

Com S 402 - Group SD10 - Demo 2

Physical Activity Self-efficacy Intervention Application

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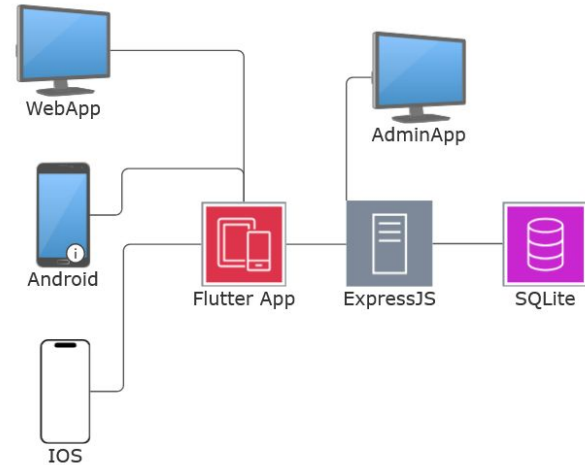
Recap

Project Overview

- PAS Invertevention is a 112 day research study application for Professor Lee of the kinesiology department.

Project Objectives

- Develop a mobile application that intervenes in a participant study to provide fitness resources for the test participants.
- Collect data and have it downloadable via a admin portal.



Flutter

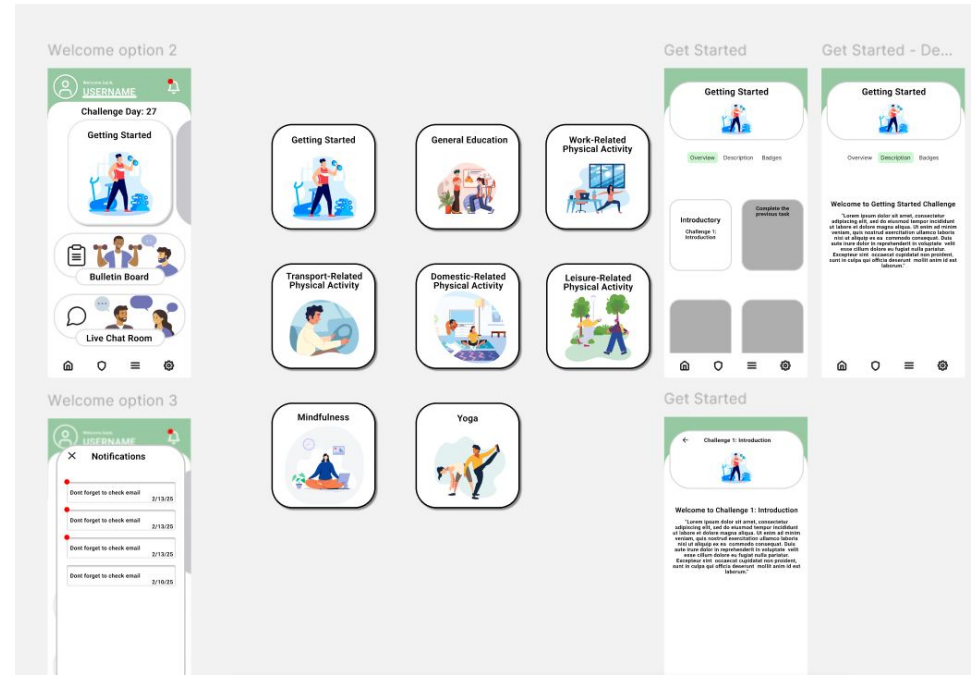


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Frontend Design

UX Design

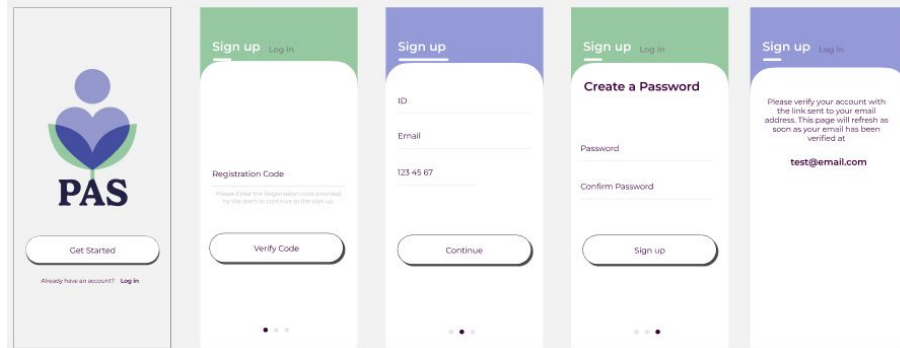
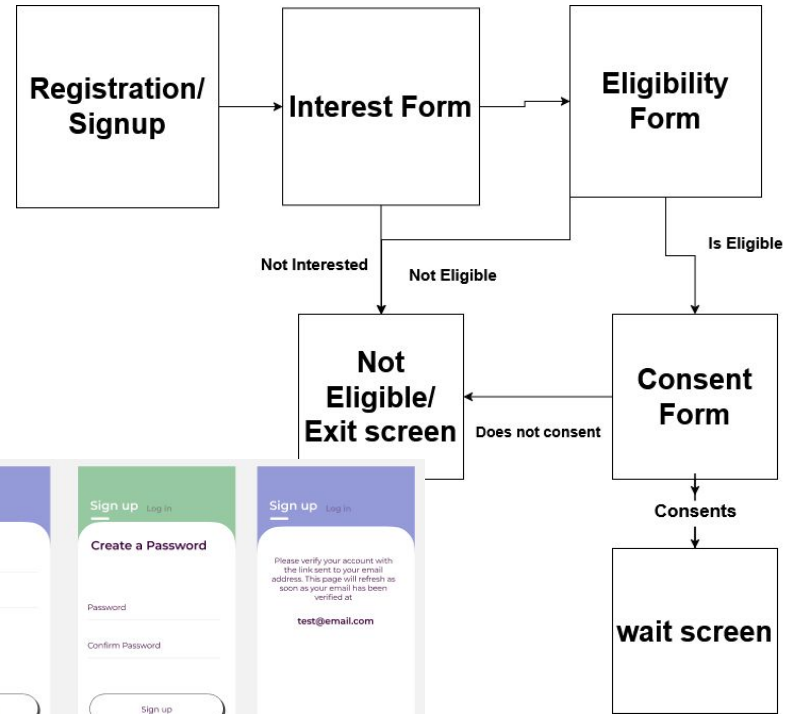
- Logos and color schemes provided, via previous design templates.
- Allowed creative control over design of the application.



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Registration Implementation

