Pavements

Design Manual

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Abstract

The purpose of this document is to show how all the data is stored and overall design of the database. The primary user of this application is going to be a current employee of McCurdy associates. This mobile application will provide McCurdy associates employees an application that will help with their surveys that they complete quite frequently.

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1. Introduction

The following document will discuss the design elements of the Pavements application. All the technologies that are going to be used to develop the application, the database layout and how the application is going to display all relevant data to the user and how it is stored.

As decided early on in the project after doing some research at the start of the project the technologies chosen to develop the Pavements application are as follows:

- Xamarin
- Firebase
- Visual Studio

All these technologies will be discussed in this document.

2. Technologies

2.1 Xamarin

Xamarin is a tool used that allows engineers to develop cross platform applications with 90 percent code coverage across major platforms. Xamarin as a company was founded on 16th May 2011 and was built by the developers behind Mono, an open source development platform based on the .NET framework. The company was acquired in 2016 by Microsoft and became a popular cross platform framework within the Microsoft ecosystem and also became part of Xamarin Visual Studio Integrated Development Environment.

All Xamarin apps are created in a single language, C# and based on the .NET framework. Xamarin is natively compiled which is a good option for building high performance apps with a native look and feel. [1]

2.2 Firebase

Firebase is a backend service by Google as an app-development platform and provides not only a real-time database but has given a developer the ability to store images and audio files. As this is easily integrated into Xamarin via NuGet packages it seems a very good fit for the Pavements application

2.3 Visual Studio

Visual studio is an Integrated Development Environment (IDE) developed by Microsoft for developers to develop Web Applications, Mobile Applications and much more. Within Visual Studio developers have the ability to download extensions for Xamarin to create cross platform applications for both Android and iOS. Immediately after downloading the extension and creating a new project within the Xamarin environment developers have the opportunity to expand and what's already created from setting up the project.
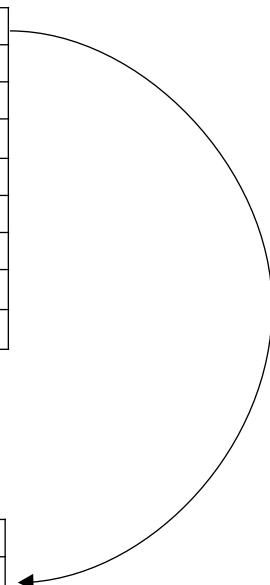
3. Database Layout

NewSurvey

NewSurveyID	Int
Date	Date/Time
CompletedBy	String
Weather	String
Direction	String
SurfaceType	String
SurveyLatitude	Double
SurveyLongitude	Double
SurveyLocation	String

NewDefect

SurveyDefectID	Int
SurveyID	Int
DefectName	String
Measurment	String
Value	Int
Chainage	Int
DefectLongitude	Double
DefectLatitude	Double

Employee

EmployeeID	Int
EmployeeName	String
Position	String

4. Bibliography

[1]Altexsoft. 2019. The Good and The Bad of Xamarin Mobile Development. [ONLINE] Available at: https://www.altexsoft.com/blog/mobile/pros-and-cons-of-xamarin-vs-native/. [Accessed 18 April 2020].