YCompany – eClaims

DAR Document



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|  |  |  |  |

Contents

[1 Introduction 5](#_Toc511638479)

[1.1 Objective and scope of document 5](#_Toc511638480)

[2 Requirements at a Glance 5](#_Toc511638481)

[3 Available Web Technologies 5](#_Toc511638482)

[3.1 ASP.NET Web Forms 5](#_Toc511638483)

[3.1.1 Features of ASP.NET Web Forms 6](#_Toc511638484)

[3.1.2 Pricing for ASP.NET Web Forms 6](#_Toc511638485)

[3.2 ASP.NET Core MVC 6](#_Toc511638486)

[3.2.1 Features of ASP.NET Core MVC 6](#_Toc511638487)

[3.2.2 Pricing for ASP.NET Core MVC 7](#_Toc511638488)

[3.3 Point Matrix for Web Technologies 7](#_Toc511638489)

[3.4 Comparison of Web Technologies 7](#_Toc511638490)

[3.5 Recommendation 7](#_Toc511638491)

[3.6 Assumptions 7](#_Toc511638492)

[4 Available Relational Database Management System 7](#_Toc511638493)

[4.1 Microsoft SQL Server 8](#_Toc511638494)

[4.1.1 Features of MS SQL Server 8](#_Toc511638495)

[4.1.2 Pricing for MS SQL Server 8](#_Toc511638496)

[4.2 MySQL 8](#_Toc511638497)

[4.2.1 Features of MySQL 8](#_Toc511638498)

[4.2.2 Pricing for MySQL 9](#_Toc511638499)

[4.3 Point Matrix for RDMS Tools 9](#_Toc511638500)

[4.4 Comparison of RDMS Tools 9](#_Toc511638501)

[4.5 Recommendation 10](#_Toc511638502)

[4.6 Assumptions 10](#_Toc511638503)

[5 Available tools for Data Access 10](#_Toc511638504)

[5.1 ADO.NET 10](#_Toc511638505)

[5.1.1 Features of ADO.NET 10](#_Toc511638506)

[5.1.2 Pricing for ADO.NET 10](#_Toc511638507)

[5.2 Entity Framework Core 10](#_Toc511638508)

[5.2.1 Features of Entity Framework Core 10](#_Toc511638509)

[5.2.2 Pricing for Entity Framework Core 11](#_Toc511638510)

[5.3 Point Matrix for Data Access Tools 11](#_Toc511638511)

[5.4 Comparison of Data Access Tools 11](#_Toc511638512)

[5.5 Recommendation 11](#_Toc511638513)

[5.6 Assumptions 12](#_Toc511638514)

[6 Available tools for Logging 12](#_Toc511638515)

[6.1 Log4Net 12](#_Toc511638516)

[6.1.1 Features of Log4Net 12](#_Toc511638517)

[6.1.2 Pricing for Log4Net 12](#_Toc511638518)

[6.2 NLog 12](#_Toc511638519)

[6.2.1 Features of NLog 12](#_Toc511638520)

[6.2.2 Pricing for NLog 12](#_Toc511638521)

[6.3 Point Matrix for Logging libraries 13](#_Toc511638522)

[6.4 Comparison of Logging libraries 13](#_Toc511638523)

[6.5 Recommendation 13](#_Toc511638524)

[6.6 Assumptions 13](#_Toc511638525)

[7 Appendix 14](#_Toc511638526)

[7.1 References 14](#_Toc511638527)

# Introduction

DAR document is used to provide a comparision between different tools and libraries which can possibly be used to design solutions for a given problem.

## Objective and scope of document

This document provides a comparision between different technologies, tools or frameworks that were evaluated while designing the solution for eClaims system.This document will only cover the tools that were relevant in the designing and development of this project.

# Requirements at a Glance

YCompany being a key player in its business area has been facing challenges with the manual claims processing. Due to the manual process for claims processing, the customer claim settlement time is large and claims are sent out as cheque. This has resulted in customer dissatisfaction and YCompany loosing customer confidence. Currently claims adjuster must submit manual assessment from field to back office, the back office then validates the assessment against the claims submitted, which is both cost inefficient and time consuming. As the claims data is not collected electronically YCompany has no way of running analytics on the data.

The primary goal of the eClaims portal is to provide a web-based solution which will serve as a single platform for Customers, Surveyor, Adjustor, Case Manager and company’s internal users. Using this application, Customer can register themselves, their policies, service their policies, make Online Payment and can change the billing cycle of the policy. Using the appliction, Surveyor can sbmit their assessment online and Adjustor can view claim, supporting documents and assessment report online. Same system can be used by Case Managers to view the comlete details and make adjustments to the claim.

Using the application, 3rd party service providers like Vehicle Repair Workshop should be able to upload the work order and udate its progress periodically. Customers should get the notifications about the current status of their vehicle. Internal users like Case Managers and Regional Manager should be able to generate reports based on their permissions.

System should enforce all stringent security measures to restrict unauthorized access. And should also provide identity management system through role- based user management.

