

Application Challenges

Book for Blueprint Technical Challenges

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Backend Challenge Spring 2024

Blueprint Spring 2024 Backend Challenge

This challenge is an opportunity for you to showcase your skills, creativity, and understanding of backend technologies. This challenge was designed to simulate real-world problems that we had to solve in our previous NPO projects.

Context and Challenge Overview

Backend systems are the backbone of any web application. As a backend developer, your task is to ensure that the server, application, and database communicate with each other safely and efficiently. The core of a successful backend is its ability to perform CRUD (Create, Read, Update, Delete) operations effectively, as these operations are fundamental to interacting with data stored in databases.

You will need *git* installed in order to work on this project. You can read this [Blueprint Developer Guide](#) for details on how to download and install git. You will also need to make an account on [GitHub](#) in order to access the code repository.

Step 1: Fork the Repository

The first step is to fork the repository that contains the Frontend Challenge starter code. This creates a copy of the repository in your own GitHub account that you can work on without affecting the original.

To fork the repository:

1. Navigate to the repository on GitHub (https://github.com/stevensblueprint/backend_challenge_spring_2024)
2. Click the "Fork" button in the top right corner of the page

3. Select your GitHub account as the destination for the fork

Step 2: Clone the Repository

Next, you need to clone the repository to your local machine. This creates a local copy of the repository that you can make changes to.

To clone the repository:

1. Open a terminal window
2. Navigate to the directory where you want to clone the repository
3. Run the following command: `git clone <repository-url>` Replace `<repository-url>` with the URL of your forked repository. The repository URL can be found by pressing the green 'Code' button and copying the HTTPS link. It will be a github link that includes your github username and forked repo name.

Step 3: Create a New Branch

Before you make changes to the HTML file, you should create a new branch. This allows you to make changes without affecting the main branch of the repository. All development work for our teams exists in branches and are later merged into main with Pull Requests!

To create a new branch:

1. Navigate to the cloned repository directory in your terminal
2. Run the following command: `git checkout -b feature/yourName` Replace `yourName` with your first name. So your full branch name could be `feature/miguel`.

Challenge Details

Your task is to develop a CRUD application that adheres to the following specifications and requirements:

Application Overview

- **Purpose:** Create a backend service that Creates, Reads, Updates, and Deletes volunteers from a database.
- **Technology Stack:** You are free to choose the technology stack (programming languages, database systems, frameworks) that you are most comfortable with.

CRUD Operations

- **Create:** Implement functionality to add new records to your database. For example, adding a new volunteer.

- **Read:** Develop methods to retrieve and display records from the database. This could include listing all volunteers or searching for a specific user.
- **Update:** Allow for modifications to existing records, such as updating a volunteer's contact information.
- **Delete:** Provide a way to remove records from the database safely.

Volunteers Table

Field Name	Data Type	Description	Example
volunteer_id	UUID / INT (PK)	Unique identifier for each volunteer.	123e4567- e89b- 12d3- a456- 426614174000
first_name	VARCHAR	Volunteer's first name.	John
last_name	VARCHAR	Volunteer's last name.	Doe
email	VARCHAR	Volunteer's email address.	john.doe@example.com
phone_number	VARCHAR	Volunteer's phone number.	+1234567890
date_of_birth	DATE	Volunteer's date of birth.	1990- 01- 01
address	VARCHAR	Volunteer's address.	123 Main St, Anytown, AS
skills	VARCHAR / ARRAY	List of volunteer skills.	["First Aid", "Counseling"]
availability	JSON / VARCHAR	Volunteer's availability (could be structured as JSON).	{ "Monday": ["AM"], "Saturday": ["PM"] }
date_joined	DATE	Date when the volunteer joined.	2024- 03- 21
background_check	BOOLEAN	Indicates if a background check has been completed.	true / false

