Yarmouk University

Hijjawi Faculty for Engineering Technology

Department of Computer Engineering

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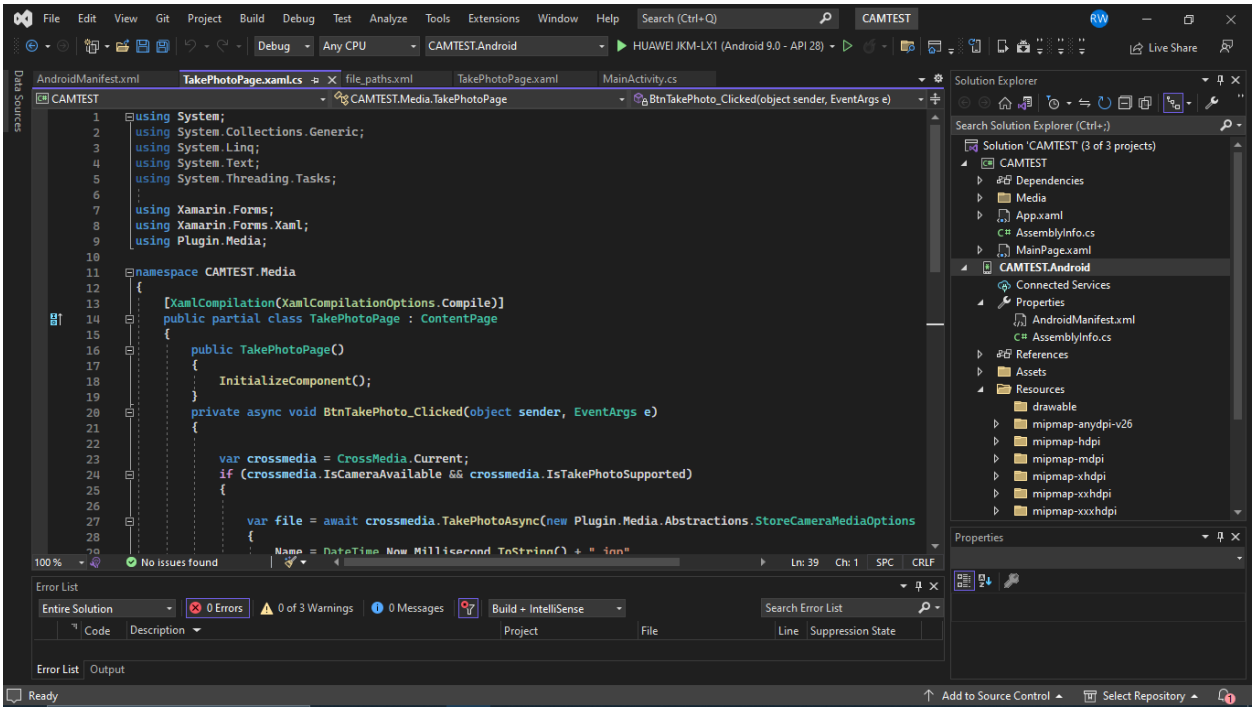
In the beginning, I learned the basics of xamarin using c# language, then started with tasks:

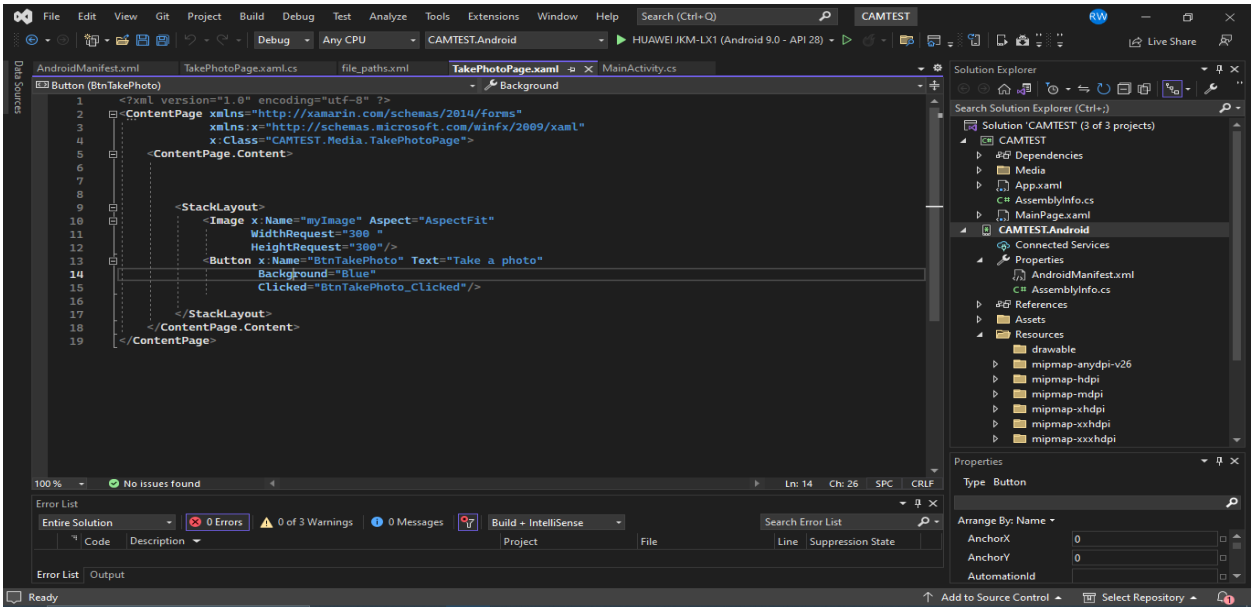
Xamarin task 1: build an app captures a photo using the mobile camera, display it inside the app and save it in the storage