# Available Web Technologies

## ASP.NET Web Forms

ASP.NET Web Forms is a part of the ASP.NET web application framework and is included with Visual Studio. It provides a simple event driven model for rapid application development. Web forms can be rendered in modern browsers using HTML and related Web-oriented languages.

The ASP.NET Web Forms page framework automatically handles the task of maintaining the state of your page and its controls, and it provides you with explicit ways to maintain the state of application-specific information.

This is the standard UI design and implementation technology for .NET Web applications. An ASP.NET Web Forms application needs only to be installed on the Web server, with no components required on the client desktop.

### Features of ASP.NET Web Forms

* Asp.Net Web Form follow a traditional event driven development model.
* Asp.Net Web Form has Master Pages for consistent look and feels.
* In Asp.Net Web Form, Web Forms(ASPX) i.e. views are tightly coupled to Code behind(ASPX.CS) i.e. logic.
* Asp.Net Web Form has state management (like as view state, session) techniques
* Asp.Net Web Form follows Web Forms Syntax
* Asp.Net Web Form is not Open Source.

### Pricing for ASP.NET Web Forms

ASP.NET Web Forms can be used free of cost, but it is not Open Source.

## ASP.NET Core MVC

ASP.NET Core is a new open-source and cross-platform framework software. ASP.NET Core apps can run on.NET Core or on the full.NET Framework. It was designed to give a target based development framework for apps that are installed to the cloud or run on-premises. ASP.NET Core has a number of constructional changes that will outcome in a much smaller and effective framework. It is built on a set of granular and well built NuGet packages. This lets you target your app to comprise just the NuGet packages you need.

This technology allows you to build applications based on the Model-View-Controller (MVC) pattern. The ASP .NET Model-View-Controller (MVC) is an architectural pattern that separates an application into three main logical components: the model, the view, and the controller. ASP.NET MVC supports test-driven development and clear separation of concerns between UI processing and UI rendering. This approach helps to avoid mixing presentation information with logic code.

### Features of ASP.NET Core MVC

* Cross-platform & container support
* Built-in support for dependency injection
* High performance
* Fully cloud ready setup for publishing
* Unified MVC & Web API frameworks
* MVC (Model, View, Controller) pattern-based development model.
* ASP.NET Core MVC is open source

### Pricing for ASP.NET Core MVC

ASP.NET Core MVC can be used free of cost and is open source.

## Point Matrix for Web Technologies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Feature | Baseline | Weight | ASP.NET Web Forms | ASP.NET Core MVC |
| Free of cost | 0 | 1 | +1 | +1 |
| Open source | 0 | 1 | 0 | +1 |
| Cross-platform | 0 | 2 | 0 | +2 |
| Built-in support for dependency injection | 0 | 1 | 0 | +1 |
| Could-ready setup | 0 | 2 | 0 | +2 |
| MVC pattern-based development | 0 | 1 | 0 | +1 |

## Comparison of Web Technologies

|  |  |  |
| --- | --- | --- |
| Feature | ASP.NET Web Forms | ASP.NET Core MVC |
| Free of cost | **** | **** |
| Open source | **** | **** |
| Cross platform | **** | **** |
| Built-in support for dependency injection | **** | **** |
| Cloud-ready setup | **** | **** |
| MVC pattern-based development | **** | **** |

## Recommendation

On the basis of above comparison, I would like to recommend ASP.NET Core MVC to be used as a web technology in this project.

## Assumptions

Web technologies only from the Microsoft technology stack are considered.

# Available Relational Database Management System

## Microsoft SQL Server

Microsoft SQL Server is a relational database management system, or RDBMS, that supports a wide variety of transaction processing, business intelligence and analytics applications in corporate IT environments.

Like other RDBMS software, Microsoft SQL Server is built on top of SQL, a standardized programming language that database administrators (DBAs) and other IT professionals use to manage databases and query the data they contain. SQL Server is tied to Transact-SQL (T-SQL), an implementation of SQL from Microsoft that adds a set of proprietary programming extensions to the standard language.

### Features of MS SQL Server

* Tools like Sql Server Profiler, SQL Server Management Studio, BI tools and Database Tuning adviser
* Robust Stored procedures and Triggers suppport
* Multi-platform support
* Containers support
* Best XML support

### Pricing for MS SQL Server

SQL Server is available in multiple editions, with different feature sets and targeting different users. Each edition has different cost.

## MySQL

MySQL is an open-source relational database management system (RDBMS). The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements.

MySQL is offered under two different editions: the open source MySQL Community Server and the proprietary Enterprise Server. MySQL Enterprise Server is differentiated by a series of proprietary extensions which install as server plugins, but otherwise shares the version numbering system and is built from the same code base.

### Features of MySQL

* Open source
* Free of cost
* A broad subset of ANSI SQL 99, as well as extensions
* Multi-platform support
* Full-text indexing and searching
* Unicode support

### Pricing for MySQL

MySQL is open source and is available in Community and Enterprise editions. Community edition can be used free of cost.

