FLEX Entry Web Application

Systems Requirement Document

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INTRODUCTION

This document defines the requirement for the FLEX Entry application . This document does not address *project* issues such as schedule, cost, development methods, development phases, deliverables and testing procedures.

The FLEX Entry system is a web-based tool for employees'**2** | Page time reporting and management. It also provides a way for employees to get direct access to their work hours, request vacations, and view profile information.

AIM

The purpose of the Employee Time Entry System is to ease the capture and entry of workers clock-in hours, streamline the generation of employees' hourly rate calculations by conveniently linking entities relationships between employee time in, time out, and hourly rates.

OBJECTIVE

The overall objective is to offer the customer an automation technology to overtake the existing manual ledger system for time management.

The three main objectives of the FLEX Entry web application are:

1. Track employees' clock in/clock out hours using a simple but secure 4-digit pin
2. Allow employees to view current profile and review work history
3. Offers employees flexible options to generate employees weekly work report and perform other related operations.

METHODOLOGY

The nature of the application development process required several constraints that needed to be preapproved by the customer before implementation. Based on these constraints plus the need to pool developers/resources across several regions, the lead engineer together with a working committee chose a plan-driven Waterfall development methodology for the FLEX Entry web-based application .

REQUIREMENTS ANALYSIS ENGINEERING

1.1 User Stories

STORY 1 ***Time Estimated: 2 Days*** ***Priority: High***

As a user, I'd like to be able to enter my time in using a simple 4-digit (numeric) personalized PIN. For example, when I type in my PIN, the time entry system should record my time in until I clock out.

STORY 2 ***Time Estimated: 2 Days*** ***Priority: High***

As a user, I want to be able to clock out of the system. For example, when I type in my PIN, I should be presented with two options (clock-in, clock-out). When I clock out, the system should automatically calculate my total time in office by subtracting my time in from my time out and show me a quick previous of my total daily hours.

STORY 3 ***Time Estimated: 1 Week*** ***Priority: Immediate***

As a user, I'd like to see a simple interface that has two login buttons. One login buttons should show allow Employees to enter a 4-digit (numeric pin), and the other button should allow an admin to enter a 4-digit(numeric) pin.

STORY 4 ***Time Estimated: 1 Week*** ***Priority: Low***

As a user, I would like to see a simple interface that prompts the user to edit their profile. The user should be able to edit their profile, including making changes to their profile.

STORY 5 ***Time Estimated: 2 Weeks*** ***Priority: Normal***

As a user, I would like to see a feature for vacation or PTO.

STORY 6 ***Time Estimated: 3 Weeks*** ***Priority: Normal***

As a user, I want the system to automatically reset my password after 6 failed login attempts in order to protect user security. Once the sixth attempt has been entered, the account should be locked, and a message would display notifying the user that a reset password link has been sent to the affiliated email address. Within the email address, a warning message should be attached to notify the user of the attempted logins to make him/her aware.

STORY 7 ***Time Estimated: 1 Week*** ***Priority: High***

As a user, I want the ability to access a personal work report that would return a weekly summary. It should include the employee name, week of reference, total hours worked.

STORY 8 ***Time Estimated: 1 Week*** ***Priority: Normal***

As a user, I want accessibility to detailed report of employee and administrator contact information, so I would be able to get in touch with a given user if needed. It would provide first name, last name, phone number (if provided by the employee) and their email address.

1.2 System requirements

When a user logs on to the Flex Entry website, the user has an option of typing in a 4-digit pin to gain authorization entry. Once the user is logged in, he/she has an option to execute pages transaction as an employee.

If logged in as an employee, there system presents a profile button drop-down menu to offers three options:

1. View work history
2. Lunch in/out
3. Log-out

Each option presented in the profile section of the employee's domain allows for the viewing of total hours worked, requesting lunch time, and logging out of the system.

