ICASE Report

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Table of Contents

PREFACE

This preface is in support of the ICASE assignment for ISM6124.901F17 at the University of South Florida.

This document illustrates the design of a management system for a fictional company named *Landscape Inc. Management System*.

The UML modeling tool used for this assignment is an online diagram application called Lucid Chart which can be found at www.lucidchart.com. This tool was used over Argo UML for the convenience of having the work online and accessible from multiple machines.

GOAL OF ASSIGNMENT

The goal of the assignment is to use an UML modeling tool and techniques to design a system to perform various tasks needed for a fictional landscaping company.

BACKGROUND

The fictional company we will be creating a system for is called Landscape Inc. They are a landscape company who performs landscaping duties for large companies whom each have their own requirements to be meet. Records of each client are kept which include initiated landscape, past service, and notes on issues that have been raised during visits. Landscape has multiple teams who are dispatched out to each site during the work week. Each site requires specialists and related tools specific to that site.

Landscape Inc. wants to develop a system that will maintain its employee, client, and equipment databases along with a scheduling tool that provides a daily schedule.

TASK

Our goal is to complete the following:

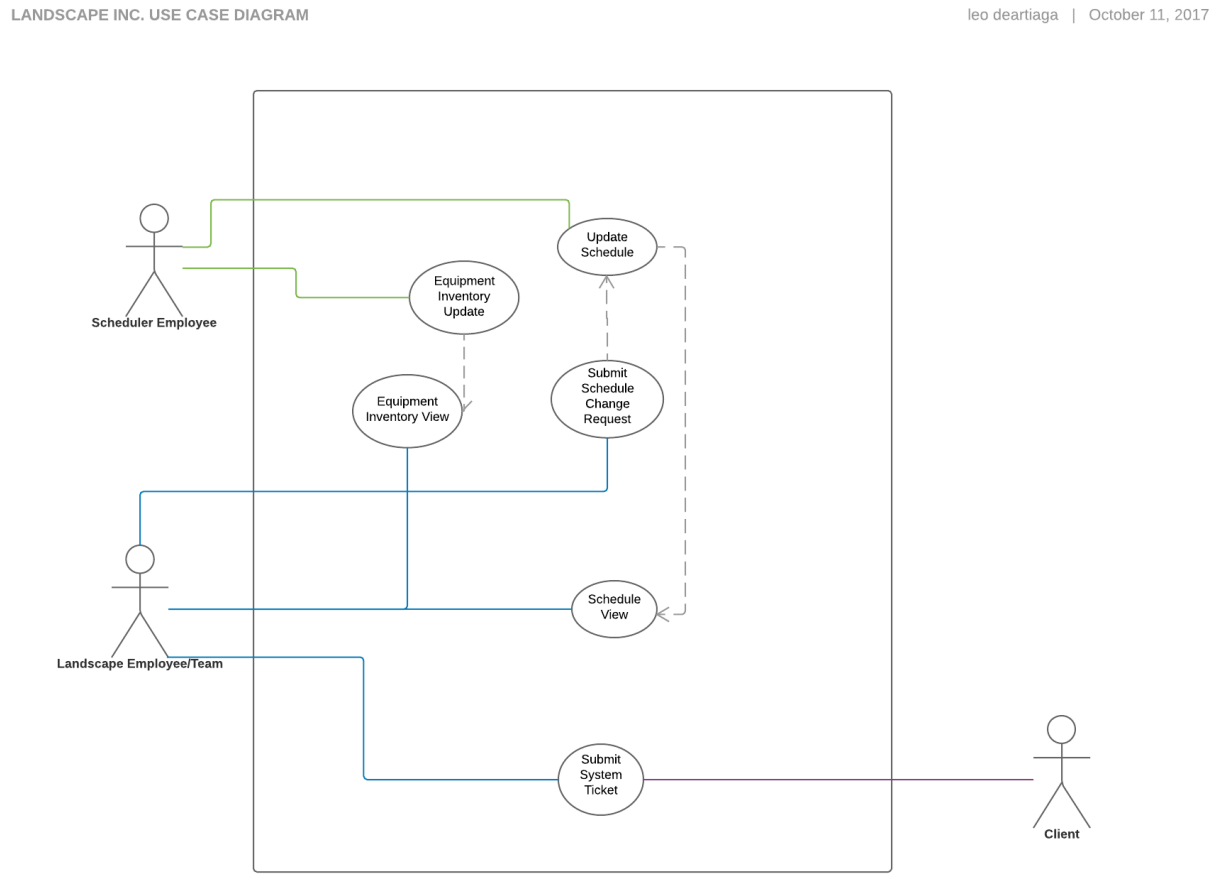
Create and refine the requirements for the system using **Use Case** analysis to describe the functionality of the proposed system in terms of relevant actors and their goals.