## Point Matrix for RDMS Tools

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Feature | Baseline | Weight | MS SQL Server | MySQL |
| Free of cost | 0 | 2 | 0 | +2 |
| Open source | 0 | 2 | 0 | +2 |
| Multi-platform support | 0 | 2 | +2 | +2 |
| Extensive tooling support | 0 | 2 | +2 | 0 |
| Better Security | 0 | 4 | +4 | -4 |
| Disaster recovery | 0 | 2 | +2 | 0 |

## Comparison of RDMS Tools

|  |  |  |
| --- | --- | --- |
| Feature | MS SQL Server | My SQL |
| Free of cost | **** | **** |
| Open source | **** | **** |
| Multi-platform support | **** | **** |
| Extensive tooling support | **** | **** |
| Better Security | **** | **** |
| Disaster recovery | **** | **** |

## Recommendation

On the basis of above comparison, I would like to recommend MS SQL Server – Standard Edition to be used as a RDMS in this project.

## Assumptions

The data model for the application will be simple and in relational format.

# Available tools for Data Access

## ADO.NET

ADO.NET is a data access technology from the Microsoft .NET Framework that provides communication between relational and non-relational systems through a common set of components. ADO.NET is a set of components that programmers use to access data and data services from a database. It is a part of the base class library that is included with the Microsoft .NET Framework. It is commonly used by programmers to access and modify data stored in relational database systems, though it can also access data in non-relational data sources.

### Features of ADO.NET

* Free of cost
* Performance
* Support for Bulk Copy Operations
* Batch Update support

### Pricing for ADO.NET

ADO.NET can be used free of cost.

## Entity Framework Core

Entity Framework is an object-relational mapper (O/RM) that enables .NET developers to work with a database using .NET objects. It eliminates the need for most of the data-access code that developers usually need to write.

ADO.NET Entity Framework is designed to enable developers to create data access applications by programming against a conceptual application model instead of programming directly against a relational storage schema. The goal is to decrease the amount of code and maintenance required for data-oriented applications as comapred to traditional methods.

### Features of Entity Framework Core

* Open Source
* Free of cost
* Neater Separation of Concerns
* Support for Code-First approach
* Overall Simplification of Queries

### Pricing for Entity Framework Core

EF Core is open source and can be used free of cost.

## Point Matrix for Data Access Tools

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Feature | Baseline | Weight | ADO.NET | Entity Framework Core |
| Free of cost | 0 | 1 | +1 | +1 |
| Open source | 0 | 1 | 0 | +1 |
| Bulk Copy Support | 0 | 2 | +2 | 0 |
| Auto Generated Entities | 0 | 2 | 0 | +2 |
| Separation of Concerns | 0 | 1 | 0 | +1 |
| Reduced Development Time | 0 | 1 | 0 | +1 |
| Support for Code-First approach | 0 | 1 | 0 | +1 |
| LINQ Support | 0 | 2 | 0 | +2 |

## Comparison of Data Access Tools

|  |  |  |
| --- | --- | --- |
| Feature | ADO.NET | Entity Framework Core |
| Free of cost | **** | **** |
| Open source | **** | **** |
| Bulk Copy Support | **** | **** |
| Auto Generated Entities | **** | **** |
| Separation of Concerns | **** | **** |
| Reduced Development Time | **** | **** |
| Support for Code-First approach | **** | **** |
| LINQ Support | **** | **** |

## Recommendation

Based on the above comparioson, Entity Framework Core is the preferred choice for this project.

## Assumptions

There will not be many schema changes.

# Available tools for Logging

## Log4Net

Log4net is an open source library that allows .NET applications to log output to a variety of sources (e.g., The console, SMTP or files). Log4net is a port of the popular log4J library used in Java.

It provides the simplest meshanism logging information to a variety of sources. It is easy t configure and use.

### Features of Log4Net

* Free of cost
* Open Source
* Easy to use

### Pricing for Log4Net

Log4Net is open source and can be used free of cost.

## NLog

NLog is a free logging platform for .NET, Xamarin, Silverlight and Windows Phone with rich log routing and management capabilities.

NLog makes it easy to produce and manage high-quality sophisticated logs for your application regardless of its size or complexity. It also has cross platfrom support.

### Features of NLog

* Open Source
* Free of cost
* Ease of use
* Performance
* Templatable
* Extensible

### Pricing for NLog

NLog is open source and can be used free of cost.

## Point Matrix for Logging libraries

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Feature | Baseline | Weight | Log4Net | NLog |
| Free of cost | 0 | 2 | +2 | +2 |
| Open source | 0 | 2 | +2 | +2 |
| Ease of configuration | 0 | 1 | +1 | +1 |
| Templatable | 0 | 2 | 0 | +2 |
| Extensible | 0 | 1 | 0 | +1 |

## Comparison of Logging libraries

|  |  |  |
| --- | --- | --- |
| Feature | Log4Net | NLog |
| Free of cost | **** | **** |
| Open source | **** | **** |
| Ease of configuration | **** | **** |
| Templatable | **** | **** |
| Extensible | **** | **** |

## Recommendation

Based on the above comparioson, NLog has been chosen as a preferred choice as a logging library.

## Assumptions

There are no specific logging requirements for the application, and database logging is sufficient.

# Appendix

## References

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