Volunteers

- **List Volunteers**
 - **GET** /api/volunteers
 - Retrieves a list of all volunteers, with options for pagination, filtering, and sorting.
- **Create a New Volunteer**
 - **POST** /api/volunteers
 - Creates a new volunteer record.
- **Get Volunteer Details**
 - **GET** /api/volunteers/{volunteerId}
 - Retrieves detailed information about a specific volunteer.
- **Update Volunteer Information**

- **PUT** `/api/volunteers/{volunteerId}`
 - Updates an existing volunteer's information.
- **Delete a Volunteer**
 - **DELETE** `/api/volunteers/{volunteerId}`
 - Deletes a specific volunteer's record.

Volunteer Skills (Optional)

- **List Skills for a Volunteer**
 - **GET** `/api/volunteers/{volunteerId}/skills`
 - Lists the skills associated with a specific volunteer.
- **Add Skills to a Volunteer**
 - **POST** `/api/volunteers/{volunteerId}/skills`
 - Adds new skills to a volunteer.
- **Remove a Skill from a Volunteer**
 - **DELETE** `/api/volunteers/{volunteerId}/skills/{skillId}`
 - Removes a specific skill from a volunteer.

Event Participation (Optional)

- **List Events a Volunteer Participated In**
 - **GET** `/api/volunteers/{volunteerId}/events`
 - Lists events that a specific volunteer has participated in.
- **Add Volunteer Participation to an Event**
 - **POST** `/api/events/{eventId}/volunteers/{volunteerId}`
 - Records a volunteer's participation in a specific event.
- **Remove Volunteer Participation from an Event**
 - **DELETE** `/api/events/{eventId}/volunteers/{volunteerId}`
 - Removes a record of a volunteer's participation in a specific event.

Submission

1. Commit your code to your branch on your forked repository.
2. Create a Pull Request (PR).
3. Email a link to your Pull Request (PR) to sit.blueprint@gmail.com. Please make the subject of your email "Backend Challenge: YOURNAME" i.e "Backend Challenge: Miguel Merlin".

This challenge is due on March 28 @ 11:59 P.M. Challenges will be discussed during the 3rd round of applications: Coffee Chats. Thank you for your time!

Submission Checklist

1. Add a README.md where you tell us how to install dependencies and how to run your application
2. Create a pull request in your own forked repository
3. Submit the link to your pull pull-request

Frontend Challenge Spring 2024

Challenge Description

Thank you for taking the time to apply to the Blueprint Project Teams and participating in this frontend challenge. In this challenge you will be creating the following features in a simple React application:

1. A form that takes 3 fields:
 - The 3 fields you will be taking in are Name, Email, and Graduation Year. Users should be able to enter their information into such fields. When they press submit, the information they entered should show in a table below the form. Ensure that it is displayed when empty as well.
2. Display JSON data:
 - You will fetch data from the local JSON file called `content.json` inside of the `src/assets/data` folder. It will contain all of the text needed to be displayed (apart from what you want to include in the form). You can import the JSON data directly into your component and display it according to the Figma Design File below.

You will do all of this in a branch within a forked repository and then open a Pull Request to your OWN forked repository to submit. This will help familiarize you with some of the key features of git and GitHub. There are more details in the "Getting Started" section regarding creating forks and branches.

You can refer to this [Figma Design File](#) for a better representation of what we would like to see. You do NOT have to implement the designs exactly. This Figma is provided as a general structure - think of it as what you might receive from a designer and it is up to you to implement it. Being able to implement designs is a core skill of our project team members so we hope you try your best!

You can use any additional libraries that you like and you can perform styling however you wish (Vanilla CSS, Tailwind, SCSS, etc.). If you have any questions about this challenge, please do not hesitate to reach out to Shawn Aviles (saviles@stevens.edu) or Christian Apostol (caposto1@stevens.edu). You can also send us messages on the discord!