- Widget based navigation within a screen to allow easy to understand forms.
- Data layer in MVVM to allow for back end communication.
- Automatic email verification refresh.
- Page Navigation.



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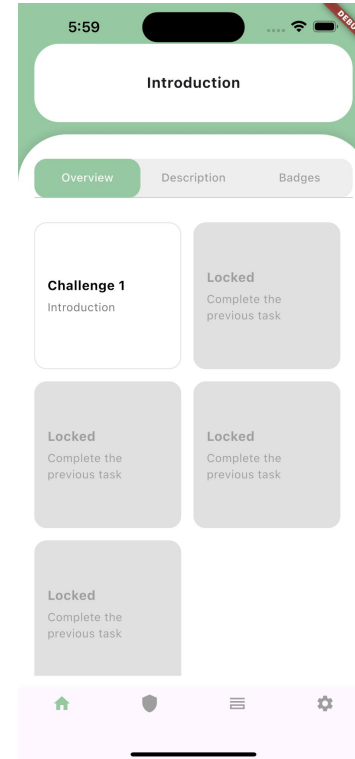
Content building utilities

- Form builder
 - Quickly design and implement forms to grab user data
- Home screen builder
 - Pass in minimal data to create home screens for each section of challenges

The image displays four sequential mobile app screens for an eligibility form. Each screen has a purple header with the text "Eligibility Form".

- Screen 1: "What is your age?" with a text input field containing "18".
- Screen 2: "What is your height?" with a text input field containing "18 inches".
- Screen 3: "What is your weight?" with a text input field containing "264 lbs".
- Screen 4: "Will you check you email?" with a "Yes, I will." button and a "No, I will not." option.

