ErieGarbage Online

Project Analysis and Development Plan

Version 1.0

SWENG 497

TEAM MEMBERS

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Revision History

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| **Date** | **Version** | **Description** | **Author** |
| <dd/mmm/yy> | <x.x> | <details> | <name> |
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Project Analysis and Development Plan

# Introduction

ErieGarbage is a garbage pick-up and disposal proprietorship located in Erie, PA. ErieGarbage is currently serving around 3,000 customers in total. They provide garbage collections services to both residential customers and small businesses in Erie County.

## Purpose

The purpose of this document is to define the requirements and the specifications of the ErieGarbage Online system in terms of its behavior and operation in accordance to the customer’s requirements. It ensures that all parties involved in the development process of ErieGarbage Online are aware of the issues surrounding the system and the proposed solution.

## Scope

The scope of this project includes admin and user functionality within the application. The focus of this application will be on giving the customers a good experience, meaning they are able to create an account and perform actions using that account. It will also focus on giving admins a similar experience; the ability to modify some customer data, make adjustments to customer billing, and other functionalities.

## Definitions, Acronyms, and Abbreviations

SRS – Software Requirements Specifications

EGO – ErieGarbage Online

GUI – Graphical User Interface

User – General term for anyone using the system

Customer – Person using the system that cannot use admin functionality

Admin – Person using the system with access to all admin functionality, and some customer functionality

## References

Secure Software Design – Author(s): Theodor Richardson & Charles Thies – 2013

Software Quality Assurance – Authors(s): Daniel Galin - 2004

## Overview

Section 2

This section describes the problem, product functionality, a user description, assumptions and dependencies, constraints, specific requirements, and analysis model.

Section 3

This section lists the team members and each of their purposes in regards to the project.

# Problem description

## Project Purpose, Scope, and Objectives

The purpose of this project is to create a web-based application to allow ErieGarbage to easily monitor and assist their customers, record customer and admin actions in a database, and allow customers an easy way to view and modify information that relates to them.

### User interfaces

The user interface of EGO will consist of multiple parts:

* Main login page
* Customer view
* Admin view

## Product Functions

The following is a breakdown of distinct tasks that an admin can perform while using EGO:

Admin Functionality:

* Update customer’s billing information
* Send emails to customers
  + Send electronic receipt to customers
* Check customer accounts with payments due
  + See a list with information about user
* View complaints
  + Ability to respond to complaints
* Suspend customer account
  + Due to customer request
  + Due to non-payment
* View customer complaints
  + Ability to respond to complaints
* View bill disputes
  + Ability to respond to disputes
* Create additional admin accounts

The following is a breakdown of distinct tasks that a customer can perform while using EGO:

Customer Functionality:

* Update profile
* View billing information
  + Ability to update billing information
* Pay bill
* View garbage pick-up time
* Suspend account
* File complaint
* Dispute bill
* Cancel account

## User Description

### User Environment

The client has stated that this software will be web-based, meaning that users will be able to access the system from their browser of choice. The system will be scalable to allow for thousands of users to use the service concurrently.

### User Profiles

The user will need a basic knowledge of using their preferred operation system (Windows, Mac, Linux). Since this is a web-based application, there are no operating system dependencies.

## Assumptions and Dependencies

It is assumed that this software will be in constant use by thousands of customers and many admins. It is also assumed that customers will have a basic understanding of web-services to understand how to use the product. Dependencies include the hardware specifications of the server hosting the database and application

## Constraints

System constraints include:

* The system is web-based and can be accessed from a browser
* User friendly interface
* Admin should be proficient with the system in two hours of training or less
* Customers should be able to use the system without training
* Hints and help should be provided to the user

## Specific Requirements

### Applicable Standards

The user must be able to access the system from a web browser.

### System Requirements

The client system should be a laptop or desktop computer with a web browser installed.

### Performance Requirements

None specified.

### Environmental Requirements

Invalid operations will generate an error message to let the user know that something has gone wrong with the system. These error messages will be displayed to the user so that input can be taken again. Major modifications of EGO will be done by the development team at SecQuality Development.

## Analysis model

[UML diagrams: use-case diagrams, class diagrams and sequence diagrams.]