Functional Requirements

User Interfaces (UI)

The main user interface (UI) shall be divided into two subcategories, given the user's authorization-level. The main web app home page versus user features contain different dashboard navigations, file access and functionalities.

Parallel user interface (UI) – all users accessing the Flex Entry web application will have the exact same features.

(parallel UI Table)– Login Page, Time-in/Time-out Function, Profile Page

Data Item	**Description**
Login Interface	Upon opening the FLEX application, system users shall be immediately prompted to log into their portal. The user is to enter their designated 4-digit code. *If a user forgets his/her PIN, they will need to notify an HR admin to reset a new PIN.*
Time-in/Time-out	✔ After logging into the system as a user, the first navigation option is the "Time-in/Time-out" button. ✔ The system user shall clock into work upon arrival, then clock out once their shift has been completed.
Employee List	✔ All staff members shall have access to the complete employee list database. ✔ The data will list the employees: full name, email address

Profile	✔ User shall have the ability to set, edit and view their profile information.

(Different UI- Table) – Admin Dashboard

Data Item	**Description**
Time-in/Time-out	✔ Reference above (Parallel UI – Time-in/Time-out).
Employee List	✔ Reference above (Parallel UI – Employee List).
Pending Requests	✔ Administrators shall respond to employee requests through this portal. ✔ Employees can file for PTO and days off requests.
Register New Employee	✔ Administrative users can register new employees to the system. ✔ In this interface, administrators shall enter the new user's first name, last name, DOB, DOE and SSN.
Profile	✔ Reference above (Parallel UI – Profile).

(Table Different-2) UI – User Dashboard

Key/Item	**Description**
Time-in/Time-out	✔ Reference above (Parallel UI – Time-in/Time-out).
Employee List	✔ Reference above (Parallel UI – Employee List)
File a Request	✔ Within this interface, employees can file requests with their administrations for PTO and days off.
Work Report	✔ Users shall have the ability to access a formatted, weekly work report. ✔ Table returns employee's full name, week of reference, hours worked within the specified time frame. ✔ The frame of reference is on a Sunday-to-Sunday basis.
Profile	✔ Reference above (*Parallel UI – Profile*).

(Table -Authentication)

Key/Item	Description
4-digit pin	✔ Each system user is assigned his/her own individual and unique 4-digit pin identifier. ✔ To obtain access to the FLEX system, one must have a valid 4-digit pin. ✔ If a user forgets his/her 4-digit pin, it must be reported to a manager., the manager can file it within the system and a new pin will be delivered via email to the employee
Email Address	✔ Each user profile shall be associated with the user email address.

Record Retrieval

Key/item	Description
User Record Retrieval	✔ a User-level employee can retrieve a personal work report that returns a weekly summary; including user's full name, week of reference, total hours worked.
Admin Record Retrieval	✔ Administrative-level users have authorization to view any staff members work report, which contains his/her hours worked and wages earned.

Plugins / API

Key/item	Description
Calendar	✔ Embedded calendar which shows the employees current schedule

1.3 Non-Functional

Security

Measures taken by the FLEX system to ensure user security compliance meets systems standards.

Name/Reference	Description
PIN Recovery	✔ On the login page, there is input mask feature implemented to prevents incorrect pin/data entry
Record	✔ Employee records contact information and system data are only accessible to authorized personnel. ✔ All users can access the basic contact information (name, phone number, email address ✔ Only admin-level users have read and write abilities across the system. ✔ Only admin-level users shall see staff members filed requests,
Account Changes	✔ Only an admin shall have the ability to change a user's security pin
Binding Parameters	✔ The use of binding parameters on variables within the FLEX Entry web app shall prevent against SLQ injection attacks, or database poisoning.

Accessibility

The FLEX system aims to accommodate for all users and their individual needs.

