



A Practical Mobile App for Union's Student Government Association

By: Jack Cottrell, Andrew Mayo and Daniel Clegg



Microsoft Azure

- What is it?
- Tools:
 - Azure Active Directory
 - SQL Server and SQL Databases
 - API Management Services
 - App Services



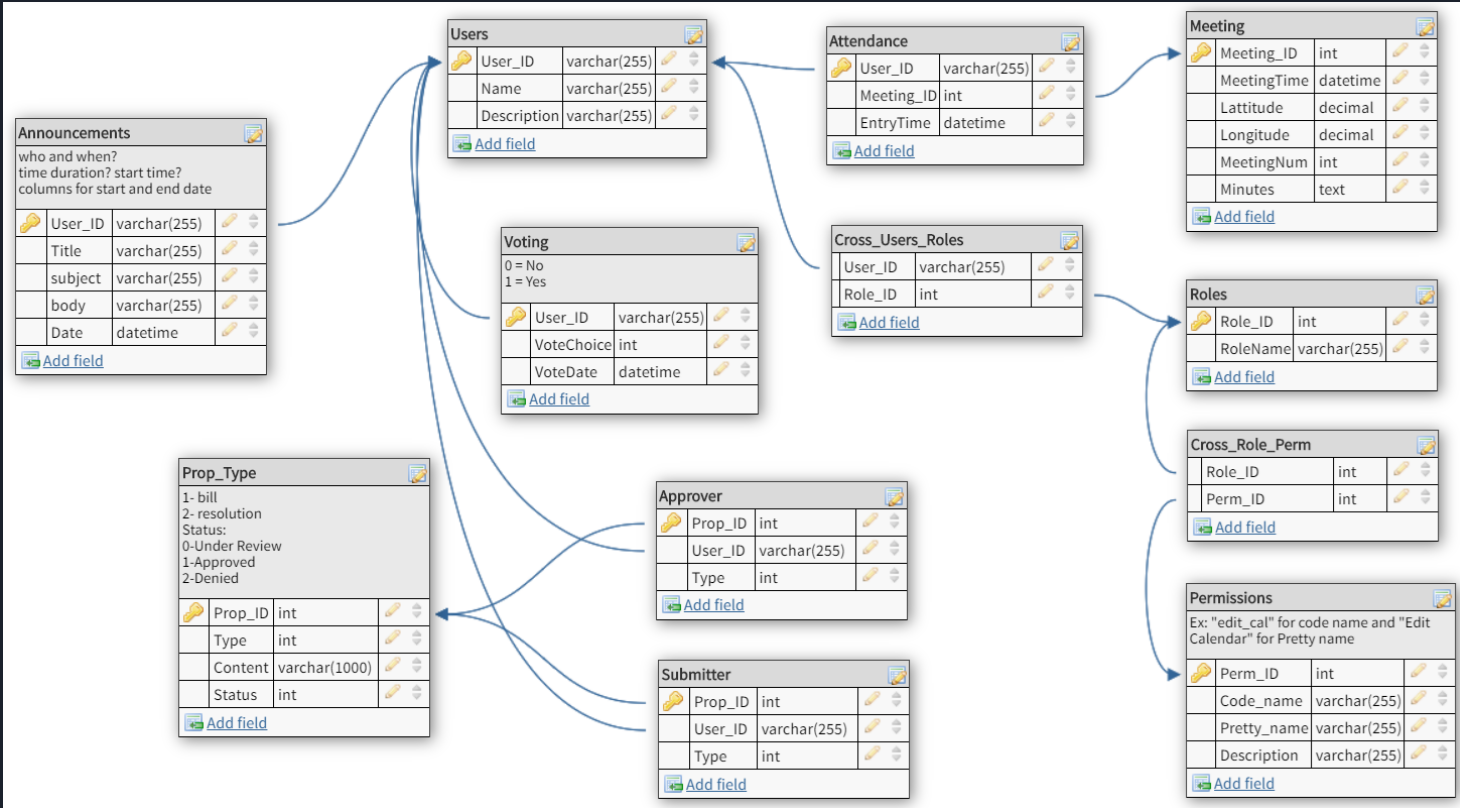


SQL Database

- Why choose SQL Server over MySQL?
- Azure Hosting



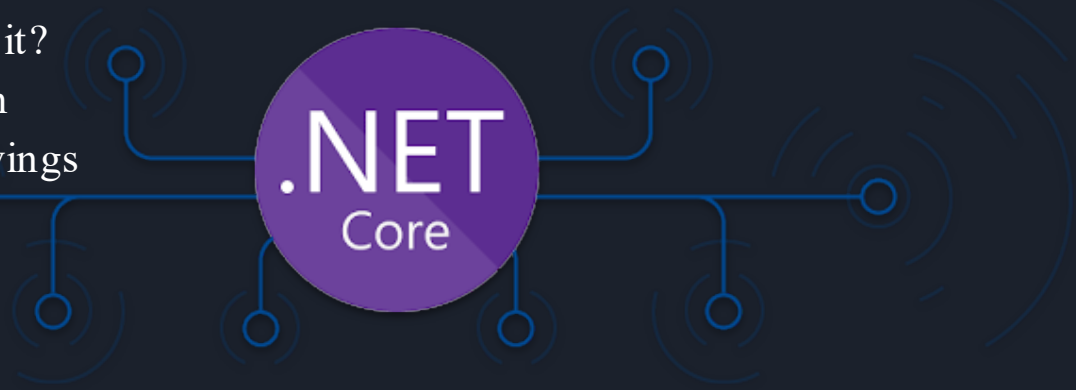
SQL Database cont.





API

- What is it?
 - REST API
- Why do you need it?
 - Specialization
 - Resource Savings
 - Maintenance



.NET
Core

The diagram features a central purple circle with the text ".NET Core" in white. A horizontal blue line passes through the center of this circle. From this line, several vertical blue lines extend upwards and downwards, each terminating in a small blue circle. These circles are further connected to larger, faint concentric circles in the background, creating a network-like or signal propagation visual.



Postman

- POST, GET, PUT, DELETE
 - CRUD (Create, Read, Update, Delete)
- What is Postman?



GET

https://[redacted]/api/User/?User_ID=andrew.mayo@my.uu.edu/

Send

Save

- Params
- Authorization
- Headers (7)
- Body
- Pre-request Script
- Tests
- Settings
- Cookies
- Code

Query Params

	KEY	VALUE	DESCRIPTION	...	Bulk Edit
☒	User_ID	andrew.mayo@my.uu.edu/			
	Key	Value	Description		

- Body
- Cookies (1)
- Headers (11)
- Test Results
- Status: 200 OK
- Time: 327 ms
- Size: 527 B
- Save Response

Pretty

Raw

Preview

Visualize

JSON

```
1  [
2    {
3      "User_ID": "andrew.mayo@my.uu.edu",
4      "Name": "Andrew Mayo",
5      "Description": "SGA-App Admin"
6    },

```



Connecting the API to the Database

- `connectionString="Server=tcp:greatdatabase.database.uu.edu,2196;Initial Catalog=SGA-DB-version7;Persist Security Info=True;UserID={username};Password={password};MultipleActiveResultSets=False;Encrypt=True;TrustServerCertificate=False;Connection Timeout=30;"`
 - URL
 - Database name
 - Authentication



