UCN psu0219

1st semester project

Group 13

Logo

DATABASES & TEST REPORT

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# Database

## Introduction

## Database Schema Design

## Table Design

## Query Design

## Important Indexes

## Databases & Security

## Applied Database Logic

## Discussion

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# Test

## Introduction

In this report, we will discuss the Georgia Tech Library (GTL) project from a testing perspective. The starting point of this project is a document which describes the GTL case. In short, the library is interested in a system that will be used for managing their business. Throughout this project, we made several assumptions about the case, when information was missing. These assumptions are mentioned and explained in the continuation of the report. First, we assumed that the system the library wants is a new custom software solution. Therefore, we categorized this project as a software development project. Going forward, to the project start-up stage, we constructed a Project Initiation Document (PID). The purpose of a PID is to clearly define what the library, which is the customer in this case, should expect to receive from us, the suppliers of the system, at the end of the project.

### GTL PID

Business objective

* To modernize the library’s loaning system by switching to a digital solution

Project objective

* To implement a working prototype for a library loaning system that will keep track of the members, books and borrowing activity

Scope

* Boundaries
  + Member registration
  + Book management
  + Tracking of items status such as available or borrowed / on loan
  + Reliable item loaning functionality
  + Sending notifications according to member type
  + Enforcing the communicated business rules such as
    - Restricting the borrowing of certain items
    - Restricting the number of books, a member can loan
* Activities
  + Supplier will only provide the software of the discussed solution; additional software that may be required as a platform for the solution to run on is not provided;
  + Supplier will not provide any hardware components; that is considered the customers responsibility
  + Supplier will not be responsible for any security issues of the system
  + Supplier will not be taking on the task of maintaining the system, after the completion of the project
  + Supplier will not be tasked with training the library’s employees on how to use the system
* Deliverables
  + Software system consisting of a working prototype with the functionalities that were agreed upon by both parties
  + Documentation about the systems design, implementation, usability and other relevant features

Constraints

* The development lifecycle that will be used is the spiral model
* The development approach is an Agile one, based on SCRUM
* The proposed software system will run on the Windows 10 operating system
* The technology stack used is the .NET framework with the C# programming language

Authority

* The person responsible for representing the customers interests and tasked with approving the final product is one of the developers

Resources

* The projects cost is fixed
* The staff working on developing the system consists of two developers
* Time is two months to complete
* The hardware required to develop the system is provided by the supplier

Besides the specifics of the product that is to be delivered, the PID also describes the project regarding important constraints such as project scope, delivery time, the desired quality and the cost of the project. These factors were taken into consideration by us, when we chose our test strategy and test approach.

## Designing a testable architecture

Dependency injection

Inversion of control

Simple factory

Abstract factory

## Coding standards

Meaningful names, intention-revealing names, pronounceable name, searchable name, one word per concept (clean code references)

## Scope & Test Strategy

## Risks Analysis

## Applied Test Techniques

## Test Plan

## Test Coverage

## Test Automation

## Test Management

## Test Control

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## Appendices