PST: Product Common Features

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Summer 2022 Technology Interns

Meet the PSTech Team

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- B.S Computational Media, Emphasis in Media Studies and Interaction Design
- Spring 2023

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- B.S Computer Science, Emphasis in People and Intelligence
- Spring 2024

Agenda

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PST & Our Summer Project	Process & Implementation	Reflections & Company Impact	Acknowledgements & Questions

PST

About PST

Personnel

Crew
- Scheduling
- Attendance
- Qualification
- Drug & Alcohol
- Payroll
- Timekeeping

Training
- LocoSim
- PTC
- RCO
- Conductor
- Safety Videos

Intelligent Operations

Safety
- Event Recorder Analyzer
- Precision Train Builder
- Monitoring
- iClear
- Accident/Incident Reporting

Automation
- Flat
- Hump
- NX

System
- Train
- Maintenance
- Wayside

Data Services

Processing
- EDI
- Network Processing

Transformation
- Invoice and PO conversion (ORISS)

PST saves railroads significant money across a wide range of areas.

- PST solutions used by all Class 1 Railroads in North America

- Scalable solutions for all railroads

- Training 1000s of T&E annually

- Manage operations over 122,000 miles of track

- Manage 35,000 non-ops personnel

- Process over 4 billion dollars in payroll annually

- Largest classification/shunting yard in the world

- Largest railroad VAN

- Growing quickly into the Short Line area

PST

Our Project

Enhance client experience with PST Products.
We tackled a subset of these common features:

- the branding
- look and feel
- language settings
- error messaging

An app for customers to configure their own user experience

Why is this important?

We want to **create templating softwares** that can be reused for any number of clients. This **saves development costs** and allows all clients to use the softwares and personalize them as they wish. PST could use these templating techniques to make client app structures more efficient to develop and **easy to upkeep**.

PST **creates** and **commercializes software**. Using Common Features, PST can fulfill its products at customer locations with **minimal customizations**.
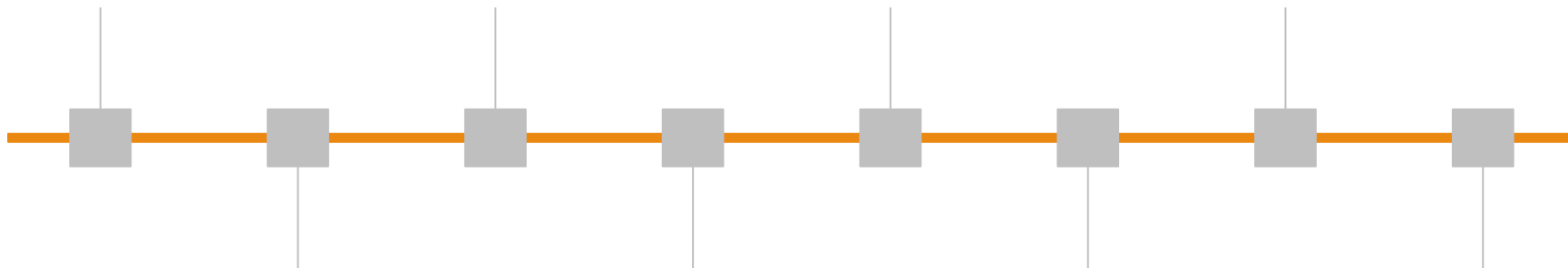
PST

Process

Data Model
and UI Mockups

Error
Messages
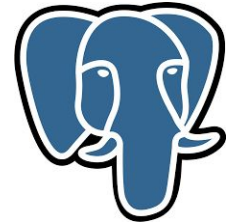
Enabling User
VS Admin Controls
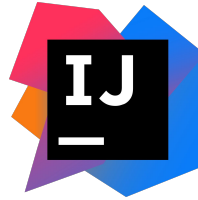
Add/Edit/Save
Client Data

Website
Routing Logic

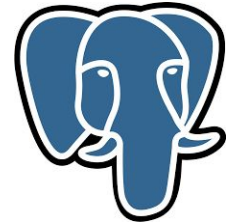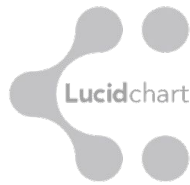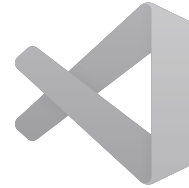Pulling Client
and User Information