API

- Models
- Controllers

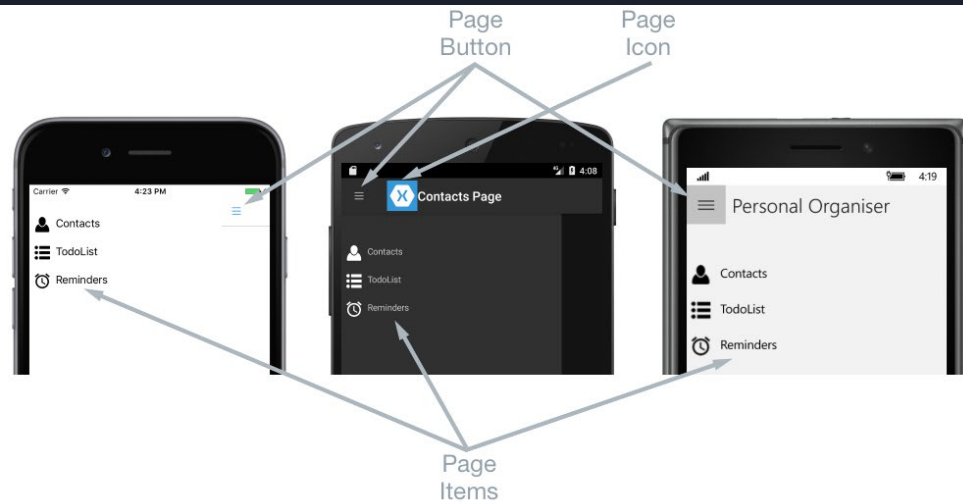
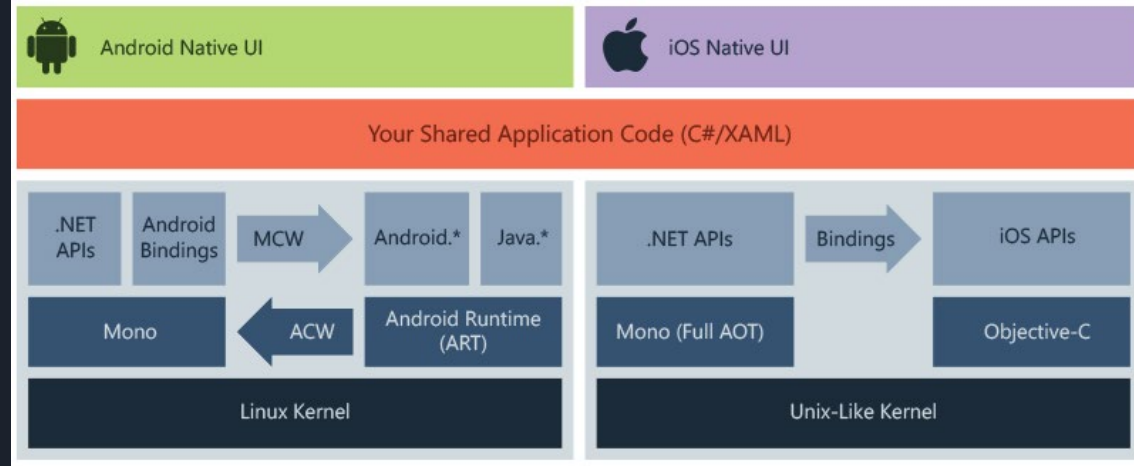
```
public class Meeting
{
    public int Meeting_ID { get; set; }

    public DateTime MeetingTime { get; set; }

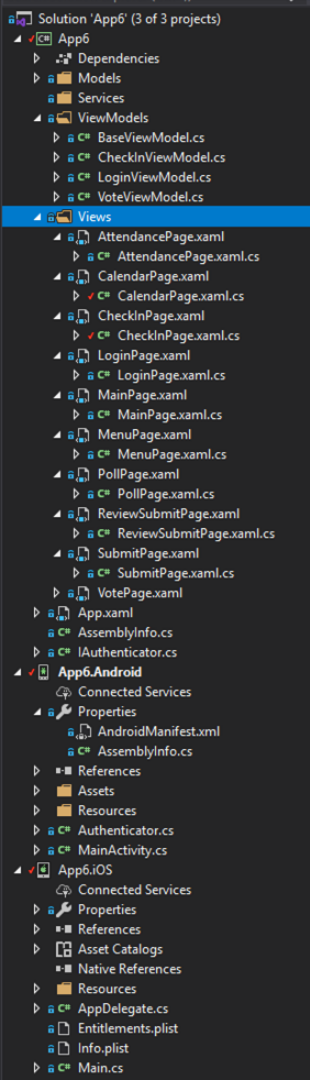
    public int MeetingNum { get; set; }

    public string Minutes { get; set; }
}
```

Xamarin.Forms:



- What is Xamarin?
- **Xamarin helps create Android and iOS apps**
- Uses C#
- Can get more in depth with writing platform specific code
- Great for basic app development
- Lots of documentation- some helpful



