Salesforce Database Migration / Digitizing the Employee Onboarding Process

Presented by: Rawad Moussa, Tabassuma Torosa, Adrian Palomares, Paul Clef Ube, Audelia Valdovinoz, Javier Garcia, Pierce Wei, Marlito Refuerzo, Christopher Rodriguez

Sponsored by: Los Angeles County Public Defender
Liaisons: Mohammed Al Rawi & Gratia Dsouza
Project Advisor: Dr. Chengyu Sun

Pierce Wei

Los Angeles County Public Defender's Office

- Widely considered the finest client-centered criminal defense firm in the nation, working to reduce incarceration and the collateral consequences of contact by 2025
- Provides treatment courts, juvenile advocacy, immigration, mental health assistance mainly for criminals
- Giving back to community and representing minorities that are often overlooked

"We have a core mission, we all know it. To be zealous advocates. To treat our clients with dignity. To do our work with integrity. It's more than just our mission, it's a human mission."

—LA County Public Defender Ricardo García

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Pierce Wei
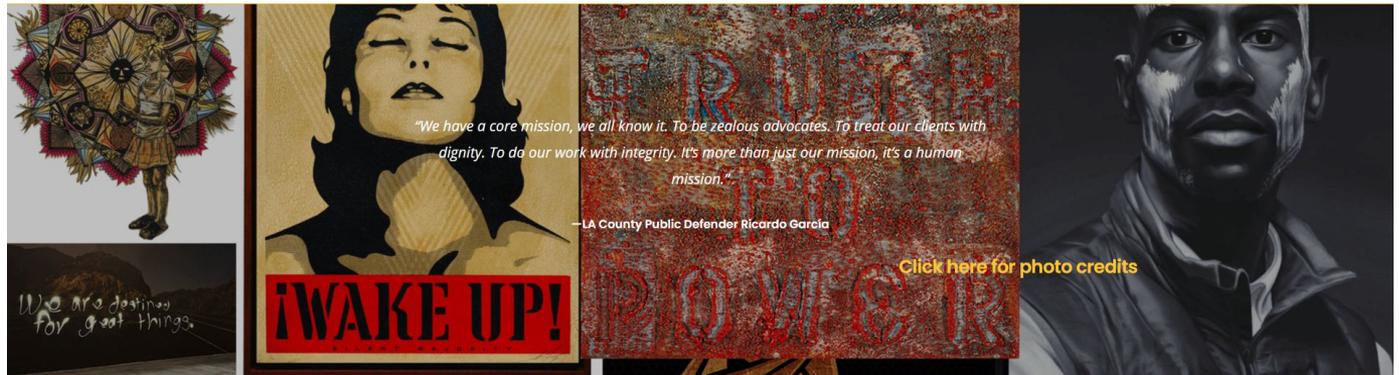
Los Angeles County Public Defender's Background

- 32 offices located throughout the country, team of more than 1,200 employees, 700 attorneys, and more staff composed of:
  - Paralegals, investigators, psychiatric social workers, and admin/support staff
- Shows that there is a need for a good IT system for people doing important work

Project Overview

Project 1 (HOLD): Migrate legacy content management system and databases to Salesforce.

- Currently this project is on hold because the PD IT staff are busy with a new system going online.

Project 2 (CURRENT): Online Employee/Contractor Enrollment Application

- Allow users to request forms that will be generated via back-end communication with BOX and Adobe API; saved in BOX when signed

Introduction to Salesforce

Presenter: Tabassuma Torosa

- Salesforce - Cloud based platform that provides multiple services to customers
- Focuses on managing company's interactions with customers

Our Progress with Salesforce

Presenter: Tabassuma Torosa

- Export and import data
- Create schema to model data
- Install apps/packages
- Deploy customized app in Salesforce app store