Language and
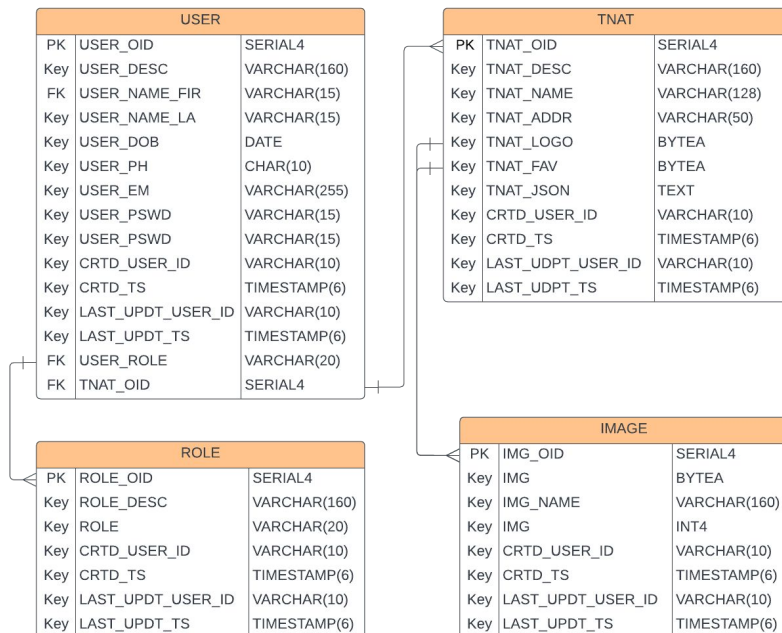Locale Configuration

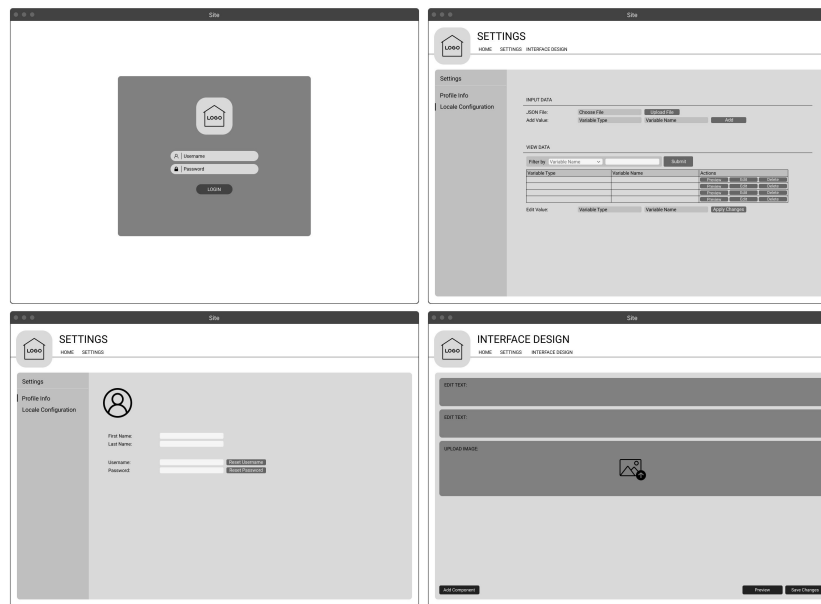Edit/Save
Branding Images

PST

PSTech Stack

PSTech Stack

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Initial Planning

▪ Data Model

USER

PK	USER_OID	SERIAL4
Key	USER_DESC	VARCHAR(160)
FK	USER_NAME_FIR	VARCHAR(15)
Key	USER_NAME_LA	VARCHAR(15)
Key	USER_DOB	DATE
Key	USER_PH	CHAR(10)
Key	USER_EM	VARCHAR(255)
Key	USER_PSWD	VARCHAR(15)
Key	USER_PSWD	VARCHAR(15)
Key	CRTD_USER_ID	VARCHAR(10)
Key	CRTD_TS	TIMESTAMP(6)
Key	LAST_UPDT_USER_ID	VARCHAR(10)
Key	LAST_UPDT_TS	TIMESTAMP(6)
FK	USER_ROLE	VARCHAR(20)
FK	TNAT_OID	SERIAL4

TNAT

PK	TNAT_OID	SERIAL4
Key	TNAT_DESC	VARCHAR(160)
Key	TNAT_NAME	VARCHAR(128)
Key	TNAT_ADDR	VARCHAR(50)
Key	TNAT_LOGO	BYTEA
Key	TNAT_FAV	BYTEA
Key	TNAT_JSON	TEXT
Key	CRTD_USER_ID	VARCHAR(10)
Key	CRTD_TS	TIMESTAMP(6)
Key	LAST_UDPT_USER_ID	VARCHAR(10)
Key	LAST_UDPT_TS	TIMESTAMP(6)