Getting Started

You will need *git* and *Node* installed in order to work on this project. You can read this [Blueprint Developer Guide](#) for details on how to download and install these softwares. You will also need to make an account on [GitHub](#) in order to access the code repository. Once you have everything installed you can follow these steps:

Step 1: Fork the Repository

The first step is to fork the repository that contains the Frontend Challenge starter code. This creates a copy of the repository in your own GitHub account that you can work on without affecting the original.

To fork the repository:

1. Navigate to the repository on GitHub - <https://github.com/stevensblueprint/frontend-application>
2. Click the "Fork" button in the top right corner of the page
3. Select your GitHub account as the destination for the fork

Step 2: Clone the Repository

Next, you need to clone the repository to your local machine. This creates a local copy of the repository that you can make changes to.

To clone the repository:

1. Open a terminal window
2. Navigate to the directory where you want to clone the repository
3. Run the following command:

```
git clone <repository-url>
```

Replace `<repository-url>` with the URL of your forked repository. The repository URL can be found by pressing the green 'Code' button and copying the HTTPS link. It will be a github link that includes your github username and forked repo name.

Step 3: Create a New Branch

Before you make changes to the HTML file, you should create a new branch. This allows you to make changes without affecting the main branch of the repository. All development work for our teams exists in branches and are later merged into main with Pull Requests!

To create a new branch:

1. Navigate to the cloned repository directory in your terminal
2. Run the following command:

```
git checkout -b feature/yourName
```

Replace `yourName` with your first name. So your full branch name could be `feature/shawn`.

Step 4: Download Dependencies and Run Project

1. Run the following command:

```
npm install
```

This will install all of the proper node modules that are needed to run the base code.

2. Run the following command:

```
npm run dev
```

Your application should now be viewable at `http://localhost:5173/`. You are now ready to start developing - good luck! Don't forget to look at the Figma for guidance on what should be in your submission.

Optional Extra Features

If you have additional time and want to add some extra features to your application feel free to add one or more following:

1. Componentization: Ensure your Form and Content blocks are their own respective components, and they are used in the main App file.
2. Form Validation: On form submission, if a field is invalid, an error message specifying which fields were incorrect will appear. Empty fields should throw an error too. How you want to display the message is up to you!
3. Animations: On form submission you can include a loading spinner and/or a load-in animation for the data populating the table

Submission

1. Commit your code to your branch on your forked repository.
 2. Create a Pull Request (PR). Steps to do that can be found [here](#).
 3. Email a link to your Pull Request (PR) to **sit.blueprint@gmail.com**. Please make the subject of your email "Frontend Challenge: YOURNAME" i.e "Frontend Challenge: Christian Apostol".
- This challenge is due on March 28, 2024 @ 11:59 P.M. Challenges will be discussed during the 3rd round of applications: Coffee Chats. Thank you for your time and we are looking forward to viewing your submission!