Enrollment Application Project

Presenter: Audelia Valdovinoz
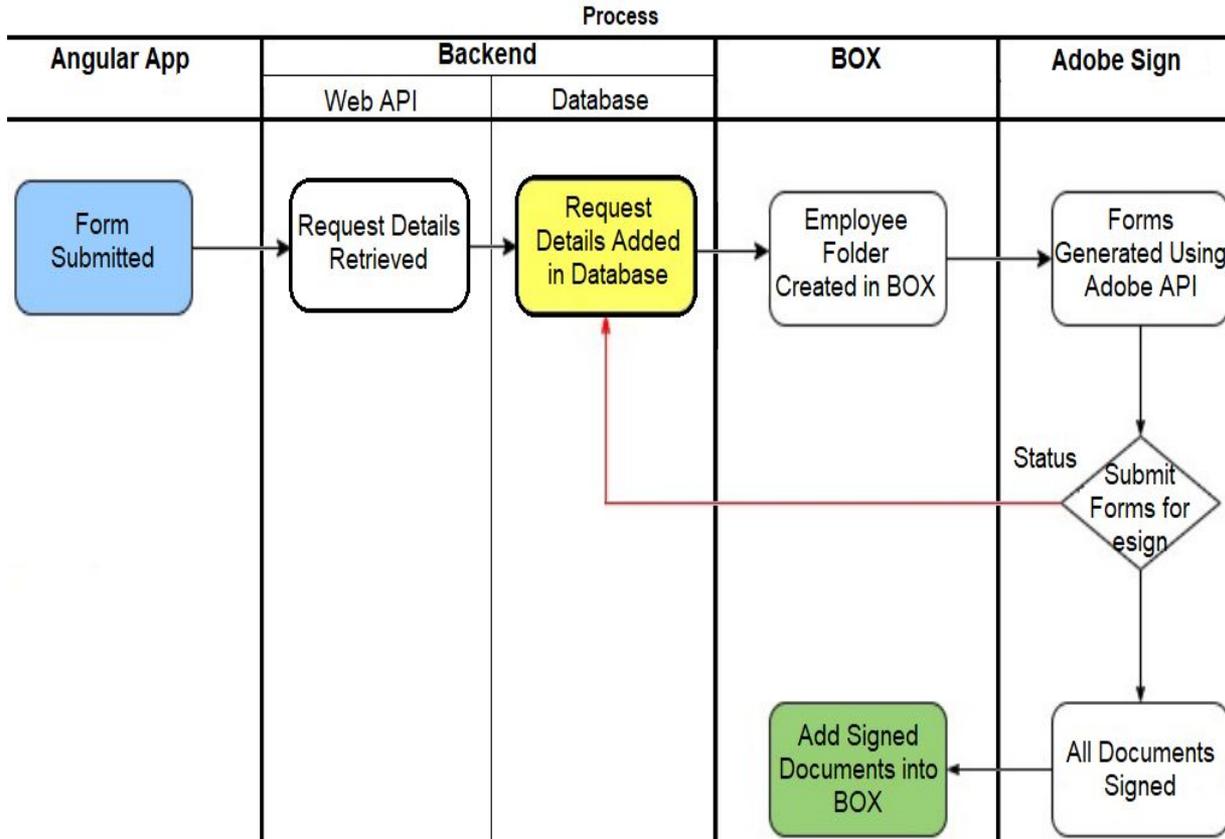
- Angular app is used to submit employee & contractor requests.
  - Includes Request Status page where the user can search by certain fields
  - Requestor is sent a RequestID
- Backend retrieves and stores request details to database.

Enrollment Application Project (cont.)