ROLE

PK	ROLE_OID	SERIAL4
Key	ROLE_DESC	VARCHAR(160)
Key	ROLE	VARCHAR(20)
Key	CRTD_USER_ID	VARCHAR(10)
Key	CRTD_TS	TIMESTAMP(6)
Key	LAST_UPDT_USER_ID	VARCHAR(10)
Key	LAST_UPDT_TS	TIMESTAMP(6)

IMAGE

PK	IMG_OID	SERIAL4
Key	IMG	BYTEA
Key	IMG_NAME	VARCHAR(160)
Key	IMG	INT4
Key	CRTD_USER_ID	VARCHAR(10)
Key	CRTD_TS	TIMESTAMP(6)
Key	LAST_UPDT_USER_ID	VARCHAR(10)
Key	LAST_UPDT_TS	TIMESTAMP(6)

▪ UI Mockups

UX Process

Goal: create an experience that meets a user's needs in the specific context where he or she uses the product

- **Why** it's being used, **What** it's being used for, **How** it will be used
- Created interactive prototypes
- Multiple iterations with dev team with provided feedback on
  - Design conventions
  - Easily understandable verbiage
  - Placement of components

Use Cases

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Enterprise Details Done Well ■

rahuljalali

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LOGIN

User Login

User Attempts Access to
an Unprivileged Page

User is Admin or Normal User

User Views Profile

■ PST

Use Cases

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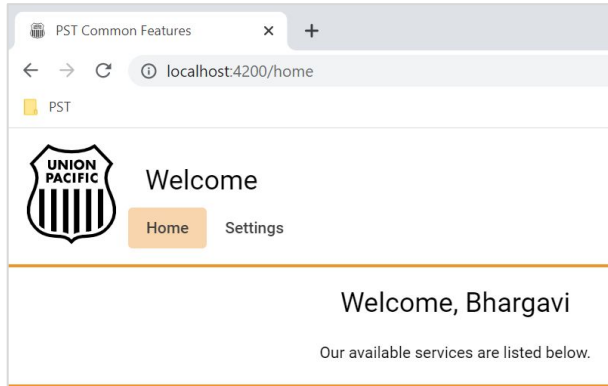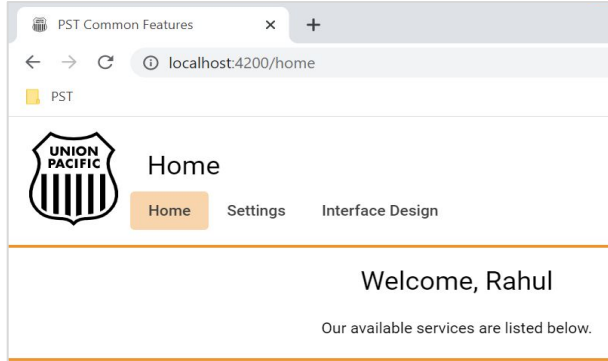**User Login**

User Attempts Access to an Unprivileged Page

User is Admin or Normal User

User Views Profile

PST

Use Cases

User Login

User Attempts Access to
an Unprivileged Page

User is Admin or Normal User

User Views Profile

Use Cases

User Profile

UNION PACIFIC

User Profile

Home | Settings | Interface Design

Settings

- User Profile
- Tenant Profile
- Tenant Configurations
- Language

Description: Senior Vice President, Chief Information Officer
First Name: Rahul
Last Name: Jalali
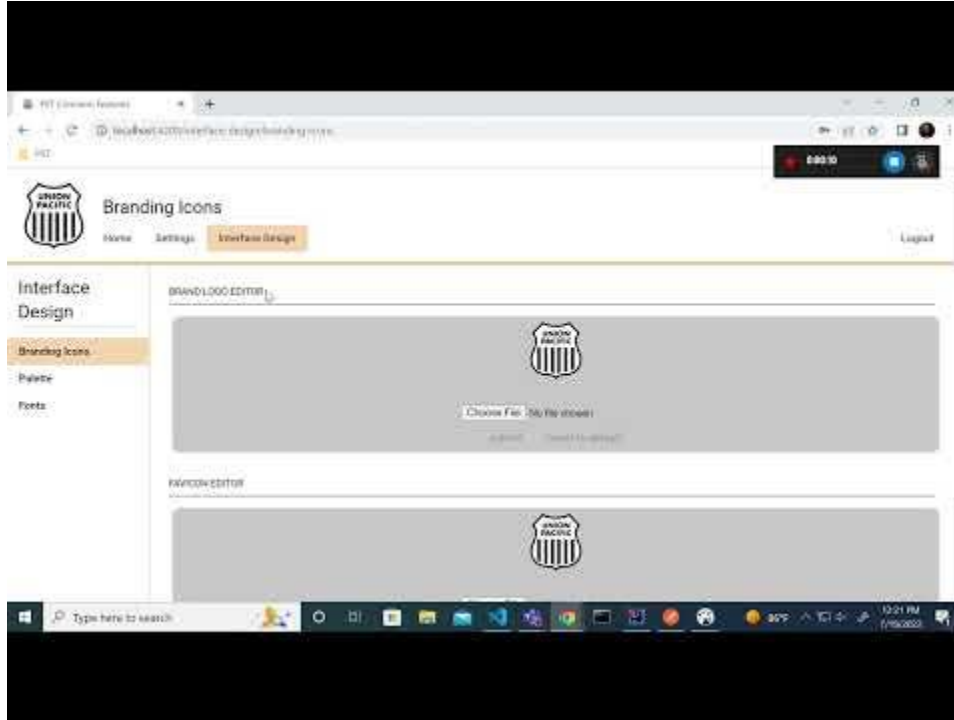Phone: 123-456-7890
Email: rahul.jalali@up.com

