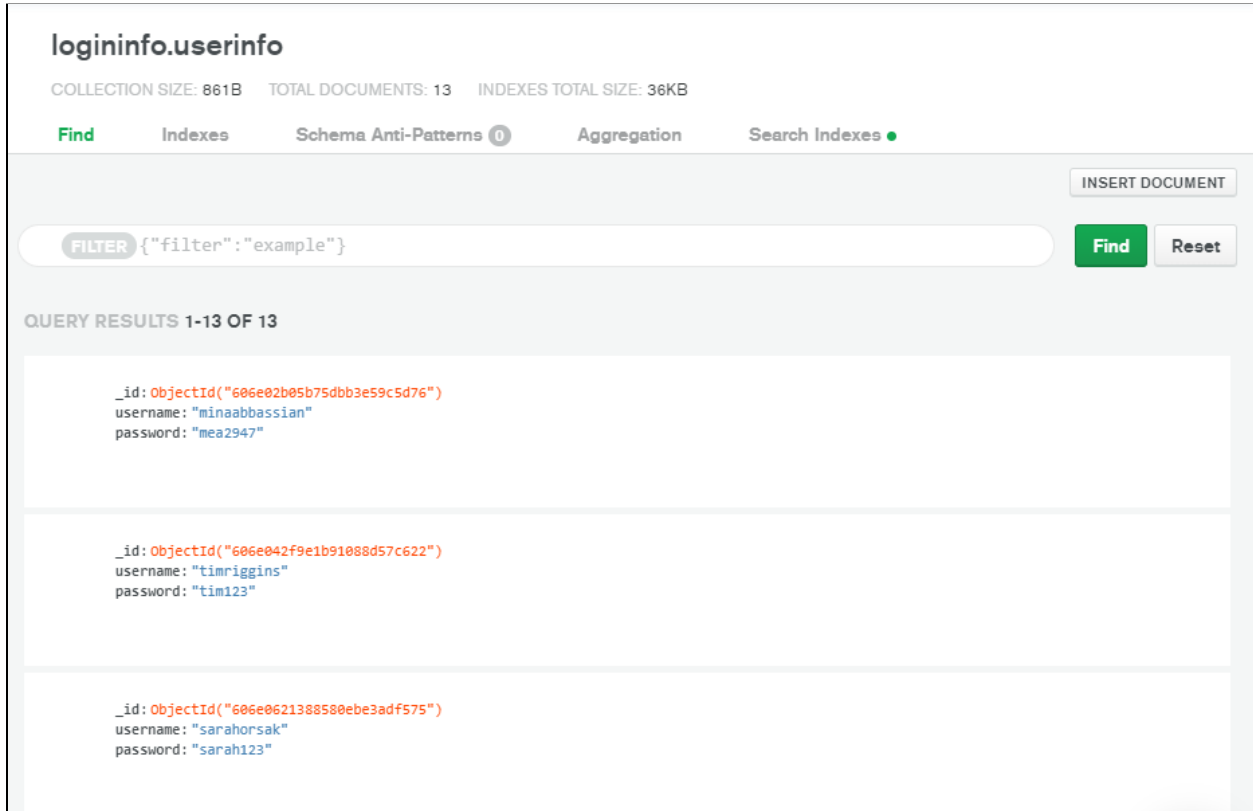projectinfo

HWinfo Collection: HWSets
Stores the name of the hardware set along with the number available of that hardware set
Fields: Name, Available

HWinfo.HWSets

COLLECTION SIZE: 108B   TOTAL DOCUMENTS: 2   INDEXES TOTAL SIZE: 32KB

Find   Indexes   Schema Anti-Patterns ⓪   Aggregation   Search Indexes ●

INSERT DOCUMENT

FILTER {"filter":"example"}   Find   Reset

QUERY RESULTS 1-2 OF 2

_id: ObjectId("606e219cc23d99308b4f101d")
Name: "HWSet1"
Available: 21

_id: ObjectId("606e219dc23d99308b4f101e")
Name: "HWSet2"
Available: 80

currentinfo Collection: currentsession
Stores the current username of the session and the project ID of the current project in session
Fields: ID, ProjectName, Session

currentinfo.currentsession

COLLECTION SIZE: 113B   TOTAL DOCUMENTS: 1   INDEXES TOTAL SIZE: 32KB

Find   Indexes   Schema Anti-Patterns ⓪   Aggregation   Search Indexes ●

INSERT DOCUMENT

FILTER {"filter":"example"}   Find   Reset

QUERY RESULTS 1-1 OF 1

_id: ObjectId("606f5e10cb02ce35d325fd50")
Username: "minaabbassian"
ID: "0001"
ProjectName: "FinalProject2"
Session: "first"

logininfo Collection: userinfo
Stores the usernames and corresponding passwords of every user
Fields: username, password

logininfo.userinfo
COLLECTION SIZE: 861B TOTAL DOCUMENTS: 13 INDEXES TOTAL SIZE: 36KB

Find   Indexes   Schema Anti-Patterns ⓪   Aggregation   Search Indexes ●

INSERT DOCUMENT

FILTER {"filter":"example"}   Find   Reset

QUERY RESULTS 1-13 OF 13

```
_id: ObjectId("606e02b05b75dbb3e59c5d76")
username: "minaabbassian"
password: "mea2947"
```

```
_id: ObjectId("606e042f9e1b91088d57c622")
username: "timriggins"
password: "tim123"
```

```
_id: ObjectId("606e0621388580ebe3adf575")
username: "sarahorsak"
password: "sarah123"
```

projectinfo Collection: projectID
Stores the project name, project description, project ID, number of HWSet1 and number of
HWSet2 checked out for every project created
Fields: Name, Description, ID, HWSet1, HWSet2

projectinfo.projectID

COLLECTION SIZE: 1.54KB   TOTAL DOCUMENTS: 13   INDEXES TOTAL SIZE: 32KB

Find   Indexes   Schema Anti-Patterns 0   Aggregation   Search Indexes ●

INSERT DOCUMENT

FILTER {"filter":"example"}   Find   Reset

QUERY RESULTS **1-13 OF 13**

```
_id: ObjectId("606e0cf71f4bd537c622ad8a")
Name: "FinalProject2"
Description: "This project is the first final project added"
ID: "0001"
HWSet1: 42
HWSet2: 8
```

```
_id: ObjectId("606e0d34905631b406f495b2")
Name: "TelephoneProject"
Description: "This project is about telephones. Yipee!"
ID: "123456"
HWSet1: 0
HWSet2: 0
```

```
_id: ObjectId("606e0d5e3b199c7df90b1924")
Name: "PencilsAreFun"
Description: "This project is about pencils. It is so fun"
ID: "1466"
HWSet1: 0
HWSet2: 0
```