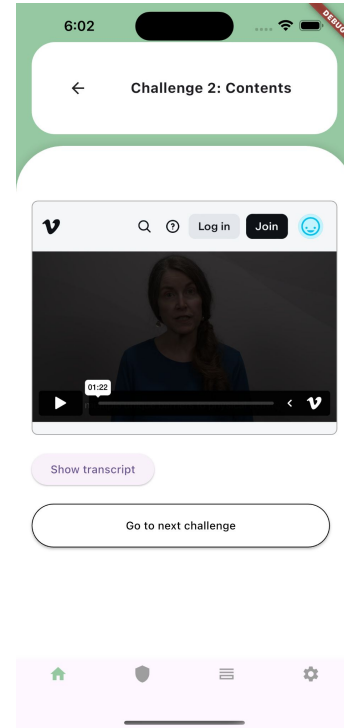
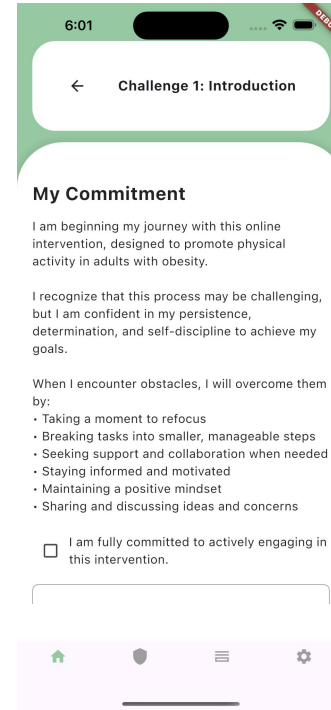
Each screen includes a "Back" button on the left and a "Next" button on the right, with a progress indicator (a row of dots) between them. The second, third, and fourth screens have a dot that is filled, indicating the current step in the form.



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Challenge screen utilities

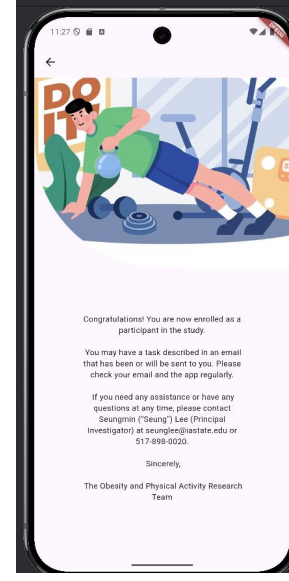
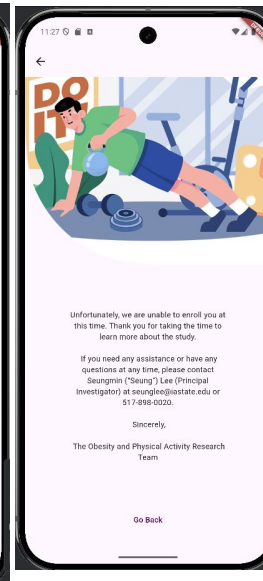
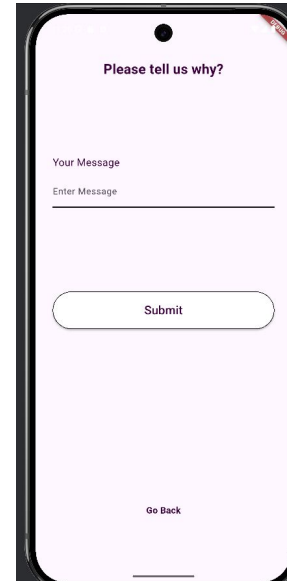
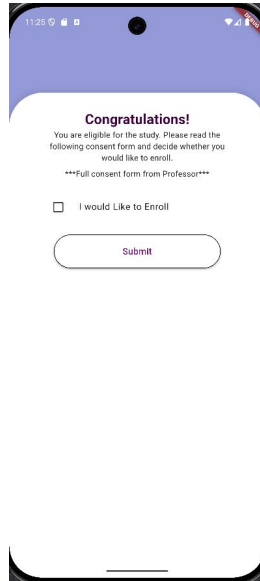
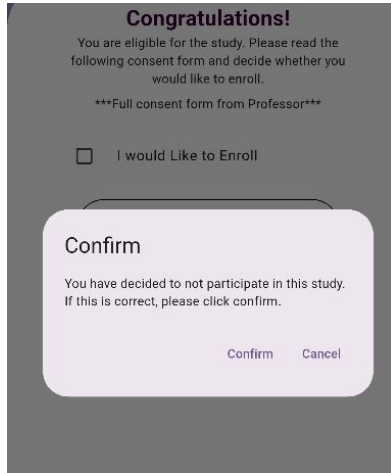
- Three kinds of challenges
 - Text
 - Scrollable, flexible, component easily modified to fit text and checkboxes
 - Video
 - Embedded Vimeo video with transcript
 - Form
 - Customizable form which saves data automatically