Name/Reference	Description
Language	✔ The system is only readable in the English language; it does not have a multinational platform accessible for NES.
ADA Compliance	✔ The FLEX Entry web application software is compliant with the Americans with Disabilities Act of 1990.
Customer Service	✔ Customer service shall be available for all system users two days a week from 8 am – 52pm. ✔ Customer contact email: lh694159@sju.edu

Performance

FLEX Entry web application works to provide updated and facilitating system experiences for its users by continually improving the software for optimal performance.

Name/Reference	Description
Maintenance	✔ All FLEX software users will be notified within 48-72 hours in advance of scheduled maintenance. ✔ Routine maintenance checks will last no longer than 5 hours and will be conducted during convenient times when user levels are at its lowest.
Response Time	✔ Depending on the local of the users, the response time of the Web application shall be based on the rendering time of the client-side browser. ✔ Other factors such as network latency shall determine the average response time of the browser ✔ A faster response time for users within the 48 contiguous states is expected due to pool resources that hosts the web application main database within the East & West costs.

Scalability

The software should be adaptable and accommodating to varying influxes.

Name/Reference	Description
Screen Adaptability	✔ The systems format shall acclimate itself to the given user's environment. ✔ The software is operational across all browsers using the latest client side browsers, including legacy browsers.
Volume	✔ The software shall adapt itself to increased usage and be able to handle concurrent data access as the workforce increases .

Usability

The FLEX system hopes to provide a user-friendly environment for all.

Name/Reference	Description
Audience	✔ The FLEX software should be easy to navigate for users ranging from ages 12-80. ✔ This application is accessible to those who may have only one hand free.
Customer Service	✔ System users are able to reach out to customer service during the hours available from 8:00 am – 8:00 pm EST.
Navigation	✔ The system has been laid out to provide a user-friendly environment intended to create a pleasant and self-explanatory navigation process.

Confidentiality/Legal

Assurance of user confidentiality provided by the FLEX system.

Name/Reference	Description
SSN	✔ The users full Social Security Number will never be disclosed with an outside party nor will it be accessible from within the system at any time. ✔ It is strictly used for validation and taxation purposes.
HIPAA	✔ The system shall comply with the fundamental rights and rules as specified in HIPAA. ✔ Through the Health Insurance Portability and Accountability Act of 1996 (HIPAA), all information is protected and undisclosed regarding their health information.
User Data	✔ User information shall never be accessible to any party other than the owner of the information and a manager. ✔ This data includes, but is not limited to, his/her last 4-digits of their SSN, DOB and hours worked.

1.4 Domain Requirements

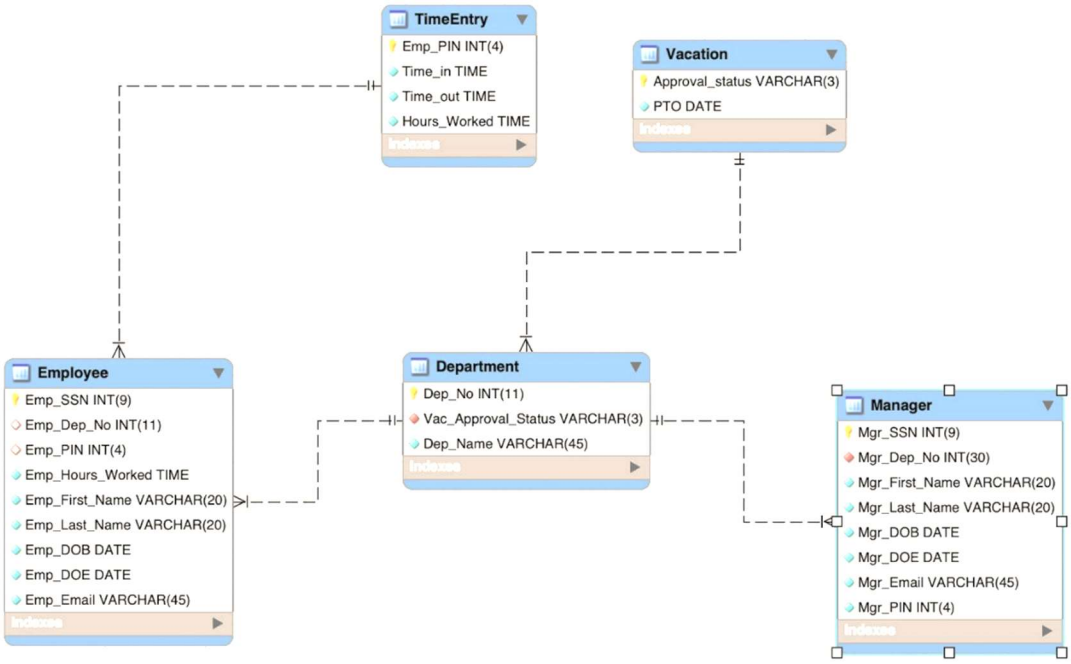
This is a domain requirement for computing the total hours worked using the FLEX Entry system.