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| --- | --- |
| Use Case #1 | View Account Information |
| Goal in Context | To allow the user to view account information |
| Scope | ErieGarbage Customer |
| Level | Primary |
| Primary Actor | User |
| Preconditions | User has an account and is logged in. |
| Success Guarantee | User’s account information will be displayed |
| Fail Case | User information is not displayed |
| Consequence of Failure | User’s will not be able to view or update information |
| Associated Risks | User may feel that the service is unreliable and may discontinue their usage |
| Nonfunctional Requirements | Information should be displayed within one second after attempt |
| Trigger | User attempts to view account information |
| 1 | User attempts to view account information |
| 2 | The system displays the user’s information |

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| Use Case #2 | Update Account Information |
| Goal in Context | To allow the user to update account information |
| Scope | ErieGarbage Customer |
| Level | Primary |
| Primary Actor | User |
| Preconditions | User has an account, is logged in, and is viewing profile. |
| Success Guarantee | User’s account information will be updated |
| Fail Case | User’s information is not updated |
| Consequence of Failure | User’s information will be incorrect |
| Associated Risks | User information will be outdated and may cause unnecessary charges or work |
| Nonfunctional Requirements | Information should be updated immediately after saving |
| Trigger | User attempts to update account information |
| 1 | User attempts to update account information |
| 2 | The system displays user’s changeable information |
| 3 | The user enters new information |
| 4 | The user saves changes |
| 5 | The system changes the information in the database |
|  | Extensions |
| 4a | The user cancels changes |
|  | 4a-1 The changes made are discarded |

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| Use Case #3 | Make Payment |
| Goal in Context | To allow the user to add money to their running balance |
| Scope | ErieGarbage Customer |
| Level | Primary |
| Primary Actor | User |
| Preconditions | User has an account and is logged in. |
| Success Guarantee | User’s account balance will increase by the amount they pay |
| Fail Case | User’s payment doesn’t go through |
| Consequence of Failure | User may be charged without taking effect, or may be suspended unduly |
| Associated Risks | User may start a chargeback, or may feel that their billing information is not secure and cancel their account |
| Nonfunctional Requirements | The user’s balance should update immediately after payment clears |
| Trigger | User attempts to add money to account balance |
| 1 | User attempts to add money to account balance |
| 2 | The system displays the payment form |
| 3 | The user enters amount they wish to pay |
| 4 | The system charges the user’s billing account |
| 5 | The system updates balance after receiving confirmation |
|  | Extensions |
| 4a | The user’s billing information is out of date |
|  | 4a-1 The payment is discarded |

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| Use Case #4 | View Pickup Time |
| Goal in Context | To allow the user to view pickup times |
| Scope | ErieGarbage Customer |
| Level | Primary |
| Primary Actor | User |
| Preconditions | User has an account and is logged in. |
| Success Guarantee | ErieGarbage pickup times are displayed |
| Fail Case | Nothing is displayed |
| Consequence of Failure | User will not be able to view times for pickup |
| Associated Risks | User may not be prepared for pickup, causing a failure in the service, and the user may feel uncertain about the quality of the service. |
| Nonfunctional Requirements | Information should be displayed within one second of attempt |
| Trigger | User attempts to view pickup times |
| 1 | User attempts to view pickup times |
| 2 | The system displays the pickup times for the service |

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| Use Case #5 | Notify Admin |
| Goal in Context | To allow user to send a request to the admin |
| Scope | ErieGarbage Customer |
| Level | Primary |
| Primary Actor | User |
| Preconditions | User has an account and is logged in |
| Success Guarantee | Admin will be notified of User’s request |
| Fail Case | Admin is not notified |
| Consequence of Failure | Admin will not know what the user was attempting to notify about |
| Associated Risks | User will feel that the system is unreliable or that the administrators don’t respond to users, and may cancel their account |
| Nonfunctional Requirements | Notifications should be sent as soon as user requests it, and should have a guaranteed delivery |
| Trigger | User attempts to notify admin |
| 1 | User attempts to notify admin |
| 2 | User chooses to dispute bill, request suspension, or cancel account |
| 3 | The system runs the specified subfunction |
| 4 | The user sends the notification |
| 5 | The system notifies the admin that the user has sent a message |
|  | Extensions |
| 4a | The user cancels the message |
|  | 4a-1 The system discards the message |