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IRB Consent

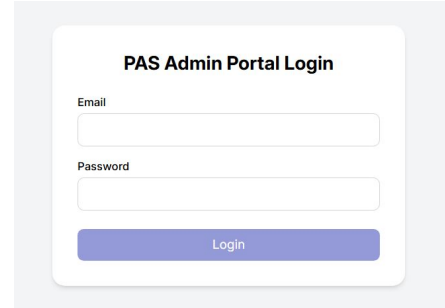
- Created Consent form page
- Created waiting screen
- Created exit screen
- Connected eligibility to consent form



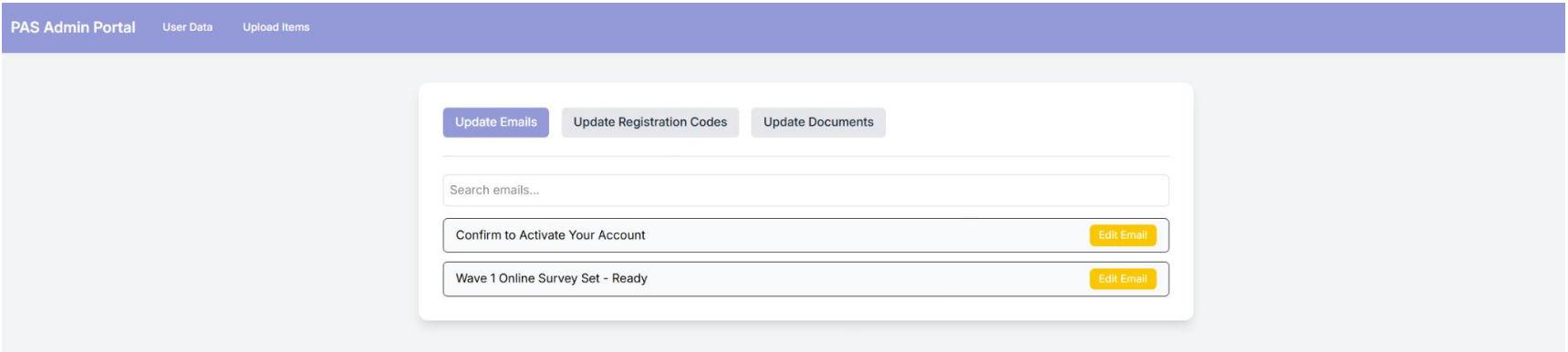
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Admin Portal

- Started a new React Single Page Application
- Used to view and download user data as CSV
- Added ability to edit Emails
- Added ability to update valid registration codes
- Ability to update Consent forms
- Fuzzing search functionality
- More functionality to come



The screenshot shows a login form titled "PAS Admin Portal Login". It contains two input fields: "Email" and "Password". Below the fields is a blue "Login" button.



The screenshot shows the main interface of the PAS Admin Portal. The top navigation bar includes "PAS Admin Portal", "User Data", and "Upload Items". The main content area features three buttons: "Update Emails", "Update Registration Codes", and "Update Documents". Below these buttons is a search bar labeled "Search emails...". There are two rows of data, each with a yellow "Edit Email" button:

Confirm to Activate Your Account	Edit Email
Wave 1 Online Survey Set - Ready	Edit Email

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Admin Portal

Edit Email

Title

Contents

Confirm Deletion

Are you sure you want to delete the code
ABCD?

Frontend - Challenges

- Data api implementation
 - Ensuring that we properly connect api calls using the MVVM structure.
- Time Management

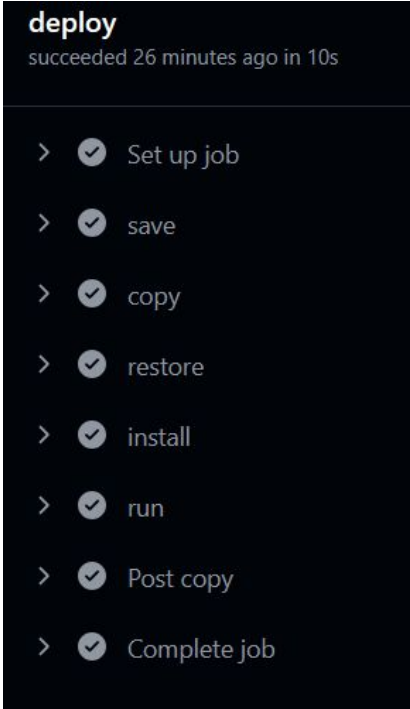
Backend - Nolan

Main components of the Backend (NodeJS)