The Total hours worked by a employee shall be computed as;

- Total_Hours = Time_in – Time_Out
- Where Time in is an accumulation of 28,800 seconds (8 hours work-day) Minus cock out hour.

System Implementation And Design

1.5 Entity Relationship Diagram



1.6 ERD Attributes Definitions

Department Table

- Dep_No INT(11) (primary key, not null, not auto incrementing)
- Vac_Approval_Status VARCHAR(3)
- Dep_Name VARCHAR(45)

Employee Table

- Emp_SSN INT(9)

- Emp_Dep_NO int(11)
- Emp_PIN INT(4)
- Emp_Hours_Worked TIME
- Emp_First_Name VARCHAR(20)
- Emp_Last_Name VARCHAR(20)
- Emp_DOB DATE
- Emp_DOE DATE
- Emp_Email VARCHAR(45)

Time Entry Table

- Approved_status VARCHAR (3)
- Pto DATE

Vacation Table

- Emp_PIN INT(4)
- Time_in TIME
- Time_out TIME
- Hours_Worked TIME

Manager Table

- Mgr_SSN INT(9)
- Mgr_Dep_No INT(30)
- Mgr_First_Name VARCHAR(20)
- Mgr_Last_Name VARCHAR(20)
- Mgr_DOB DATE
- Mgr_DOE DATE
- Mgr_Email VARCHAR(45)
- Mgr_PIN INT(4)

1.7 Business Rules

In Order to meet the original design constraint based on the systems performance expectations, the following business rules will govern the behavior of the FLEX Time web-based application:

- The user should have a predefined 4-digit pin for access
- The user access privilege shall be limited to specific job roles/responsibilities
- The user shall have the ability to reset login pins using associated email address if needed.

