

System Design for Software Eng 4G06

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1 Revision History

Date	Version	Notes
January 13 2023	1.0	Initial Draft

2 Reference Material

This section records information for easy reference.

2.1 Abbreviations and Acronyms

symbol	description
Software Eng 4G06	Explanation of program name
[... —SS]	[... —SS]

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3 Introduction

[Include references to your other documentation —SS]

This document serves to illustrate and explain design decisions (in the context of alternatives) and the thought processes and considerations of the team that made said decisions.

4 Purpose

The purpose of this design documentation is to justify design decisions and prove that our final design meets all requirements as specified in the Software Requirements Specification (SRS).

The purpose of this design documentation is to make clear current design choices, and to show why these designs were chosen over possible alternatives. This document also must prove that the current designs fulfill the requirements enumerated in the Software Requirements Specification (SRS) document.

5 Scope

[Include a figure that show the System Context (showing the boundary between your system and the environment around it.) —SS]

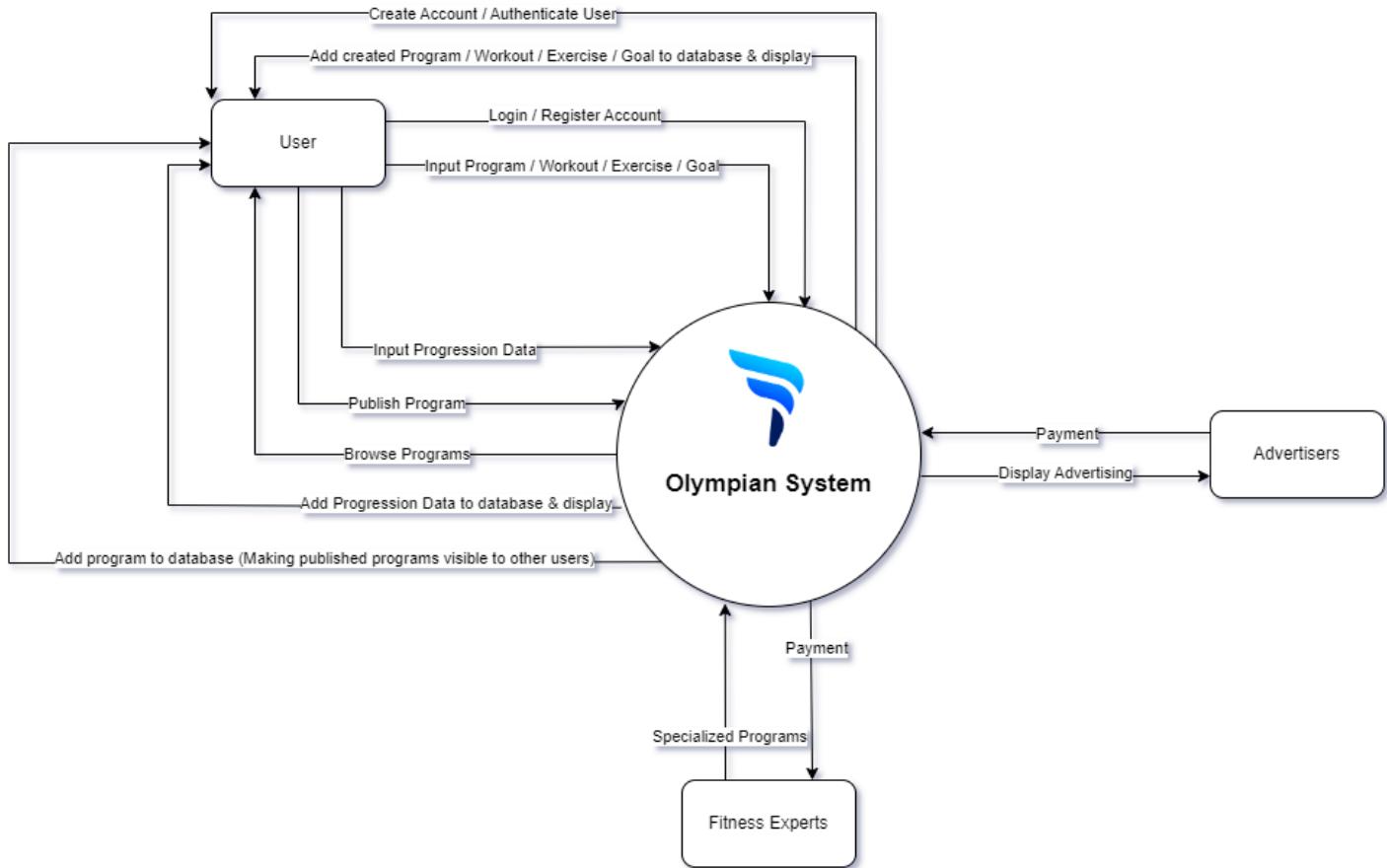


Figure 1: System Context Diagram

6 Project Overview

6.1 Normal Behaviour

Normal behaviour for the application can be defined as the state of the available program when all FRs and NFRs are fulfilled. If an FR or NFR is not fulfilled, this is abnormal behaviour, and indicative of the occurrence of an undesired event.