Design the relevant ***Class Diagrams*** to represent the conceptual data modeling of the system discussed above.

Analyze and design ***State Chart Diagrams*** to represent a selected series of events involved in the proposed workflow system for scheduling. Note that there are multiple stakeholders for this system.

USE CASE MODEL REPORT

The following diagram illustrates how actors relate to use cases.



Actor – Landscape employee/team

Documentation

The Landscape Employee/Team Actor in this case is the employee who is dispatched out to the individual client sites each morning. Each employee actor is part of a team. There is 1 team with 1..* many employees for each site.

Use Case – Submit System Ticket

Documentation

The system allows each Employee/Team Actor to submit a system ticket. System tickets are submitted to raise concerns about a certain client site. For example, need additional tools, or need an extra landscaping member would be a ticket type that could be submitted. The ticket would then be reviewed by the scheduler and discussed with the team leader to make necessary changes.

Associations

N.A.

Use Case – Schedule View

Documentation

The system allows each Employee/Team Actor to view the daily schedule. The daily schedule will show which team the actor is assigned to, and which client site the actor will be sent to that date. The schedule will also show all necessary tools needed to complete the job.

Associations

Update Schedule

Use Case – Submit Schedule Change Request

Documentation

The system allows each Employee/Team Actor to submit a schedule change request. There could be various reasons to why the actor would submit a schedule change request like a sick day, or vacation request. The Submit Schedule Change Request allows the system to have up to date information on the availability of the staff.

Associations

Update Schedule

Use Case – Equipment Inventory View

Documentation

The system allows each Employee/Team Actor to view the status of the available inventory. Each site requires different combination of tools to complete the job, and each team is responsible for making sure they have the right tools for the job.

Associations

Equipment Inventory Update

Actor – Scheduler Employee

Documentation

The Scheduler Employee Actor is the employee who is responsible for updating the daily schedule, and inventory.

Use Case – Update Schedule

Documentation

The system allows each Scheduler Employee to update the daily schedule. The daily schedule will show which team the Landscape Employee/Team actor is assigned to, and which client site the Landscape actor will be sent to that date. The schedule will also show all necessary tools needed to complete the job. The scheduler also needs to make any schedule change requests submitted by the Landscape Employee/Team.

Associations

Submit Schedule Change Request.

Schedule View

Use Case – Equipment Inventory Update

Documentation

The system allows each Scheduler Employee to make updates to the daily inventory. Each site requires different combination of tools to complete the job. The Scheduler Employee Actor is responsible for updating and allocating the inventory to each team.

Associations

Equipment Inventory View

Actor – Client

Documentation

The Client Actor has 1 to many job sites associated with it. Each Job site has its own landscaping needs, and environmental regulations to follow.