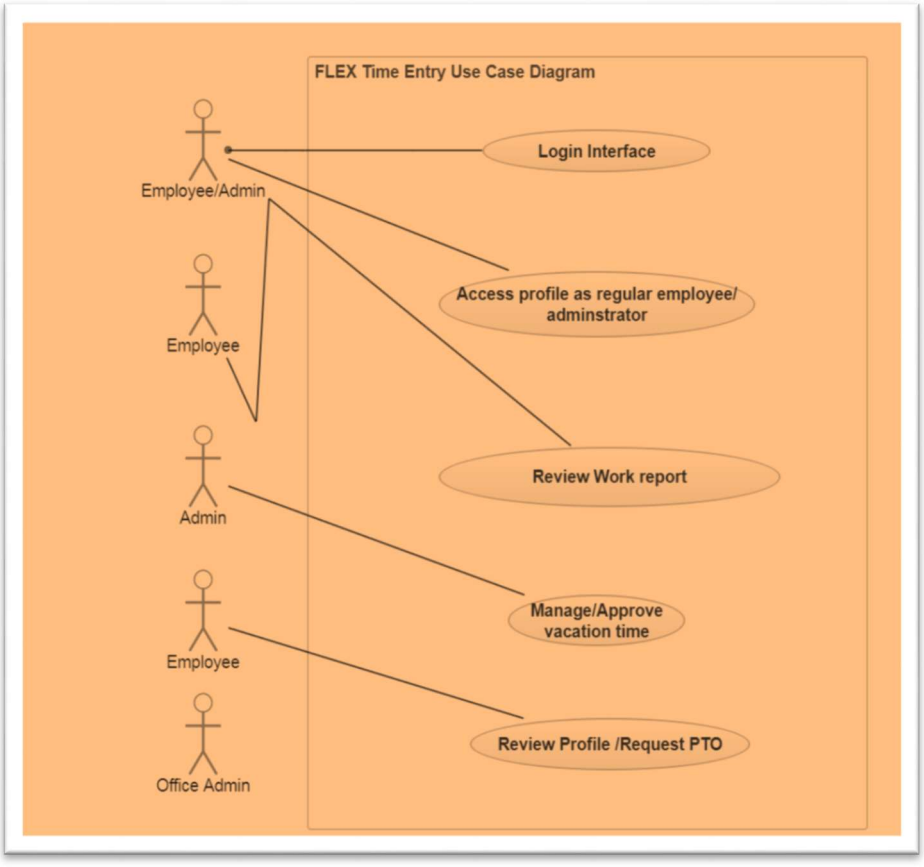
1.8 Use case Diagram

Actors:

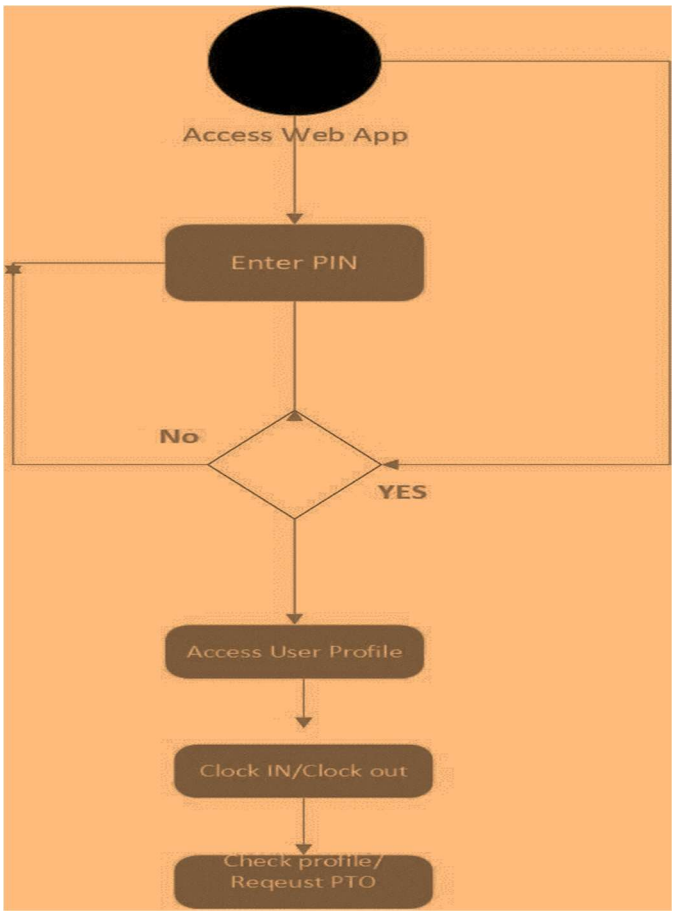
1. Regular Employees
2. Administrator

Description: This use case begins when a user accesses the FLEX Time entry web application.

1. The Systems presents a login screen
2. User enters a predefined 4-digit pin
3. The system compares the user entry against its security database and grants access/ rejects access.
4. Depending on the access level, the user performs several time management tasks and logs out of the system.