6.2 Undesired Event Handling

[How you will approach undesired events —SS]

An ‘undesired event’ can comprise anything from incorrect user input to database failure to connectivity issues.

Invalid User Input: Whenever a user provides incorrect information to a form (e.g. an invalid email address during sign-up), an informative error message is displayed beneath the incorrectly filled field, and a visual queue is given in the form of highlighting the field

in red to indicate error. To prevent annoying the user with error messages before they have actually made an error, forms will only display error messages after the first submit attempt. After an initial submit attempt, the error message will remain until the contents of the field are valid. This is to give the user information as to whether or not their entry is valid before having to submit again.

Connection/Database Failure: If the application is unable to connect to the internet, and subsequently the server and database, an informative error message is displayed, informing the user to verify their internet connection. Note that a stretch goal for the future is to have the Olympian application save certain information locally to enable the user to perform certain functions offline. Changed local information would be synced with the database once connection is re-established. However, this is a stretch goal, and current requirements and designs list the database as the only information store, no data (other than an authentication token) is stored locally. If the database/server itself is failing, an appropriate message is displayed to the user. The message will indicate that the failure is not the fault of the user, but rather an internal failure outside of their control.

Error messages are kept consistent and concise in format, to make errors easy for the user to recognize and act upon.

6.3 Component Diagram

6.4 Connection Between Requirements and Design

Requirement
The product shall appear minimal and straightforward
The product shall use fonts of readable size to the target user group
The product shall be able to be used by untrained fitness enthusiasts and amateurs alike, who receive no
The product shall be usable by users with hearing loss or partial blindness
The application must inform users when maintenance is taking place and must warn them at least
The applicaiton will allow users to report offensive content and remove it from their

7 System Variables

[Include this section for Mechatronics projects —SS] N/A

8 User Interfaces

The figure displays four sequential screens from a mobile application's sign-up process:

- Sign Up:** A placeholder for a name is shown, with a note: "Why don't you start by telling us your name? This won't be displayed publicly." A "name" input field is present.
- Hello, <Name>!** A placeholder for an email address is shown, with a note: "Please enter your email address, just in case you forget your password." An "email" input field is present.
- Username Time** A placeholder for a username is shown, with a note: "This will be the name you display publicly. Make it uniquely yours!" A "username" input field is present.
- Password...Shh** Fields for "password" and "re-enter password" are shown, with a note: "Enter a strong password. Don't worry, you can recover it if you forget." A note at the bottom states: "Password must be at least 6 characters."

Each screen includes a back arrow icon and a blue "Next" button at the bottom. Progress indicators (dots) are visible above the "Next" buttons, showing the current step in the sequence.

Figure 2: Multi page register form

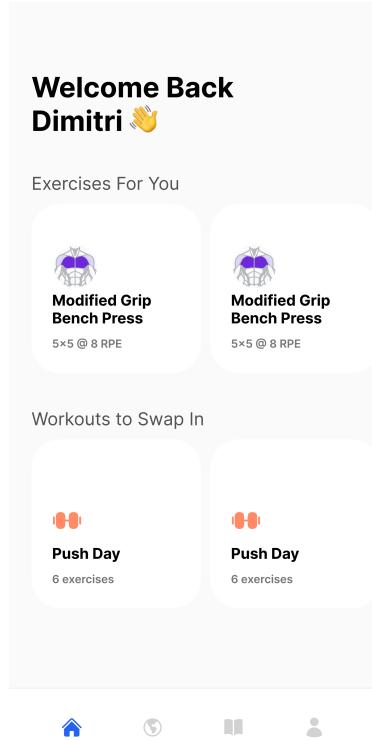


Figure 3: Home Screen (Landing page for logged in users)