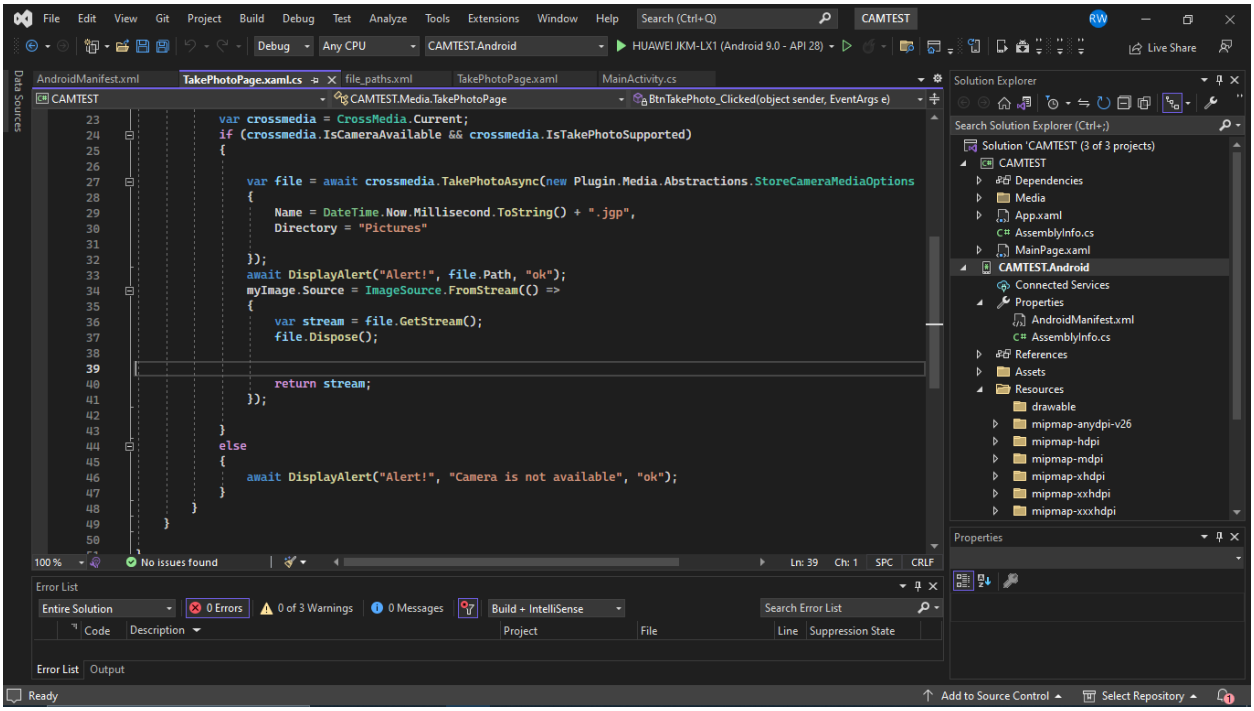
"Xamarin is an open-source platform for building modern and performant applications for iOS, Android, and Windows with .NET. Xamarin is an abstraction layer that manages communication of shared code with underlying platform code. Xamarin runs in a managed environment that provides conveniences such as memory allocation and garbage collection.