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| Use Case #6 | Request Suspension |
| Goal in Context | To allow user to request a suspension on their account |
| Scope | ErieGarbage Customer |
| Level | Subfunction |
| Primary Actor | User |
| Preconditions | User has an account, is logged in, and has chosen notification type suspension |
| Success Guarantee | Admin will be notified of suspension request |
| Fail Case | Admin is not notified |
| Consequence of Failure | Admin will not know that user wishes to suspend account |
| Associated Risks | User will be charged during desired suspension period, and will likely dispute or cancel service |
| Nonfunctional Requirements | Notifications should be sent as soon as user requests it, and should have a guaranteed delivery |
| Trigger | User chooses to request suspension |
| 1 | User attempts to request suspension |
| 2 | User specifies length of time for suspension |
| 3 | The system notifies the admin that the user has requested a suspension |

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| Use Case #7 | File Complaint |
| Goal in Context | To allow the user to file a complaint |
| Scope | ErieGarbage Customer |
| Level | Subfunction |
| Primary Actor | User |
| Preconditions | User has an account, is logged in, and chooses to file a complaint |
| Success Guarantee | Admin will be notified of the user’s complaint |
| Fail Case | User’s complaint is not filed |
| Consequence of Failure | User’s complaint will not reach the administration |
| Associated Risks | User will feel that their feedback is not important, and a valid concern may be not be taken care of |
| Nonfunctional Requirements | Complaint should be filed immediately after attempt |
| Trigger | User chooses to file a complaint |
| 1 | User chooses to file a complaint |
| 2 | The user fills out specified information to file the complaint |
| 3 | The system notifies the admins about the complaint |

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| Use Case #8 | Dispute Bill |
| Goal in Context | To allow the user to dispute bill |
| Scope | ErieGarbage Customer |
| Level | Primary |
| Primary Actor | User |
| Preconditions | User has an account, is logged in, has a charge to their account, and chooses to dispute a bill |
| Success Guarantee | Admin will be notified of the user’s dispute |
| Fail Case | User’s dispute is not filed |
| Consequence of Failure | User’s dispute will not reach the administration |
| Associated Risks | User will feel that their notifications are ignored, and may be wrongly charged |
| Nonfunctional Requirements | Dispute should be filed immediately after attempt |
| Trigger | User chooses to dispute a bill |
| 1 | User chooses to dispute a bill |
| 2 | The user selects a bill to dispute |
| 3 | The system notifies the admins about the dispute |

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| Use Case #9 | Cancel Account |
| Goal in Context | To allow the user to cancel their account |
| Scope | ErieGarbage Customer |
| Level | Primary |
| Primary Actor | User |
| Preconditions | User has an account and is logged in |
| Success Guarantee | User’s account will be cancelled |
| Fail Case | User’s account is not cancelled |
| Consequence of Failure | User’s account will remain in effect |
| Associated Risks | User may have inaccurate activity or charges made, and could potentially involve the law |
| Nonfunctional Requirements | Account should be deleted immediately after the user requests it |
| Trigger | User attempts to cancel account |
| 1 | User attempts to cancel account |
| 2 | The user specifies required cancellation information |
| 3 | The system deletes the users account |
|  | Extensions |
| 3a | The user cancels request |
|  | 4a-1 The cancellation is discarded |

# Team Members Log Sheets

## Jake Wheeler

|  |  |  |
| --- | --- | --- |
| **date** | **task** | **duration** |
| 10/7/2016 | Meeting with customer (teacher) for more information.  Initial document edits to all sections.  Initial use case diagram. | 2.5 hrs. |
| 10/9/2016 | First draft of user sequence diagrams. | 2.5 hrs. |
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## Nate Christiansen

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| **date** | **task** | **duration** |
| 10/7/2016 | Meeting with customer (teacher) for more information. | ¼ hr. |
| 10/8/2016 | Add to document, add many user use cases, and update use case diagram | 1.5 hr |
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## Alex Lee

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| --- | --- | --- |
| **date** | **task** | **duration** |
| 10/7/2016 | Meeting with customer (teacher) for more information. | ¼ hr. |
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