Use Case – Submit System Ticket

Documentation

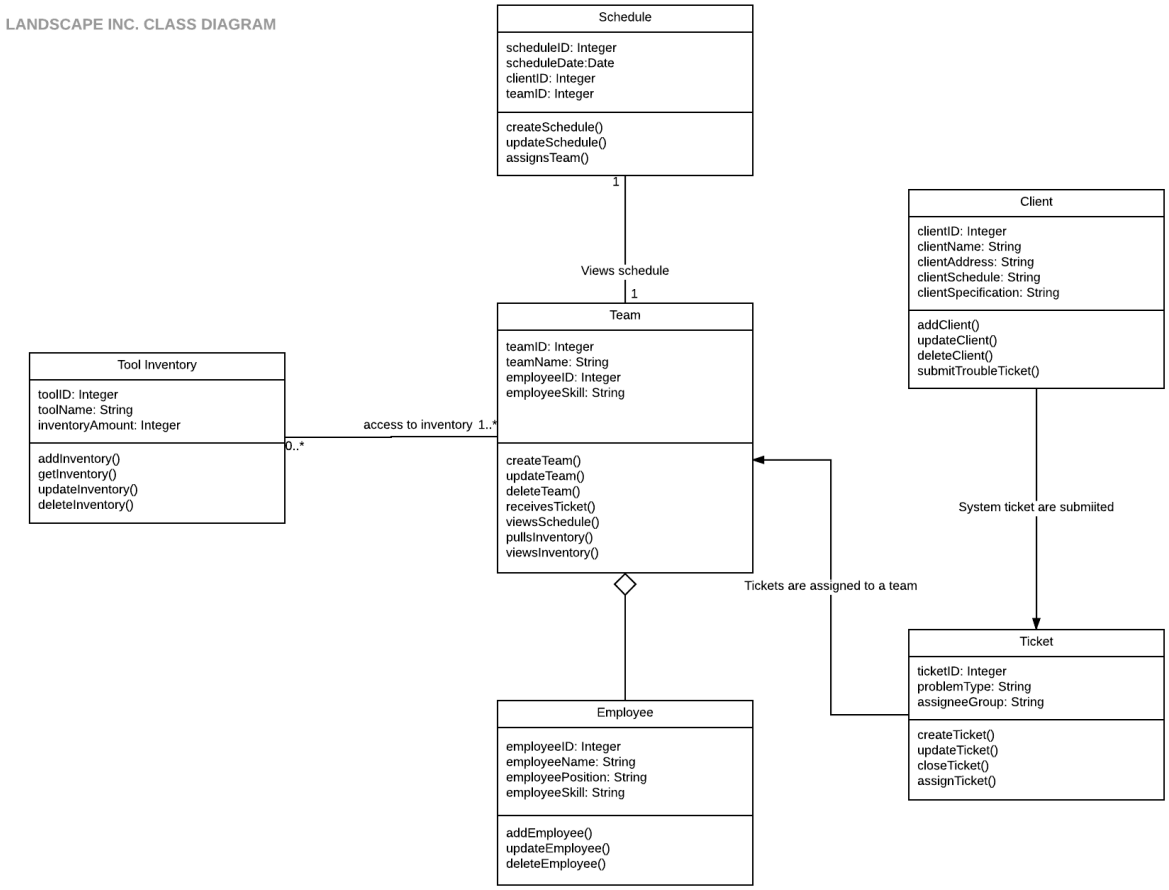
The system allows each client to Submit System Tickets. System tickets can be used to report any issues/concerns a client might have including schedule updates.

Associations

N.A

CLASS DIAGRAM MODEL REPORT

*The following **Class Diagram** is a static structure diagram that describes the Landscape Inc. scheduling system by showing the system classes, their attributes, and relationships between the classes.*



Class – Schedule

Class Name	Attributes	Operations
Schedule	1.scheduleID: Integer 2.scheduleDate: Date 3.clientID: Integer 4.teamID: Integer	1.createSchedule() 2.updateSchedule() 3.assignsTeam()

Class – Client

Class Name	Attributes	Operations
Client	1.clientID: Integer 2.clientName: String 3.clientAddress: String 4.clientSchedule: String 5. clientSpecification: String	1.addClient() 2.updateClient() 3.deleteClient() 4.submitTroubleTicket()

Class – Ticket

Class Name	Attributes	Operations
Ticket	1.ticketID: Integer 2.problemType: String 3.assignGroup: String	1.createTicket() 2.updateTicket() 3.closeTicket() 4.assignTicket()

Class – Employee

Class Name	Attributes	Operations
Employee	1.employeeID: Integer 2.employeeName: String 3.employeePosition: String 4.employeeSkill: String	1.addEmployee() 2.updateEmployee() 3.deleteEmployee()

Class – Tool Inventory

Class Name	Attributes	Operations
Tool Inventory	1.toolID: Integer 2.toolName: String 3.inventoryAmount: Integer	1.addInventory() 2.getInventory() 3.updateInventory() 4.deleteInventory()

Class –Team

Class Name	Attributes	Operations
Team	1.teamID: Integer 2.teamName: String 3.employeeID: Integer 4.employeeSkill: String	1.createTeam() 2.updateTeam() 3.deleteTeam() 4.receivesTicket() 5.viewsSchedule() 6.pullsInventory() 7.viewsInventory()

STATE CHART DIAGRAM MODEL REPORT

*The following **State Chart** gives an abstraction description of the behavior of the system when being used by the scheduler. The scheduler follows the flow described in the diagram to set the final schedule of a given day. Landscape employees will use the final schedule to determine the following: which team he/she is assigned to, which equipment/s is/are needed for the job, and client information like site address.*