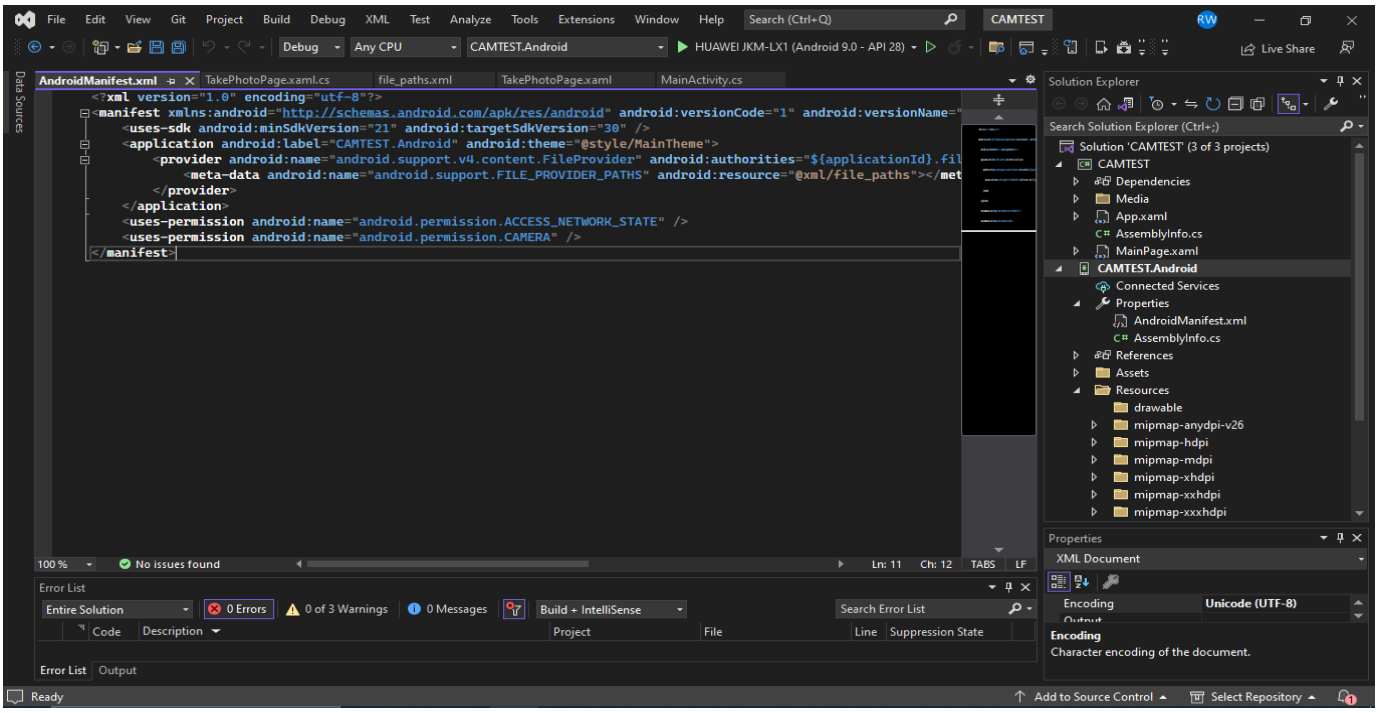
Xamarin enables developers to share an average of 90% of their application across platforms. This pattern allows developers to write all of their business logic in a single language (or reuse existing application code) but achieve native performance, look, and feel on each platform.

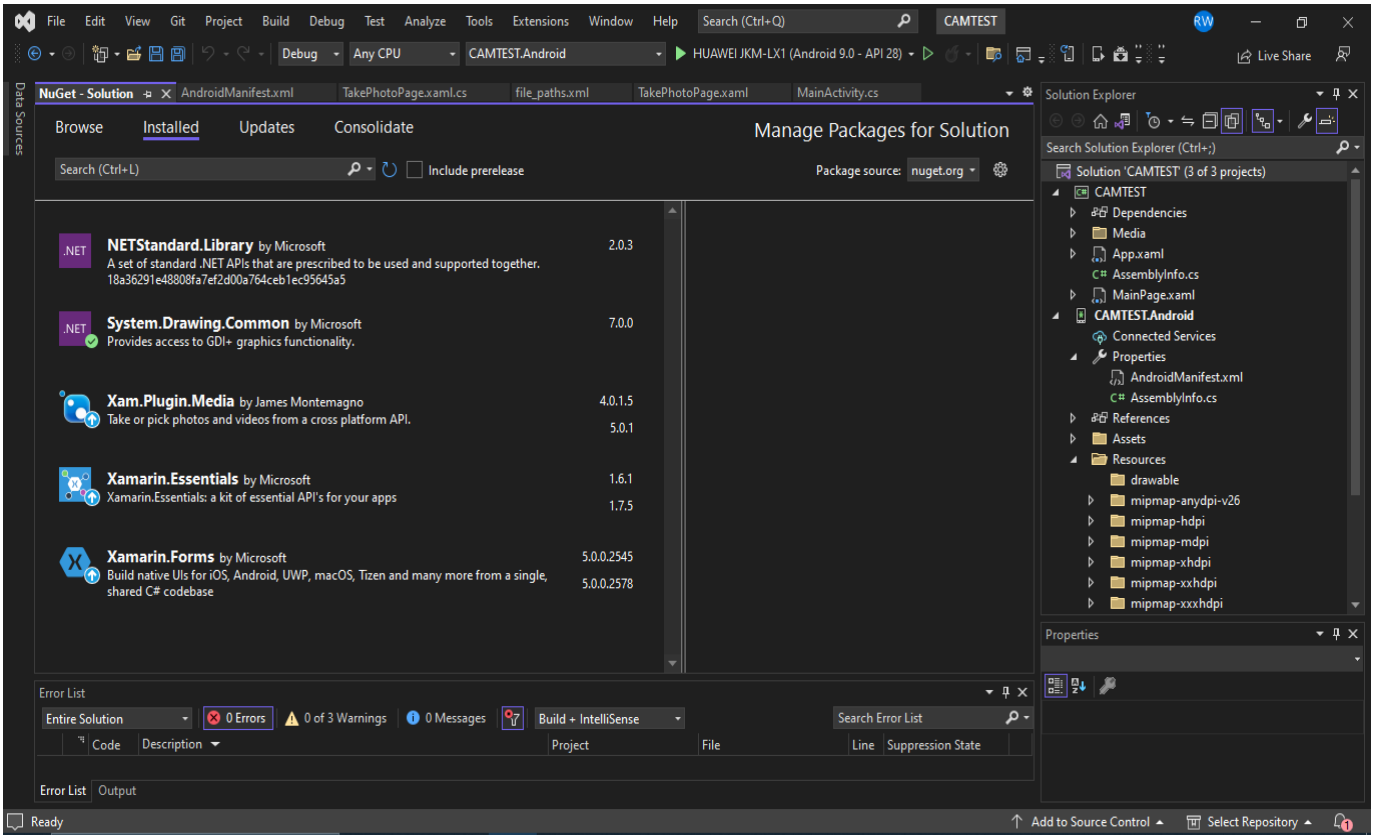
Xamarin applications can be written on PC or Mac and compile into native application packages, such as an. apk file on Android, or an. ipa file on iOS."[1]