Presenter: Audelia Valdovinoz
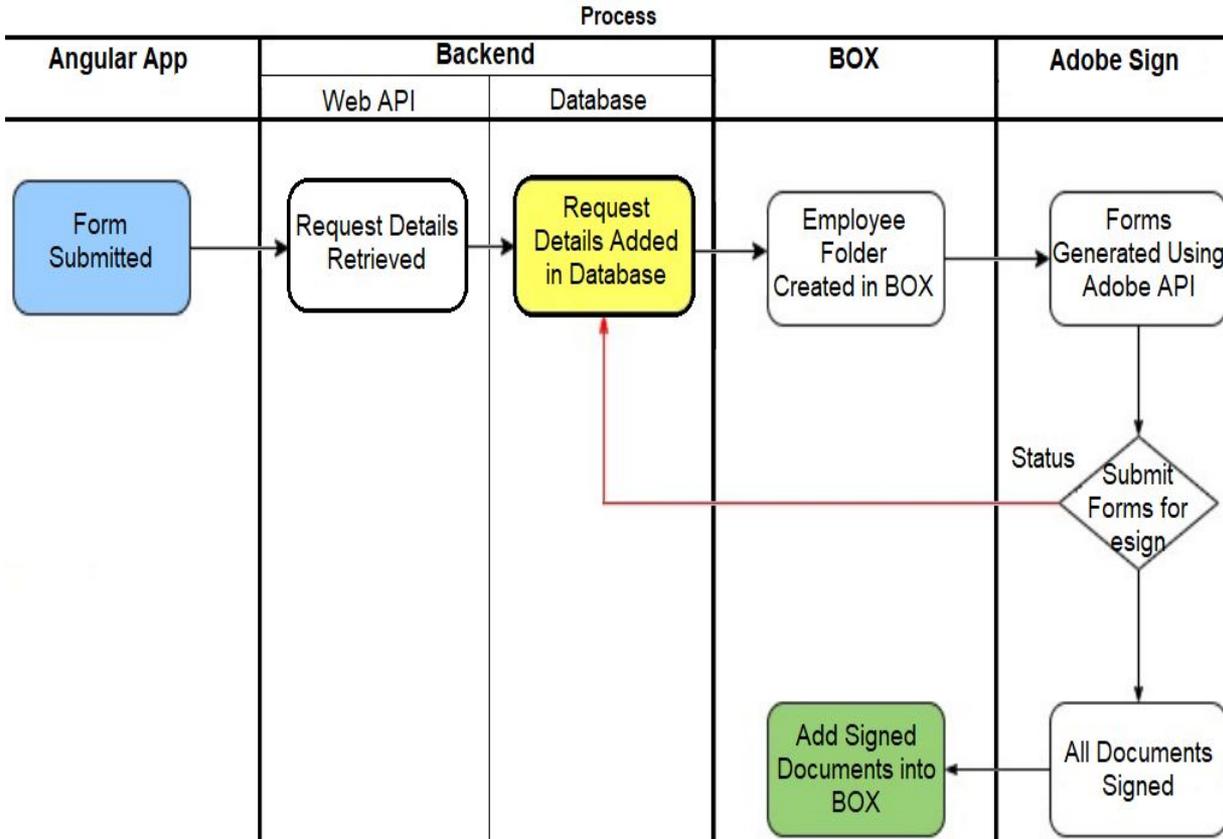
- BOX is a cloud storage service.

- Corresponding forms are generated and filled with requestor provided data.

- Generated documents are sent to the requestor for review and to be esigned.

Enrollment Application Project (cont.)

Presenter: Audelia Valdovinoz
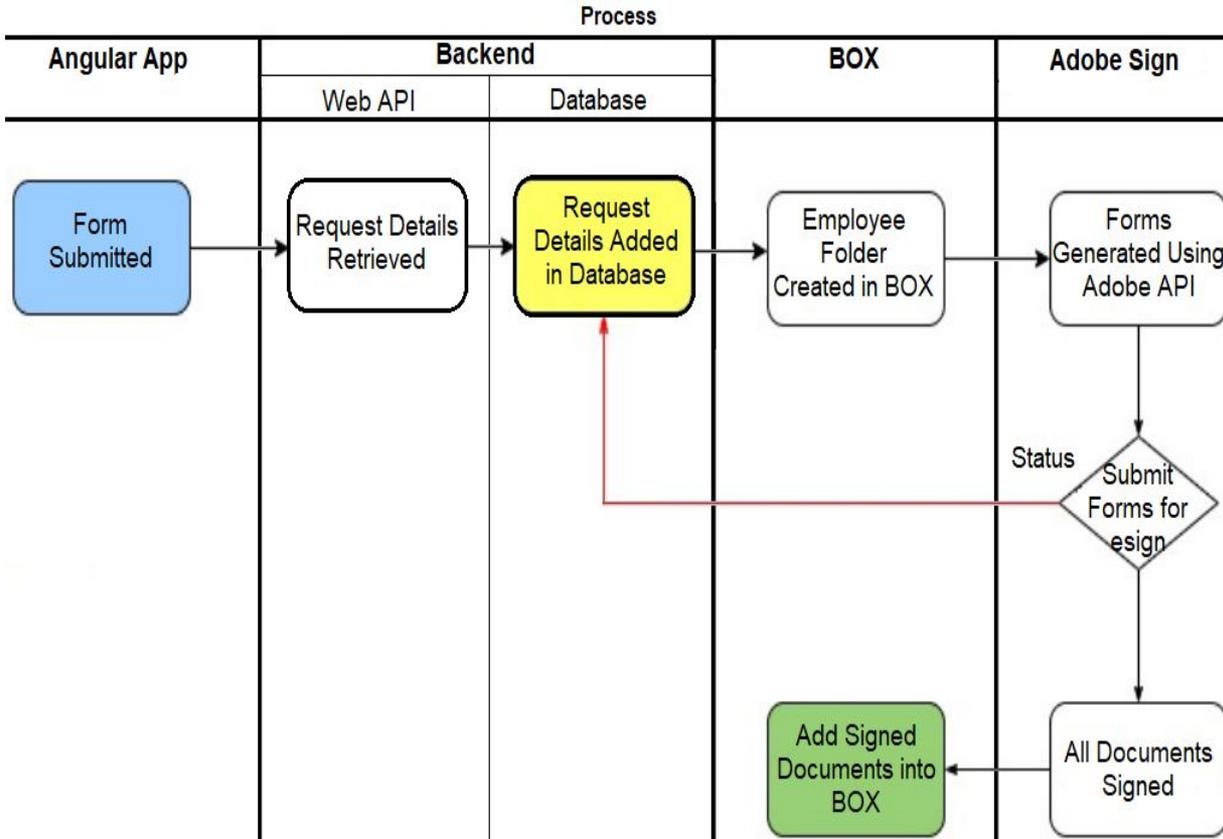
- The requestor then sends the forms to the appropriate parties for review.