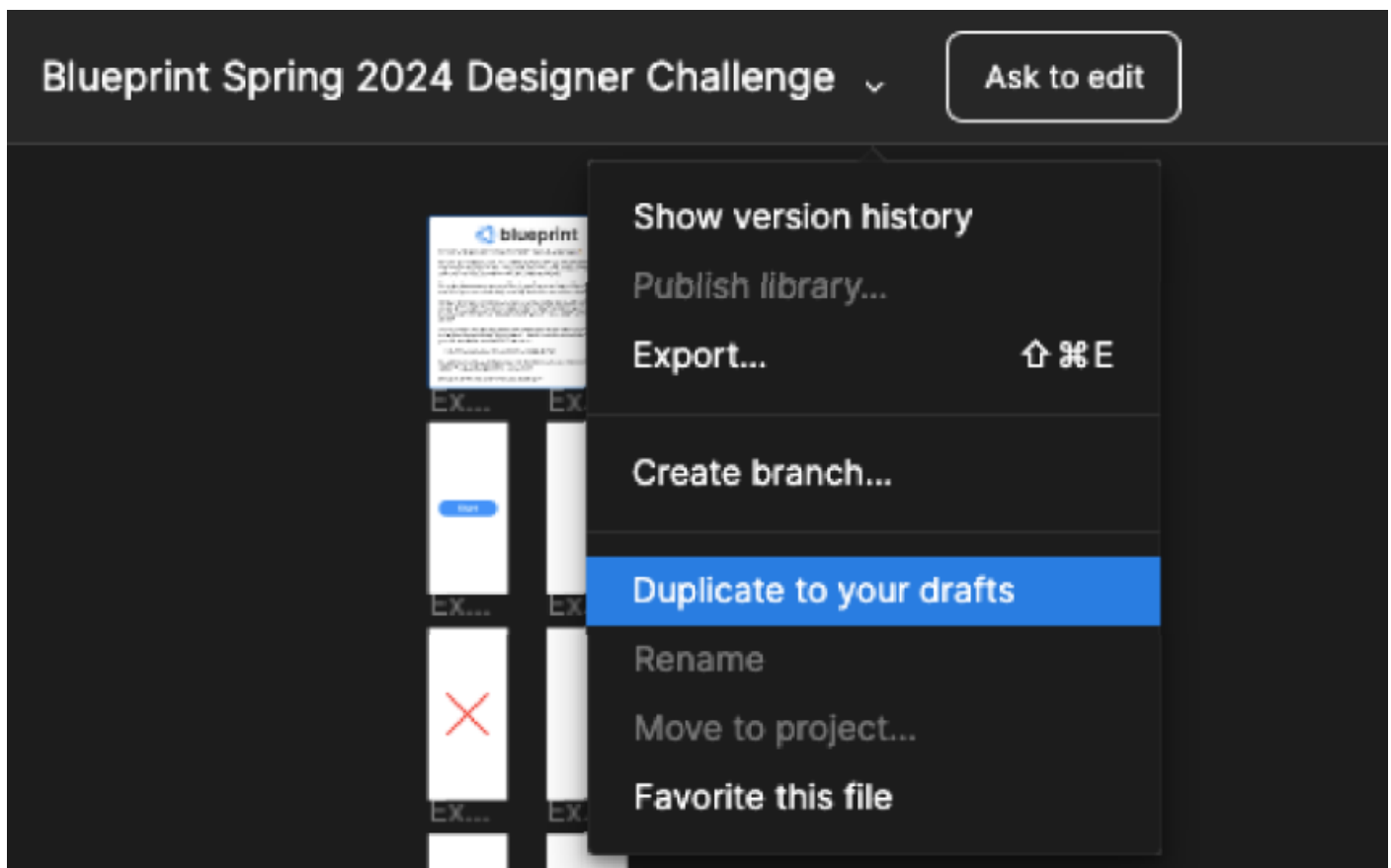
Design Challenge (Spring 2024)

Please follow this [Figma](#) to begin the challenge. Best of Luck!

Thank you for applying for Blueprint Project Teams as a Designer! ☺

We have put together a set of 11 simple exercises for you to learn how to use our main design tool, Figma! This will provide you with a basic understanding of what skills this role uses and the tool we use across our teams!

To begin, please create a copy of this Figma Project and save it for yourself. Once you are in your own saved copy, you may continue onto the next steps.



For each exercise you will be provided a sample design on the left and a blank canvas on the right. You will be responsible for creating the design on the empty canvas. Don't worry about having everything be an exact match; no need to be pixel perfect!

Overall, these exercises shouldn't take longer than 35 minutes (assuming you've never used Figma

before). If you are new, there is also a tutorial linked below to help you with the basics for the first 8 exercises.

<https://www.youtube.com/watch?v=c9URDK3KITM>

To submit, email sit.blueprint@gmail.com the link to your own Figma Project! (Click “Share” towards the top right > “Copy Link”)

Best of luck! We look forward to your submission!