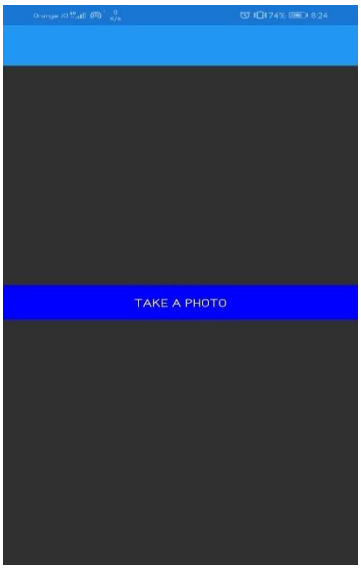



File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
CAMTEST
Debug
Any CPU
CAMTEST.Android
HUAWEI JKM-LX1 (Android 9.0 - API 28)
Live Share
AndroidManifest.xml
TakePhotoPage.xaml.cs
file_paths.xml
TakePhotoPage.xaml
MainActivity.cs
Button (BtnTakePhoto)
Background
<?xml version="1.0" encoding="utf-8" ?>
<ContentPage xmlns="http://xamarin.com/schemas/2014/forms"
xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
x:Class="CAMTEST.Media.TakePhotoPage">
<ContentPage.Content>
<StackLayout>
<Image x:Name="myImage" Aspect="AspectFit"
WidthRequest="300 "
HeightRequest="300"/>
<Button x:Name="BtnTakePhoto" Text="Take a photo"
Background="Blue"
Clicked="BtnTakePhoto_Clicked"/>
</StackLayout>
</ContentPage.Content>
</ContentPage>
No issues found
Ln: 14 Ch: 26 SPC CRLF
Solution Explorer
Solution 'CAMTEST' (3 of 3 projects)
CAMTEST
Dependencies
Media
App.xaml
AssemblyInfo.cs
MainPage.xaml
CAMTEST.Android
Connected Services
Properties
AndroidManifest.xml
AssemblyInfo.cs
References
Assets
Resources
drawable
mipmap-anydpi-v26
mipmap-hdpi
mipmap-mdpi
mipmap-xhdpi
mipmap-xxhdpi
mipmap-xxxhdpi
Properties
Type Button
Arrange By: Name
AnchorX
AnchorY
AutomationId
Error List
Entire Solution
0 Errors
0 of 3 Warnings
0 Messages
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
CAMTEST
Debug
Any CPU
CAMTEST.Android
HUAWEI JKM-LX1 (Android 9.0 - API 28)
Live Share
AndroidManifest.xml
TakePhotoPage.xaml.cs
file_paths.xml
TakePhotoPage.xaml
MainActivity.cs
CAMTEST
CAMTEST.Media.TakePhotoPage
BtnTakePhoto_Clicked(object sender, EventArgs e)
var crossmedia = CrossMedia.Current;
if (crossmedia.IsCameraAvailable && crossmedia.IsTakePhotoSupported)
{
var file = await crossmedia.TakePhotoAsync(new Plugin.Media.Abstractions.StoreCameraMediaOptions
{
Name = DateTime.Now.Millisecond.ToString() + ".jgp",
Directory = "Pictures"
});
await DisplayAlert("Alert!", file.Path, "ok");
myImage.Source = ImageSource.FromStream(() =>
{
var stream = file.GetStream();
file.Dispose();
return stream;
});
}
else
{
await DisplayAlert("Alert!", "Camera is not available", "ok");
}
}
}
No issues found
Ln: 39 Ch: 1 SPC CRLF
Solution Explorer
Solution 'CAMTEST' (3 of 3 projects)
CAMTEST
Dependencies
Media
App.xaml
AssemblyInfo.cs
MainPage.xaml
CAMTEST.Android
Connected Services
Properties
AndroidManifest.xml
AssemblyInfo.cs
References
Assets
Resources
drawable
mipmap-anydpi-v26
mipmap-hdpi
mipmap-mdpi
mipmap-xhdpi
mipmap-xxhdpi
mipmap-xxxhdpi
Properties
Error List
Entire Solution
0 Errors
0 of 3 Warnings
0 Messages
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository


File Edit View Git Project Build Debug XML Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
CAMTEST
Debug
Any CPU
CAMTEST.Android
HUAWEI JKM-LX1 (Android 9.0 - API 28)
Live Share
AndroidManifest.xml
TakePhotoPage.xaml.cs
file_paths.xml
TakePhotoPage.xaml
MainActivity.cs
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android" android:versionCode="1" android:versionName="
<uses-sdk android:minSdkVersion="21" android:targetSdkVersion="30" />
<application android:label="CAMTEST.Android" android:theme="@style/MainTheme">
<provider android:name="android.support.v4.content.FileProvider" android:authorities="${applicationId}.fil
<meta-data android:name="android.support.FILE_PROVIDER_PATHS" android:resource="@xml/file_paths"></met
</provider>
</application>
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
<uses-permission android:name="android.permission.CAMERA" />
</manifest>
100 %
No issues found
Ln: 11 Ch: 12 TABS LF
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'CAMTEST' (3 of 3 projects)
CAMTEST
Dependencies
Media
App.xaml
AssemblyInfo.cs
MainPage.xaml
CAMTEST.Android
Connected Services
Properties
AndroidManifest.xml
AssemblyInfo.cs
References
Assets
Resources
drawable
mipmap-anydpi-v26
mipmap-hdpi
mipmap-mdpi
mipmap-xhdpi
mipmap-xxhdpi
mipmap-xxxhdpi
Properties
XML Document
Encoding
Unicode (UTF-8)
Encoding
Character encoding of the document.
Error List
Entire Solution
0 Errors
0 of 3 Warnings
0 Messages
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
CAMTEST
Debug
Any CPU
CAMTEST.Android
HUAWEI JKM-LX1 (Android 9.0 - API 28)
Live Share
NuGet - Solution
AndroidManifest.xml
TakePhotoPage.xaml.cs
file_paths.xml
TakePhotoPage.xaml
MainActivity.cs
Browse
Installed
Updates
Consolidate
Manage Packages for Solution
Search (Ctrl+L)
Include prerelease
Package source:
nuget.org
NETStandard.Library by Microsoft
A set of standard .NET APIs that are prescribed to be used and supported together.
18a36291e48808fa7ef2d00a764ceb1ec95645a5
2.0.3
System.Drawing.Common by Microsoft
Provides access to GDI+ graphics functionality.
7.0.0
Xam.Plugin.Media by James Montemagno
Take or pick photos and videos from a cross platform API.
4.0.1.5
5.0.1
Xamarin.Essentials by Microsoft
Xamarin.Essentials: a kit of essential API's for your apps
1.6.1
1.7.5
Xamarin.Forms by Microsoft
Build native UIs for iOS, Android, UWP, macOS, Tizen and many more from a single, shared C# codebase
5.0.0.2545
5.0.0.2578
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'CAMTEST' (3 of 3 projects)
CAMTEST
Dependencies
Media
App.xaml
AssemblyInfo.cs
MainPage.xaml
CAMTEST.Android
Connected Services
Properties
AndroidManifest.xml
AssemblyInfo.cs
References
Assets
Resources
drawable
mipmap-anydpi-v26
mipmap-hdpi
mipmap-mdpi
mipmap-xhdpi
mipmap-xxhdpi
mipmap-xxxhdpi
Properties
Error List
Entire Solution
0 Errors
0 of 3 Warnings
0 Messages
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository



Some tutorials I used:

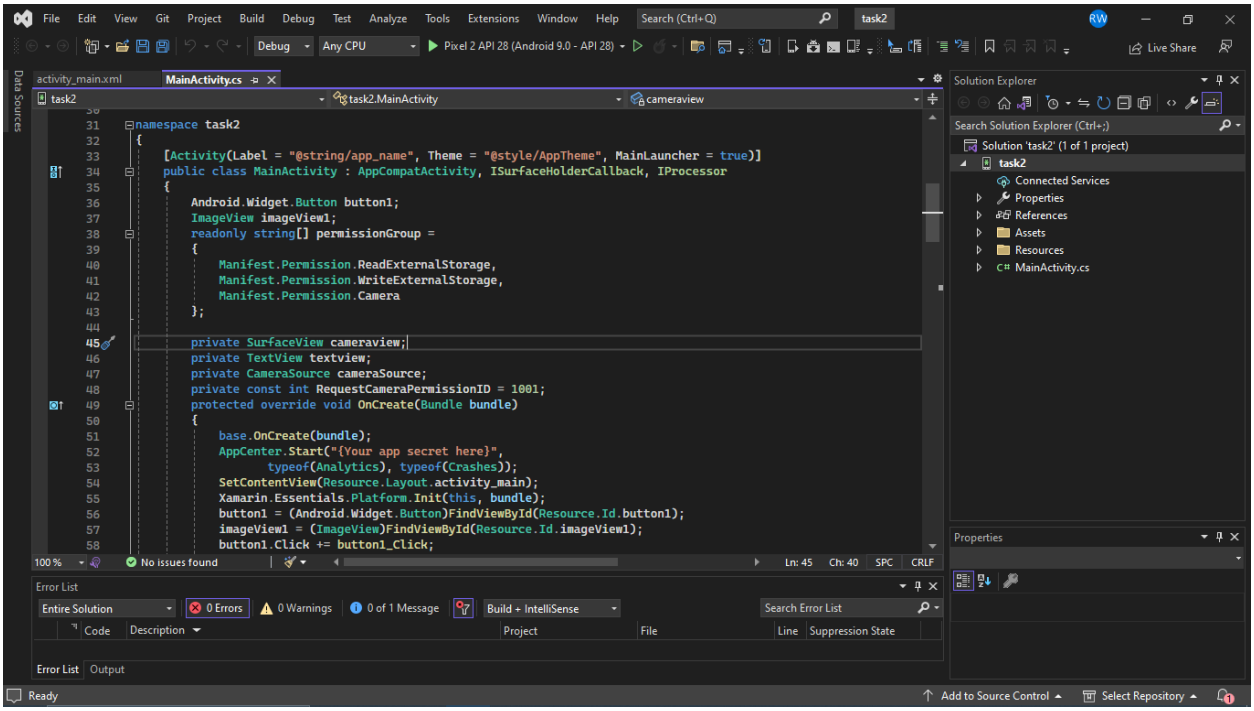
https://www.c-sharpcorner.com/article/creating-a-camera-app-in-xamarin-android-app-using-visual-studio-2015/#:~:text=Creating%20A%20Camera%20App%20In%20Xamarin%20Android%20App,7%20...%208%20Step%208%20...%20More%20items

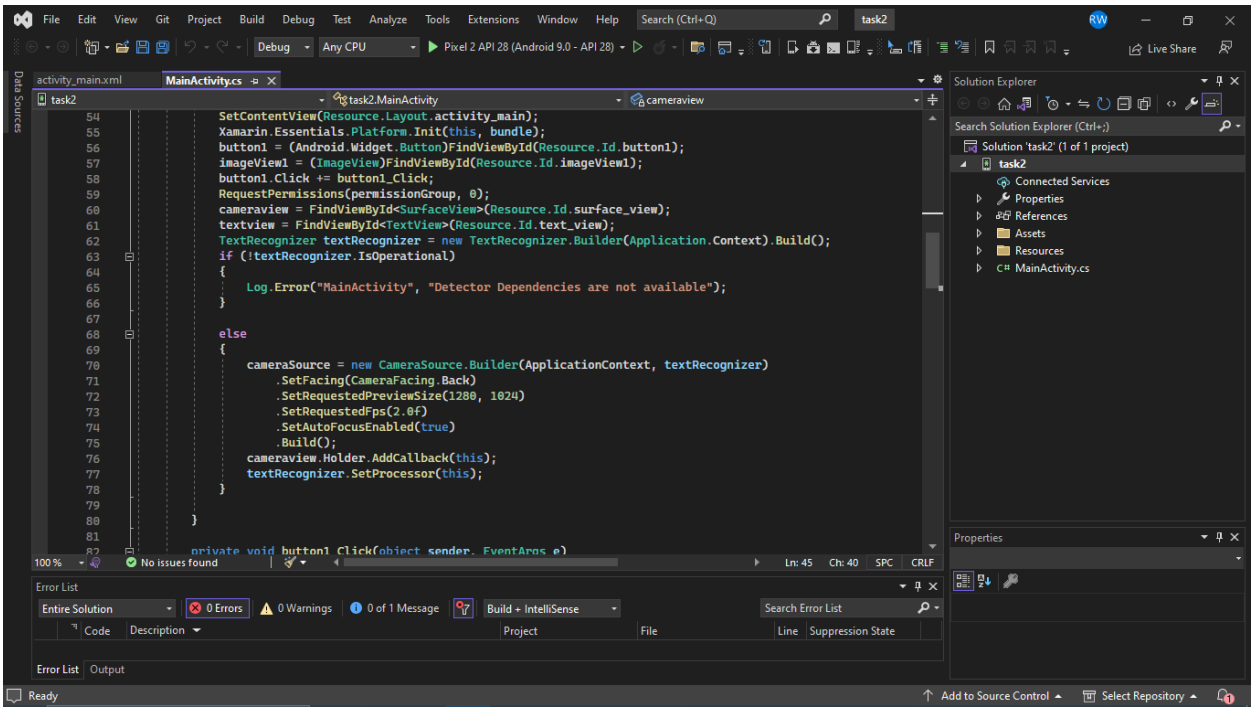
https://www.bing.com/videos/search?q=camera+app+using+xamarin&&view=detail&mid=FA669F94AF357BB22668FA669F94AF357BB22668&&FORM=VRDGAR&ru=%2Fvideos%2Fsearch%3Fq%3Dcamera%2Bapp%2Busing%2Bxamarin%26FORM%3DHDRSC6