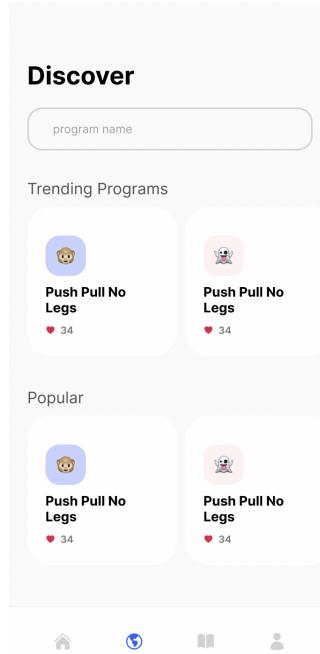


Figure 4: Discover Screen

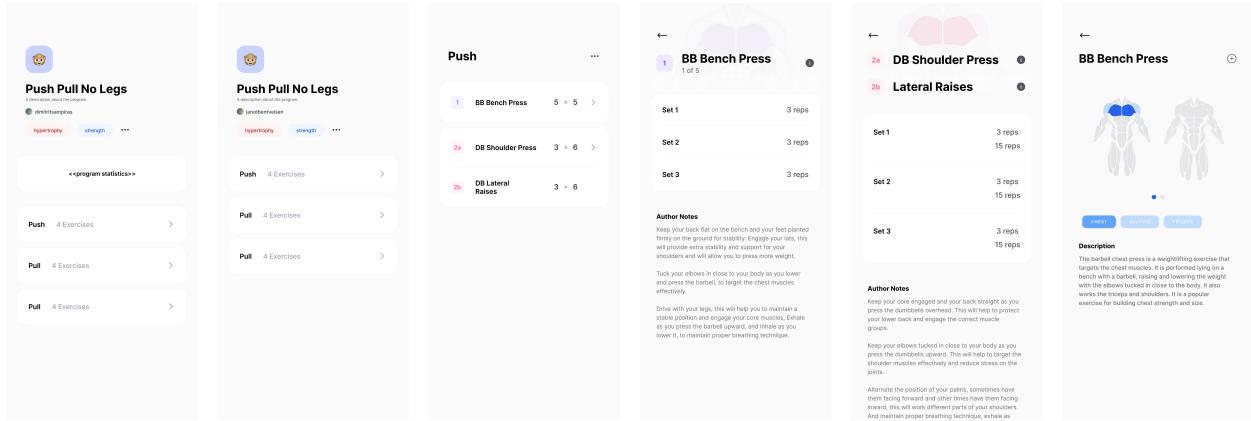


Figure 5: Static Program Stack: View when browsing programs from other authors or non active, personal programs.

Create your own Program.

Name your program and use our program creator to build a program tailored to your needs.

program name

• • • • •

Next

Select Program Availability

Do you want your program to be seen publicly, by just your friends, or just yourself?

Public

Friends

Private

• • • • •

Next

Figure 6: Multi page form for creating a program.

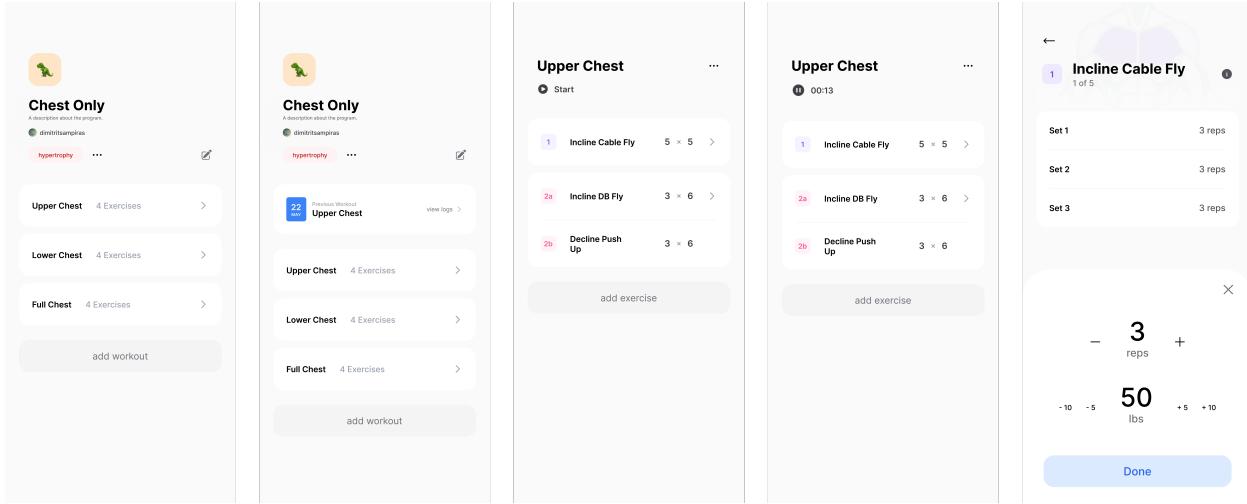


Figure 7: Multi page form for creating a program.