Xamarin.Forms: App

- Login, authentication, credentials in database
- Check in attendance
- Vote
- Calendar
- Poll votes and attendance
- Write a bill
- Master-detail view

Type of legislation.(resolution/bill)

BILL

Purpose

SUPPORTING AN EXTENSION OF THE BORROWING PERIOD FOR COMPACT DISCS FROM THE UNIVERSITY LIBRARY/TO PROVIDE FOR THE ALLOCATION OF FIFTY DOLLARS TO THE STUDENTS FOR LANDFILLS BY THE TREASURY OF THE STUDENT GOVERNMENT ASSOCIATION

Date of presentation

5 MARCH 2003

Primary Supporter

MS. BURNETT

Secondary Supporters

AND MR. ADAMS, MS. PHILLIPS AND MS. HEAL

Short Title

This act may be cited as the "Recycling is No Good Act of 2000."

Findings

Xamarin Forms: Development

```
<?xml version="1.0" encoding="utf-8" ?>
<ContentPage xmlns="http://xamarin.com/schemas/2014/forms"
             xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
             xmlns:d="http://xamarin.com/schemas/2014/forms/design"
             xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
             mc:Ignorable="d"
             x:Class="App6.Views.SubmitPage"
             Title="{Binding Title}">
    <ContentPage.Content>
        <ScrollView>
            <StackLayout>
                <Label Text="Type of legislation.(resolution/bill)"
                    HorizontalOptions="FillAndExpand"/>
                <Entry x:Name="LegislationType"
                    Placeholder="Bill"/>

                <Label Text="Purpose"
                    HorizontalOptions="FillAndExpand"/>
                <Editor x:Name="LegislationPurpose"
                    Placeholder="SUPPORTING AN EXTENSION OF THE BORROWING PERIOD FOR COMPACT DISCS FROM THE UNIVERSITY LIBRARY/TO PROVIDE FC"/>

                <Label Text="Date of presentation"
                    HorizontalOptions="FillAndExpand"/>
                <Entry x:Name="LegislationDate"
                    Placeholder="5 MARCH 2003"/>

                <Label Text="Primary Supporter"
                    HorizontalOptions="FillAndExpand"/>
                <Entry x:Name="LegislationSupporter"
                    Placeholder="MS. BURNETT"/>

                <Label Text="Secondary Supporters"
                    HorizontalOptions="FillAndExpand"/>
                <Entry x:Name="LegislationSupporters"
                    Placeholder="AND MR. ADAMS, MS. PHILLIPS AND MS. HEAD"/>

                <Label Text="Short Title"
                    HorizontalOptions="FillAndExpand"/>
                <Editor x:Name="LegislationShort"
                    Placeholder="This act may be cited as the "Recycling is No Good Act of 2000." />

                <Label Text="Findings"
                    HorizontalOptions="FillAndExpand"/>
                <Editor x:Name="LegislationFinding1"
                    Placeholder="WHEREAS, recycling is a time-consuming process; and"/>
                <Editor x:Name="LegislationFinding2"
                    Text="WHEREAS, "/>
                <Editor x:Name="LegislationFinding3"
                    Text="WHEREAS, "/>
                <Editor x:Name="LegislationFinding4"
                    Text="WHEREAS, "/>
                <Editor x:Name="LegislationFinding5"
                    Text="WHEREAS, "/>
                <Editor x:Name="LegislationFinding6"
                    Text="WHEREAS, "/>
                <Editor x:Name="LegislationFinding7"
                    Placeholder="WHEREAS, the recycling industry costs hundred of faithful landfill workers their jobs every month, now ther"/>

                <Label Text="Conclusion"
                    HorizontalOptions="FillAndExpand"/>
                <Editor x:Name="LegislationConclusion"
                    Placeholder="(a) The Students for Landfills Club will be allocated fifty dollars to be used for ski masks and other such"/>

                <Button Text="Get Legislation (format may vary)"
                    VerticalOptions="EndAndExpand"
                    HorizontalOptions="FillAndExpand"/>
```

```
namespace App6.Views

{
    [XamlCompilation(XamlCompilationOptions.Compile)]
    6 references
    public partial class SubmitPage : ContentPage
    {
        2 references
        public SubmitPage()
        {
            InitializeComponent();
            Title = "Submit a Bill";
        }

        0 references
        private async void SubmitClicked(object sender, EventArgs e)
        {
            var browser = new WebView();
            //var width = Application.Current.MainPage.Width;