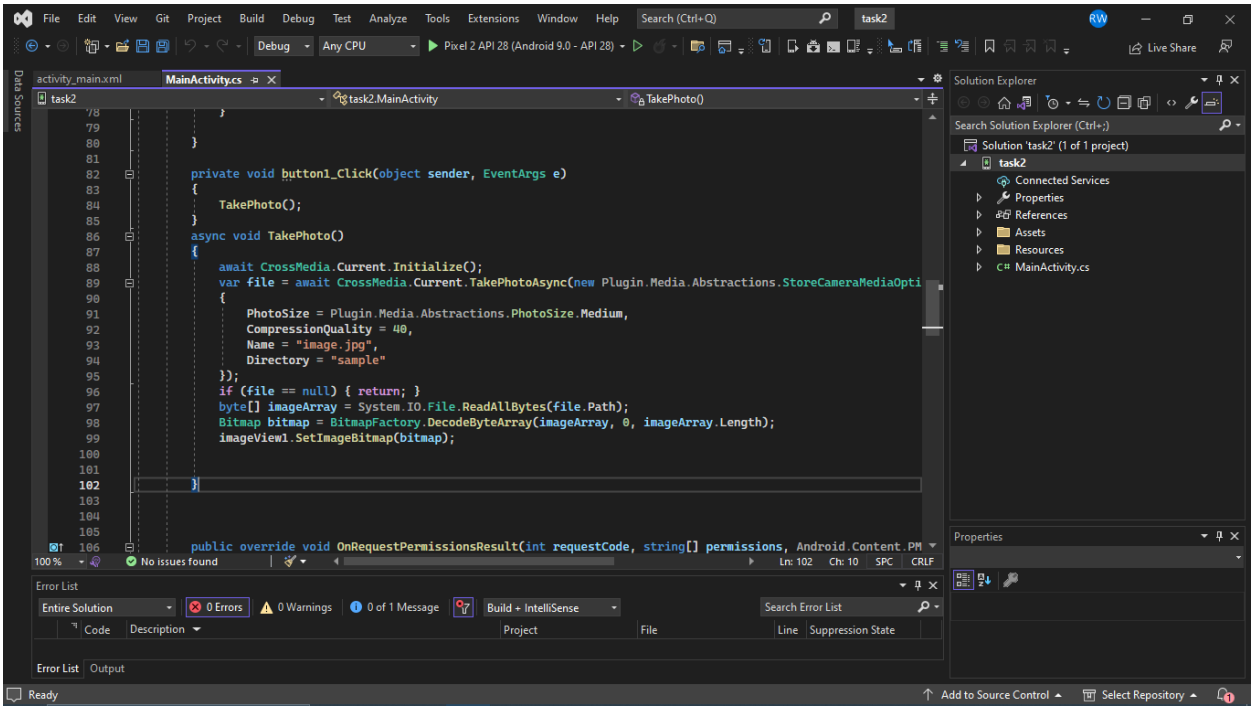
https://www.bing.com/videos/search?q=camera+app+using+xamarin&&view=detail&mid=768E897D23D22DADB4B4768E897D23D22DADB4B4&&FORM=VRDGAR&ru=%2Fvideos%2Fsearch%3Fq%3Dcamera%2Bapp%2Busing%2Bxamarin%26FORM%3DHDRSC6