- Once successfully completed, the documents are added to the employee's folder in BOX.

Project Requirements

Presenter: Marlito Refuerzo

- Developed w/ a Custom Form using Angularjs for specific form information
- Request Status page w/ specific searchable fields via Angular App
- Request (through Form Submission) is recorded and adds an entry to the database
- Values inputted in specific PDF templates (based on type) generates the specific forms and inputs the data into the new forms
- Sends generated and filled out form to the Requestor for review
- Allows Requestor to review, prep, and send forms to others for review
- Upon completion, stores document

Employee Fields

- First Name
- Last Name
- Telephone
- Address (Street, City, State, Zip)
- Email ID
- Employee Type (Defaults to Employee)
- Employee ID
- Submission Date (Defaults to Current Date)
- Requestor Name
- Requestor Email
- Approvers
- Department Number
- Department Name

Contractor Fields

- First Name
- Last Name
- Contracting Company
- Telephone
- Address (Street, City, State, Zip)
- Company Email ID
- Employee Type (Defaults to Contractor)
- Employee ID (Only Available if Type is set to Employee)
- Submission Date (Defaults to Current Date)
- Requestor Name
- Requestor Email
- Approvers
- Department Number
- Contract Work Order Number
- Contract Expiration Date
- Business Street Address
- Department Name

Searchable Fields

- Request ID
- Employee ID
- Contracting Company
- First Name
- Last Name

Overall System Architecture Diagram

Presenter: Paul Clef Ube
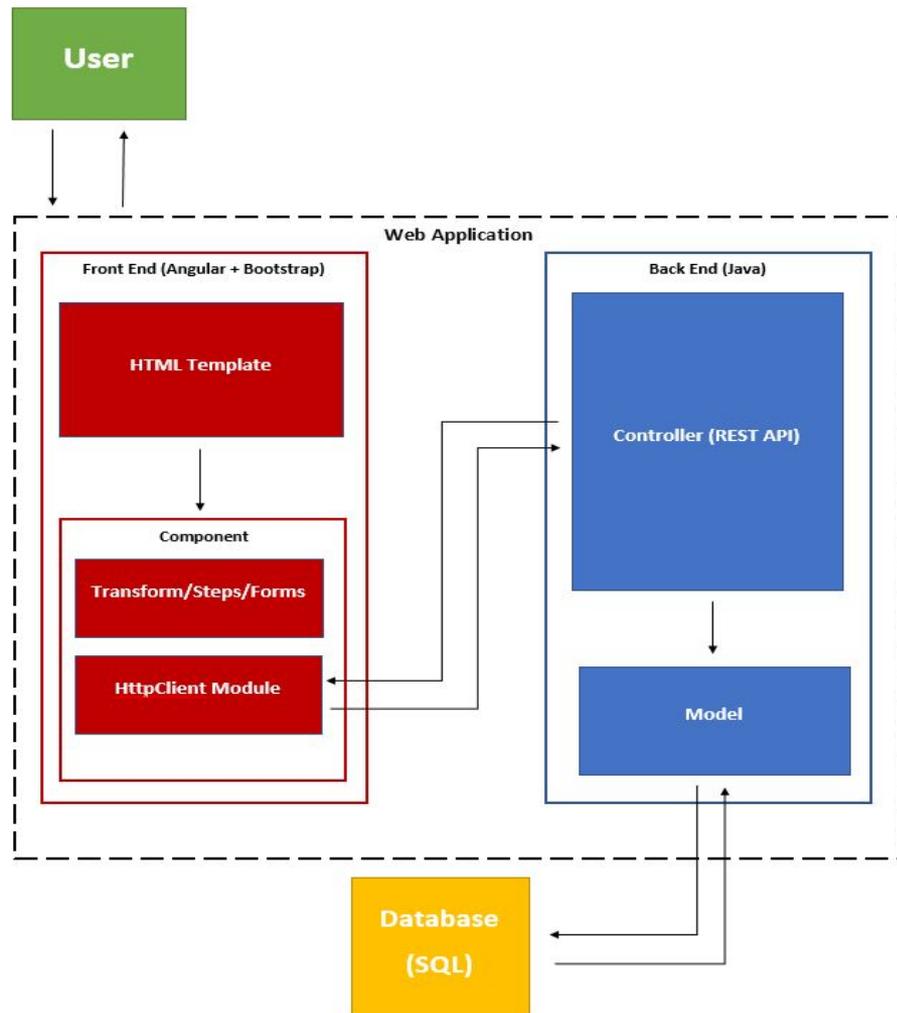
Overall System Architecture

