**C# Project: MauiHeatmapSample**

This document contains example C# source files, an Android manifest

GitHub repository URL:https://github.com/spalamoor39148/MSCS-533-A01-Project

**Code:**

**Program.cs**

using Microsoft.Maui;  
using Microsoft.Maui.Hosting;  
using System;  
  
namespace MauiHeatmapSample  
{  
 public class Program : MauiApplication  
 {  
 public Program() : base() { }  
  
 protected override MauiApp CreateMauiApp() => MauiProgram.CreateMauiApp();  
  
 static void Main(string[] args)  
 {  
 var app = new Program();  
 app.Run(args);  
 }  
 }  
}

**MauiProgram.cs**

using Microsoft.Maui;  
using Microsoft.Maui.Hosting;  
using Microsoft.Extensions.DependencyInjection;  
  
namespace MauiHeatmapSample  
{  
 public static class MauiProgram  
 {  
 public static MauiApp CreateMauiApp()  
 {  
 var builder = MauiApp.CreateBuilder();  
 builder  
 .UseMauiApp<App>()  
 .ConfigureFonts(fonts =>  
 {  
 fonts.AddFont("OpenSans-Regular.ttf", "OpenSansRegular");  
 });  
  
 // Register services (e.g., SQLite, location) here if needed  
 return builder.Build();  
 }  
 }  
}

**App.xaml.cs**

using Microsoft.Maui.Controls;  
  
namespace MauiHeatmapSample  
{  
 public partial class App : Application  
 {  
 public App()  
 {  
 InitializeComponent();  
 MainPage = new NavigationPage(new MainPage());  
 }  
 }  
}

**MainPage.xaml**

<?xml version="1.0" encoding="utf-8" ?>  
<ContentPage xmlns="http://schemas.microsoft.com/dotnet/2021/maui"  
 x:Class="MauiHeatmapSample.MainPage"  
 Title="Heatmap Sample">  
 <ScrollView>  
 <VerticalStackLayout Padding="20" Spacing="20">  
 <Label Text="MAUI Heatmap Sample" FontSize="24" />  
 <Button x:Name="CaptureLocationButton" Text="Capture Current Location" Clicked="OnCaptureLocationClicked" />  
 <Label x:Name="LocationLabel" Text="Coordinates will appear here." />  
 </VerticalStackLayout>  
 </ScrollView>  
</ContentPage>

**MainPage.xaml.cs**

using Microsoft.Maui.Controls;  
using System;  
using System.Threading.Tasks;  
  
namespace MauiHeatmapSample  
{  
 public partial class MainPage : ContentPage  
 {  
 public MainPage()  
 {  
 InitializeComponent();  
 }  
  
 // NOTE: In a real app you'd use Geolocation APIs (Permissions + Geolocation)  
 // Here we simulate capturing coordinates and saving them to SQLite (pseudo-code).  
 private async void OnCaptureLocationClicked(object sender, EventArgs e)  
 {  
 // Simulated coordinates for demo  
 var latitude = 21.0000;  
 var longitude = 78.0000;  
 LocationLabel.Text = $"Lat: {latitude}, Lon: {longitude}";  
  
 // Pseudo-code to save to SQLite:  
 // await Database.SaveAsync(new LocationRecord { Latitude = latitude, Longitude = longitude, Timestamp = DateTime.UtcNow });  
 await Task.Delay(250); // simulate async save  
 }  
 }  
}

**AndroidManifest.xml**

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.companyname.mauiheatmapsample">  
 <uses-sdk android:minSdkVersion="21" android:targetSdkVersion="31" />  
 <uses-permission android:name="android.permission.ACCESS\_FINE\_LOCATION" />  
 <uses-permission android:name="android.permission.ACCESS\_COARSE\_LOCATION" />  
 <application android:allowBackup="true" android:label="MauiHeatmapSample" />  
</manifest>

**Application Screenshot**