            //width = width * 0.95;
            //Console.WriteLine("asd" + width);
            var htmlSource = new HtmlWebViewSource();
            htmlSource.Html = @"<html><body>

<p style='margin-top:0pt; margin-bottom:0pt; border-bottom:1.5pt solid #000000; padding-bottom:1pt; font-size:12pt;'><span style='font-family:Arial;
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:11pt;'><span style='font-family:Arial;'>SENATE GENERAL CALENDAR</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:13pt;'><strong><span style='font-family:Arial;'>SENATE " + LegislationType.Text + "
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:10pt;'><em><span style='font-family:Arial; color:#ff0000;'>leave the al
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:17pt;'><strong><span style='font-family:Arial;'>"A " + LegislationType.Tr
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:12pt;'><strong><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></strong></p>
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:12pt;'><strong><span style='font-family:Arial;'>" + LegislationPurpose
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; border-bottom:1.5pt solid #000000; padding-bottom:1pt; font-size:12pt;'><strong><
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><strong><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></strong></p>
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; text-align:center; line-height:150%; font-size:12pt;'><span style='font-family:Arial;'>"IN THE STUDEN
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><strong><span style='font-family:Arial;'>Section 1. Short Title&nbsp;&nbsp;&nbsp;</span></strong></p>
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><strong><span style='font-family:Arial;'>Section 2. Findings&nbsp;&nbsp;&nbsp;</span></strong></p>
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><strong><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></strong></p>
<p style='margin-top:0pt; margin-left:54pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(a)</span><span>.</span></p>
<p style='margin-top:0pt; margin-left:36pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-left:54pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(b)</span><span>.</span></p>
<p style='margin-top:0pt; margin-left:36pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-left:54pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(c)</span><span>.</span></p>
<p style='margin-top:0pt; margin-left:36pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-left:36pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(d)</span><span>.</span></p>
<p style='margin-top:0pt; margin-left:54pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(e)</span><span>.</span></p>
<p style='margin-top:0pt; margin-left:36pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(f)</span><span>.</span></p>
<p style='margin-top:0pt; margin-left:54pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(g)</span><span>.</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><strong><span style='font-family:Arial;'>Section 3. Conclusion</span></strong></p>
<p style='margin-top:0pt; margin-bottom:0pt; font-size:12pt;'><span style='font-family:Arial;'>&nbsp;&nbsp;&nbsp;</span></p>
<p style='margin-top:0pt; margin-left:54pt; margin-bottom:0pt; text-indent:18pt; font-size:12pt;'><span style='font-family:Arial;'>'>(a)</span><span>.</span></p>

</body>
</html>";

            browser.Source = htmlSource;
            //await Navigation.PushModalAsync(new ReviewSubmitPage(browser));
            Content = browser;
            //File.WriteAllText("filename", browser);
        }
    }
}
```



Demo



Conclusion/Closing Thoughts

- Struggles:
 - Permission Issues within Azure
 - Microsoft Docs
 - Lack of previous knowledge
 - Publication of the App



Questions?



References

- https://commons.wikimedia.org/wiki/File:Microsoft_Azure_Logo.svg
- <https://www.cleanpng.com/png-microsoft-azure-sql-database-microsoft-sql-server-2447829/>
- <https://docs.microsoft.com/en-us/xamarin/xamarin-forms/app-fundamentals/navigation/master-detail-page>
- <https://docs.microsoft.com/en-us/xamarin/get-started/what-is-xamarin>
- <https://wordtohtml.net/>
- <https://medium.com/@devdoneuk/testing-asynchronous-apis-with-postman-8ef56b125ba>
- https://d585tldpucybw.cloudfront.net/sfimages/default-source/productsimages/justmock/justmock_net_770.png?sfvrsn=b4522579_1