Presenter: Paul Clef Ube

User: Make requests and receive responses to the Web Application

Web Application: Contains a Front End and Back End. The web application sends the HTML template (user interface) to the user to interact and fill out forms.

Front End: Has an HTML template that interacts with Angular components. The HttpClient Module then sends service requests and receive responses from the Back End controller.

Back End: Receives service requests from Front End, models data in Java, stores in relational database.

Database: Keeps data in storage. It sends requested data to the model of the Back End.

Backend Operations

Presenter: Javier Garcia

Technologies

The backend infrastructure uses the following Java-based frameworks:

- Spring Boot: A streamlined extension of the Spring application framework. The built-in libraries and server functionalities lead to greater efficiency as many low-level configurations are already accounted for.

- Hibernate: An object-relational mapping framework. Provides an intuitive interface between the object-oriented Java and relational SQL data models via the intermediary language HQL (Hibernate Query Language).

Backend Operations

Presenter: Javier Garcia

PDF Handling

- Information stored in the backend database directly populates the PDF forms used for the onboarding process.

- Fields in the web form are mapped to their corresponding fields in the PDF forms.

- Account for shared fields across multiple PDF forms, each one mapping back to the same web field.

Field socialNetworkingTwitter

Mapping #185

Mapping #186

☐ **Social Networking Twitter**

☐ **Social Networking Twitter**

PDF Form 5

PDF Form 6
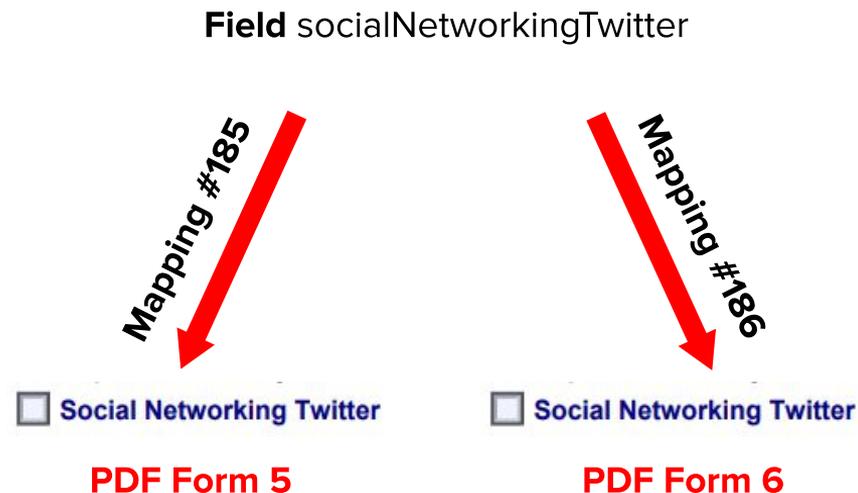
Backend Operations

Presenter: Javier Garcia

API Design (REST model)