1.9 Activity Diagram



1.10 Web technologies

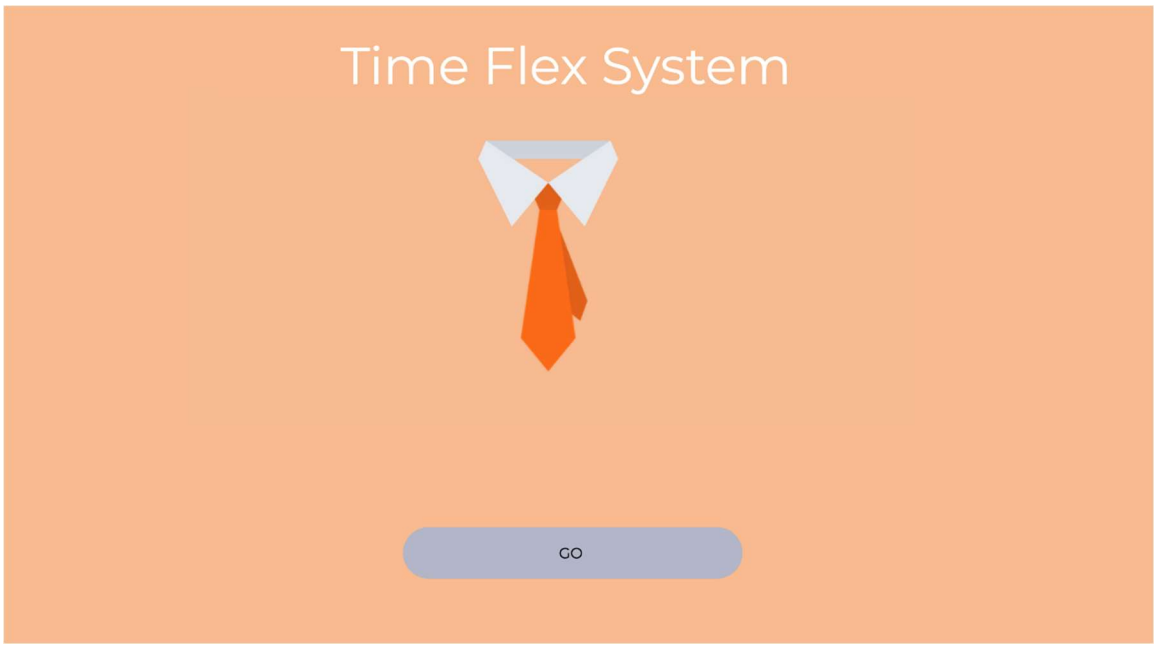
System Development

This systems specification document includes a prototype for the time entry system and it is restricted to the customer's (business owner/professor's) discretion for usage. This system may be used as an open source project should (subject to licensing agreement from Lloyd, Lauren, & Ryan) by interested third parties.