Roles: User

User Login

User Attempts Access to an Unprivileged Page

User is Admin or Normal User
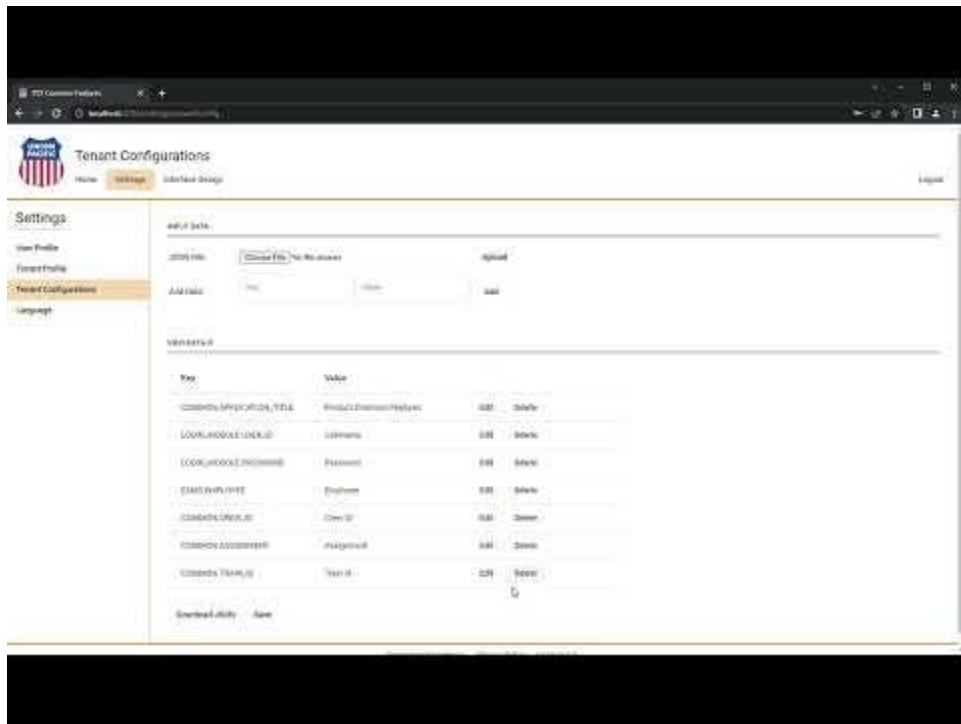
User Views Profile

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Interface Design Demo

Purpose

- Clients format the color scheme and fonts used across their sites

- Clients choose branding elements for display on their products

- Integrating visual settings across client apps

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Client Configuration Demo

Purpose

- Increase customizable options by granting clients ability to alter data

- Simultaneously apply changes across the entire site

- Modify language and locale to match current location of user

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Future Impact on PST

Reduce Development Costs and **Time To Market**

Automate Client Personalization Procedure

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Expanding our Scope

Replace basic authentication with a standard Single Sign On integration

Re-configure site to pull information from PST client databases

Improve project framework to update visuals of client site

Add local data storage through cookies to improve site performance

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Lessons Learned

Technical Skills	Soft Skills
Integrating Technologies	Teamwork & Communication
Documentation Practices	Presentation Skills
Agile Workflow	Technical Wording
Dev Config Conventions	Professionalism
User Authentication	Progress Documentation
Full Stack Development	Time Management
Data Management	Networking

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Acknowledgements

TIMOTHY HAZLETT

Technology Lead

RYAN HINKLE

Project Architect

PRADEEP KOGANTI

Lead Architect

JUSTIN SNYDER

SVP Product Development

JOSH FORD

VP Product Development

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Thank you for your time. Questions?

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