[Design of user interface for software and hardware. Attach an appendix if needed. Drawings, Sketches, Figma —SS]

9 Design of Hardware

[Most relevant for mechatronics projects —SS] [Show what will be acquired —SS] [Show what will be built, with detail on fabrication and materials —SS] [Include appendices as appropriate, possibly with sketches, drawings, CAD, etc —SS]

Olympian will run on mobile devices (e.g. iPhone, Samsung Galaxy) not designed or manufactured by the team.

10 Design of Electrical Components

[Most relevant for mechatronics projects —SS] [Show what will be acquired —SS] [Show what will be built, with detail on fabrication and materials —SS] [Include appendices as appropriate, possibly with sketches, drawings, circuit diagrams, etc —SS]

N/A - See Section 9.

11 Design of Communication Protocols

[If appropriate —SS]

Communication between client and server will be done with HTTP requests.
There is no custom communication protocol used.

12 Timeline

[Schedule of tasks and who is responsible —SS]

Below is a timeline of the major milestones and the developers responsible for completing them.

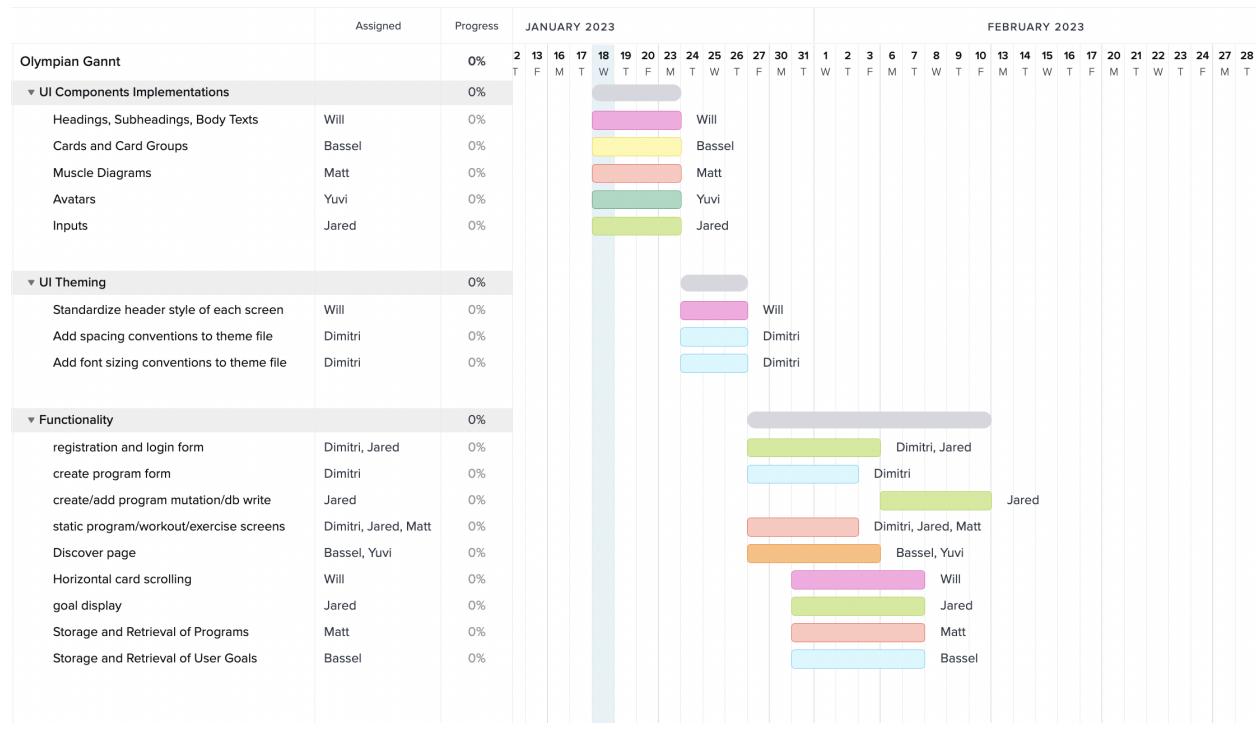


Figure 8: Multi page form for creating a program.

A Interface

[Include additional information related to the appearance of, and interaction with, the user interface —SS]

See Figma.

B Mechanical Hardware

N/A

C Electrical Components

N/A

D Communication Protocols

The project employs Hyper Text Transfer Protocol (HTTP), enabling the client to communicate with the server and database through HTTP requests.

E Reflection

The information in this section will be used to evaluate the team members on the graduate attribute of Problem Analysis and Design. Please answer the following questions:

1. What are the limitations of your solution? Put another way, given unlimited resources, what could you do to make the project better? (LO_ProbSolutions)
2. Give a brief overview of other design solutions you considered. What are the benefits and tradeoffs of those other designs compared with the chosen design? From all the potential options, why did you select documented design? (LO_Explores)