**Introduction**

1. Purpose

The purpose of the Vacation Tracking System (VST) system is to allow employees to manage their own vacation time, sick leave, and personal time off while abiding company policy or local facility’s leave policies. The application improves the process to manage time off requests for multiple departments, making the process more efficient. The application will include a rules-based validation system, a notification system, and have multiple interfaces for the various personnel, departments, and systems. The system design will utilize and apply client-server, publish-subscribe, and repository architectural styles. The system will include in-depth activity, message sequence, statechart, class, and entity-relationship diagrams to demonstrate how the system will operate.

1. System Overview

The system design will be in-depth as it utilizes several diagrams and prototypes to display the requirements, key features, and workflows. The system design will utilize and apply client-server, publish-subscribe, and repository architectural styles. The system has several use cases and scenarios to sufficiently describe how the system is meant to work. The system design has a detailed class diagram that defines the classes and objects in the system, defines the attributes and operations of the classes, and depicts the relationships between classes. The system design utilizes several in-depth activity diagrams to help demonstrate the flow of control from activity to activity for the use cases. The system design also utilizes several in-depth sequence diagrams to help demonstrate how objects interact with each other to support the use cases. The system design also utilizes statechart diagrams to help model the state of a single object, what causes transitions, and the actions resulting from change. The system also utilizes an entity-relationship diagram for the database design to help model the data stored in the databases. Finally, the system utilizes wireframes and prototypes to describe and directly support the construction of the user interface screens.