Resource	GET (Read)	POST (Create)	PUT (Update)	DELETE (Delete)
/service_requests	**Returns** a list of *Service Requests*.	**Creates** a new *Service Request*.	Method not allowed (405).	Method not allowed (405).
/service_requests/{id}	**Returns** a specific *Service Request*.	Method not allowed (405).	**Updates** a specific *Service Request*.	**Deletes** a specific *Service Request*.
/forms	**Returns** a list of *Forms*.	**Creates** a new *Form*.	Method not allowed (405).	Method not allowed (405).
/forms/{id}	**Returns** a specific *Form*.	Method not allowed (405).	**Updates** a specific *Form*.	**Deletes** a specific *Form*.
/fields	**Returns** a list of *Fields*.	**Creates** a new *Field*.	Method not allowed (405).	Method not allowed (405).
/fields/{id}	**Returns** a specific *Field*.	Method not allowed (405).	**Updates** a specific *Field*.	**Deletes** a specific *Field*.
/mappings	**Returns** a list of *Mappings*.	**Creates** a new *Mapping*.	Method not allowed (405).	Method not allowed (405).
/mappings/{id}	**Returns** a specific *Mapping*.	Method not allowed (405).	**Updates** a specific *Mapping*.	**Deletes** a specific *Mapping*.

Backend Operations

Presenter: Javier Garcia

Current API (REST Model)

/forms

```
{
  "id" : 1,
  "name" : "ISD Active Directory
  Hosted Registration Forms
  Contractor and Vendors",
  "fields":[
    {
      "id" : 22,
      "name" : "lastName",
      "type" : "text"
    },
    {
      "id" : 23,
      "name" : "firstName",
      "type" : "text"
    },
    {
      "id" : 24,
      "name" : "middleInitial",
      "type" : "text"
    },
```

• • •

/fields

```
{
  "id":22,
  "name":"lastName",
  "type":"text"
},
{
  "id":23,
  "name":"firstName",
  "type":"text"
},
{
  "id":24,
  "name":"middleInitial",
  "type":"text"
},
{
  "id":25,
  "name":"employeeNumber",
  "type":"text"
},
```

• • •

/mappings

```
{
  "id":29,
  "requestFieldName":"lastName",
  "formId":1,
  "fieldId":"TextBox_1"
},
{
  "id":30,
  "requestFieldName":"lastName",
  "formId":2,
  "fieldId":"TextBox_1"
},
{
  "id":31,
  "requestFieldName":"lastName",
  "formId":5,
  "fieldId":"TextBox_1"
},
```

• • •

/service_requests

```
{
  "id":52,
  "createDate":"10/15/2020",
  "submitDate":"11/01/2020",
  "uuid":null,
  "registrationType":"New",
  "requestType":null,
  "lastName":"Doe",
  "firstName":"John",
  "middleInitial":"F",
  "employeeNumber":15,
  "hostedId":265,
  "departmentName":"Example Department",
  "departmentNumber":512,
  "companyName":null,
  "companyEmailAddress":null,
  "departmentEmailAddress":"john_doe@example.com",
  "countyEmailAddress":null,
  "employeeEmailAddress":null,
  "businessStreetAddress":"500 Example Ave.",
  "businessCity":"Los Angeles",
  "businessState":"CA",
  "businessZip":"90032",
```

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Front End Operations

- Built with Angular
  - Easy to build user interfaces
  - Reusable code
  - Material UI
- Styled with Bootstrap