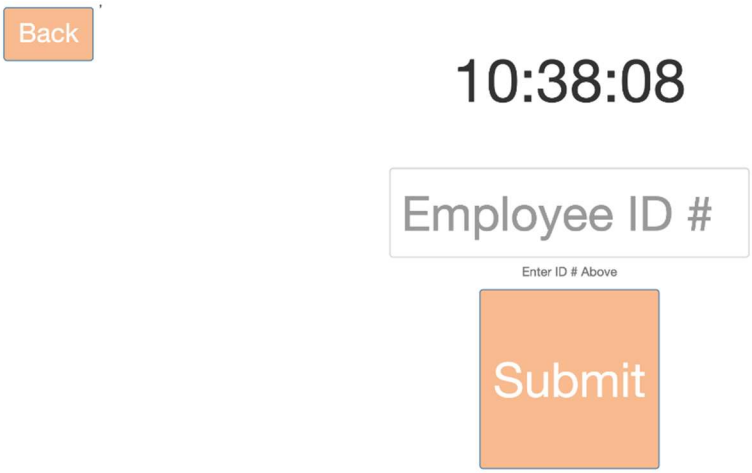
TESTING

1.11 Sample test results

Main Flex Time Web interface

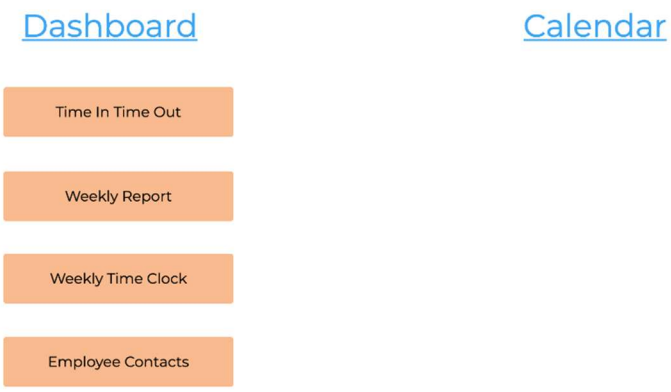


Login Interface

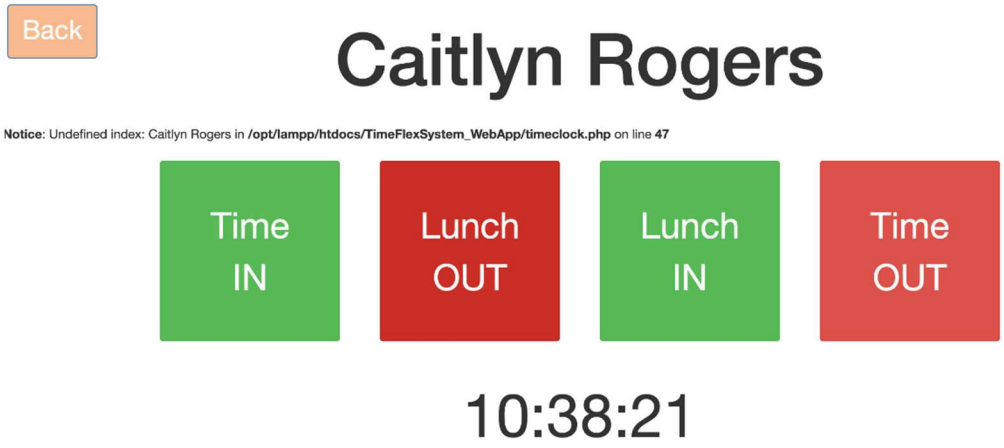


Successful Login Options

S



Sample Employee Profile Page



Reporting Page

Back

Payroll Report for last 7 day(s)

(v) Not Clocked IN (<) Lunch Not Clocked Out (>) Lunch Not Clocked In (^) Not Clocked Out

Employee	Date	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	TOTAL
Caitlyn Rogers	2019-06-27	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0
Jen Flemming	2019-06-27	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0
Mark Manning	2019-06-27	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0
Ryan Gosling	2019-06-27	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0
Tom Brady	2019-06-27	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0.00 v < > ^	0

The FLEX time entry system shall store the following information:

1. Employee Information – names of employees, date of birth social security number, department number, age, and date of employment
2. Department Information – department number, manager social security number assigned to department, employee time in, employee time out, regular hours, overtime hours, employee social security number

2. GLOSSARY

Glossary

Term	Definition
Admin	Administration;
Database	A collection of rows and columns
User	
User Interface	How the user and a computer system interact.
Query	Retrieve information from a database.

Acronyms

Acronym	Definition
ADA	Americans with Disabilities Association
Admin	Administrator
DOB	Date of Birth
DOE	Date of Entry
FR	Functional Requirements
HIPAA	Health Insurance Portability and Accountability Act
NES	Non-English Speaking
NFR	Non-Functional Requirements
PIN	Personal Identification Number
SRS	Software Requirements Specifications
SSN	Social Security Number
UI	User Interface

References

Software Engineering (10th Edition) by Ian Somerville