- Database (SQLite)
- API (Express)
- Emails (NodeMailer)
- Scheduler (Cron)

- API for accounts and logins
 - Verification of emails

- AWS EC2 to host the server
 - CI/CD using GitHub mirrored repository



<input type="checkbox"/>	Name ✎	Instance ID	Instance state	Instance type
<input type="checkbox"/>	dev	i-068efbc3acb19e82a	✔ Running + -	t2.small

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Backend - Nolan

Admin Page - Separate backend service for editing research content

New API endpoints for Admin Page

- Account retrieval (JSON or CSV)
- Editing registration codes
- Editing links and emails

Challenges:

- User Platform compatibility
 - Email link previews
 - HTTPS requirements

```
app.post('/admin/download', (req, res) => {  
  const token = req.body['token'];  
  
  if (!verifyToken(token)) {  
    res.sendStatus(401);  
    return;  
  }  
  
  databaseAccountGetAll().then((accounts) => {  
    if (accounts.length === 0) {  
      res.sendStatus(404);  
      return;  
    }  
  
    const headers = Object.keys(accounts[0]).join(',');  
    const csvRows = accounts.map(account =>  
      Object.values(account).map(value => `"${value}"`).join(',')  
    );  
    const csv = [headers, ...csvRows].join('\n');  
  
    res.setHeader('Content-Type', 'text/csv');  
    res.setHeader('Content-Disposition', 'attachment; filename=accounts.csv');  
    res.status(200).send(csv);  
  }).catch((err) => {  
    console.log(err);  
    res.sendStatus(404);  
  });  
});
```

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Backend - Email + Task Scheduler

```
<body>
  <p>Hi {{name}}!</p>
  <p>Congratulations! You are now enrolled as a participant in the study. </p>
  <p>Your next task is to complete the Wave 1 Online Survey Set within 10 days. <br>You will earn ${{money}}
    in your Amazon electronic gift card account for completing this task. <br>You will receive the
    accrued incentives after this study ends. After 10 days, this task will expire (i.e., no Amazon gift card for this task).
  </p>
  <p> Please click the following link to complete the task. <a href="{{link}}">Link</a></p>

  <p> You may click the following link to view and download the consent document for your records: <a href="{{link2}}">Link</a></p>

  <p>If you need any assistance or have any questions at any time, please contact Seungmin ("Seung")<br>
  Lee (Principal Investigator) at seunglee@iastate.edu or 517-898-0020.
  </p>
  <p>Sincerely,<br>The Obesity and Physical Activity Research Team </p>
</body>
</html>
```

← Value from db

The p element represents a paragraph.
MDN Reference

Udf variable

Variables for links

Backend - Email + Task Scheduler

```
//Wave 1 Physical Activity Monitoring - Ready
cron.schedule('* 7 * * *', async () => {
  const query = 'SELECT * FROM accounts WHERE currentday = 11';
  const users = await databaseQuery(query, []);

  const subject = "Wave 1 Physical Activity Monitoring Ready ";
  const template = "wave1PhysicalActivityMonitoring";
  const money = await UdfsGetByName("Wave 1 Monitoring Money");

  users.forEach(async (user) => {
    await sendEmail(
      user.email,
      subject,
      template,
      { name: user.id, money: money.value},
      "seunglee@iastate.edu"
    );
  });
});
```

7am Daily

SQL Query and Call

Method that call Nodemailer API

Values to Pass into Template

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Backend - Email + Task Scheduler

End Result:

Hi Boxcar,

Your next task is to complete **Wave 1 Physical Activity Monitoring**.

You need to meet with research members within 10 days to complete the physical activity monitoring. Within the next few days, research members will contact you to provide a physical activity monitor and instructions for wearing it. You will earn an additional \$35 in your Amazon electronic gift card account for completing this task. You will receive the accrued incentives after this study ends. **After 10 days**, this task will expire (i.e., no Amazon gift card for this task).

If you need any assistance or have any questions at any time, please contact Seungmin (“Seung”) Lee (Principal Investigator) at seunglee@iastate.edu or 517-898-0020.

Sincerely,
The Obesity and Physical Activity Research Team

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Work Left

- Finish challenge screens
- Challenge games
- Builtin board
- Finish Admin page
- Amazon SES
- APIs

Demo video



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