Adrian Palomares

User Interface

Adrian Palomares
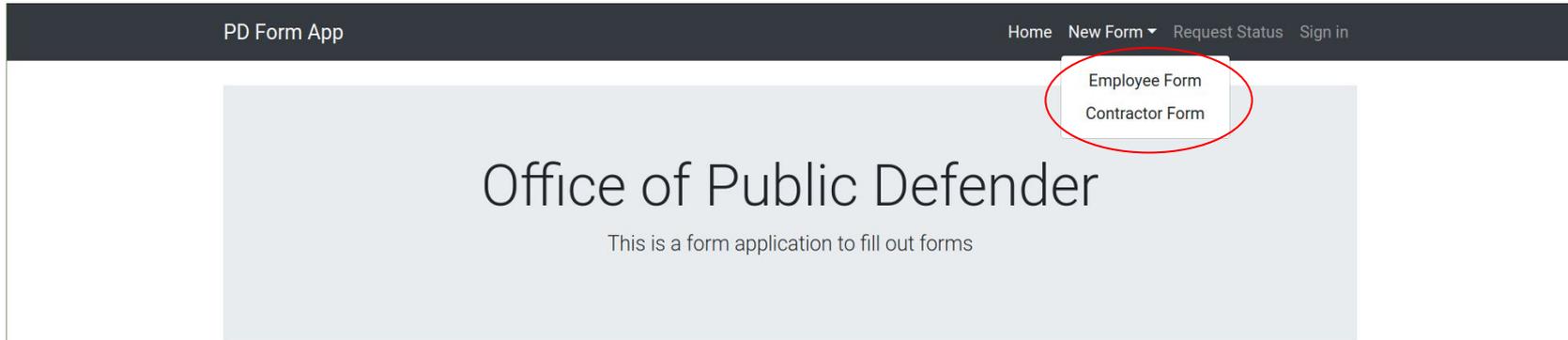
User Interface

Home   New Form ▾   Request Status   Sign in

① Information   ② Employee Information   ③ Requestor Information   ④ Approvers   ⑤ Department   ⑥ Submit

First Name

Enter first name

Middle Initial

Enter middle initial

Last Name

Enter last name

Email Address

Enter email

Phone Number

Enter phone number

Address

Enter address

City

Enter city

State

Enter state

Zip Code

Enter zip

Next

Adrian Palomares

Current Progress & Achievements

Rawad Moussa

Initial Project: Migrate PD systems and databases to Salesforce.

- **Salesforce:** platform development, data modeling, data management, data security, and building apps using cloud technologies.

New Project: Online employee enrollment application.

- Frontend team: web form user interface
- Backend team: backend API
- PDF team: PDF API

Current Progress & Achievements (cont.)

Rawad Moussa

Frontend team: Designing the web form user interface.

- Learning Angular
- Designing Web forms with Bootstrap
- Submitting requests to the backend API
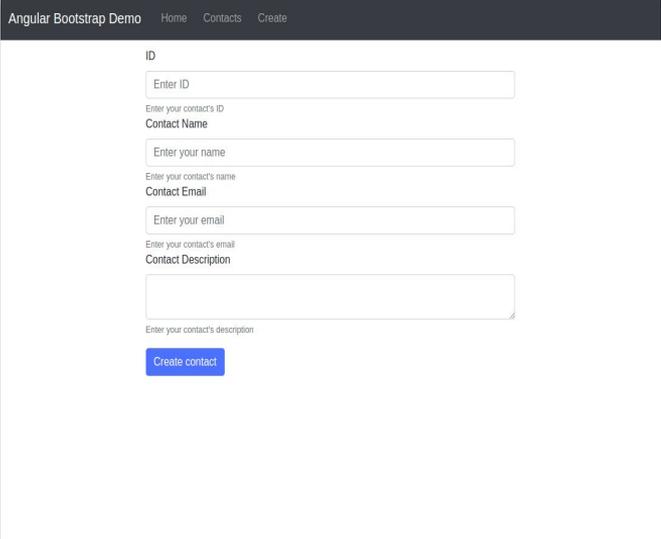
Current Progress & Achievements (cont.)

Rawad Moussa

Backend team: Developing the backend REST API system using Spring Boot

- Learning Spring Boot, Hibernate, and data modeling
- Creating data models
- Storing data in the database

```
{"items":
    [
        {
            "id": 0,
            "name": "Log",
            "desc": "Just an ordinary log",
            "sprite": "log",
            "value": 1
        },
        {
            "id": 1,
            "name": "Rock",
            "desc": "A heavy rock",
            "sprite": "rock",
            "value": 1
        }
    ]
}
```

Current Progress & Achievements (cont.)

Rawad Moussa

PDF team: Using PDF libraries to fill out PDF forms.

- Using PDFBox to fill PDF forms
- Designing spreadsheet for the PDF fields
- Building the database schema

Current Progress & Achievements (cont.)

Rawad Moussa

Challenges & Overcomes:

- **Challenge #1:** Keeping the teams on the same page.
  Overcome: Weekly meetings, messaging, and screen sharing.

- **Challenge#2:** Learning new platforms and languages without prior experience.
  Overcome: Using the same tutorials and answering questions on Discord.

Plan For Next Semester

Christopher Rodriguez

- Finished functional project
  - Project tasks
    - Request status page
    - Database entry
    - BOX folder
    - Generated PDF forms

  - Connecting the components
  - Testing
  - Documentation

Plan For Next Semester

Christopher Rodriguez

- Far future implementations
  - Secondary components
    - Login component
    - Email component

  - Website
  - Mobile App