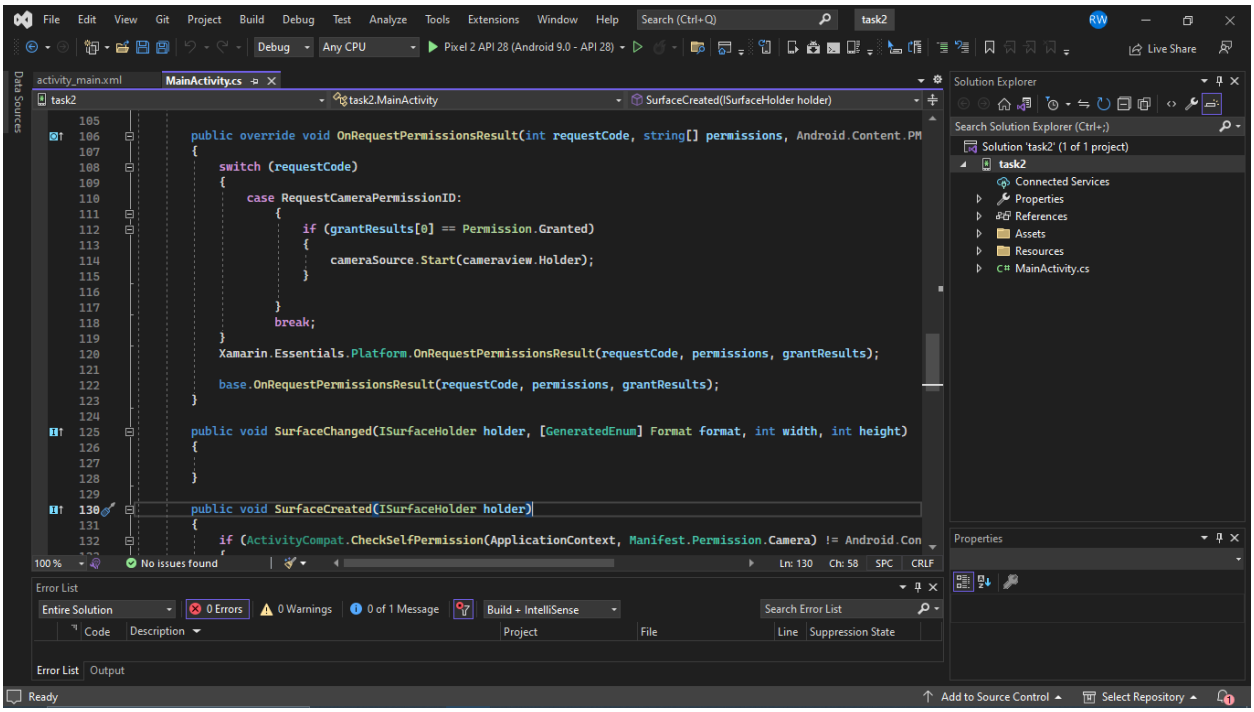
https://youtu.be/XTFkgpU44ZA

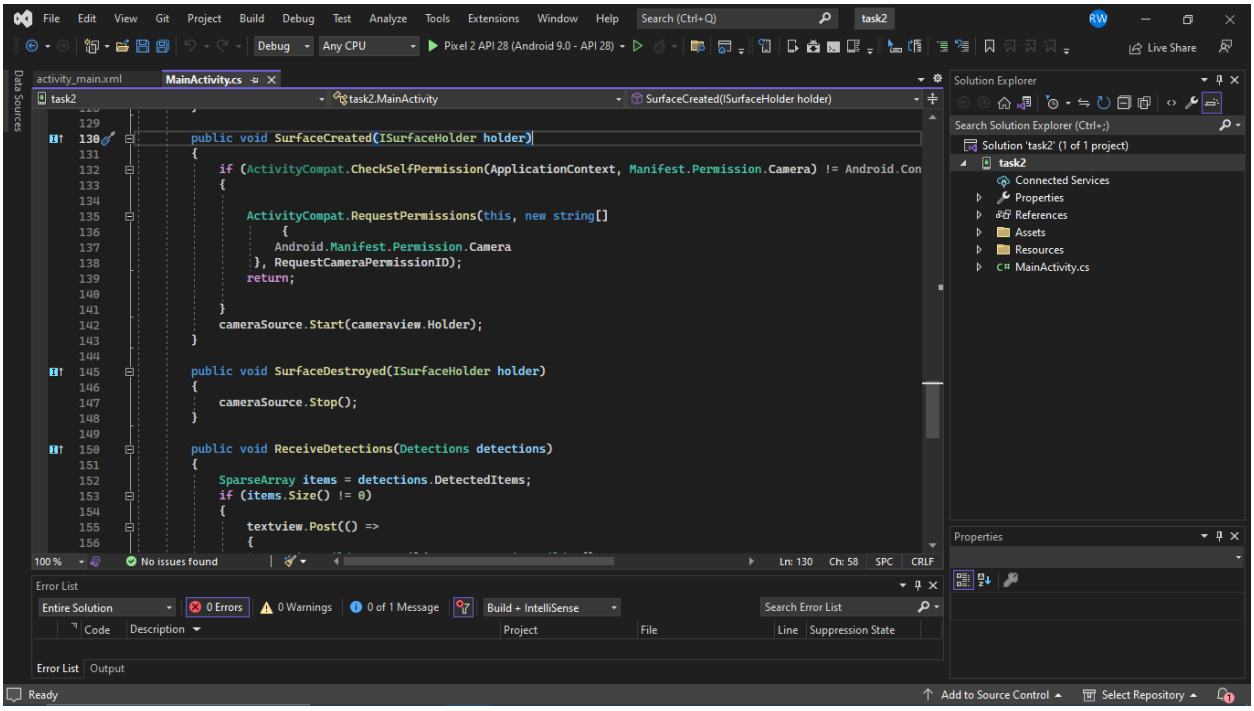
Xamarin task 2: add to your last app text extraction button, show the extracted text under the photo
If there's no text in the image, display an alert shows " no text"

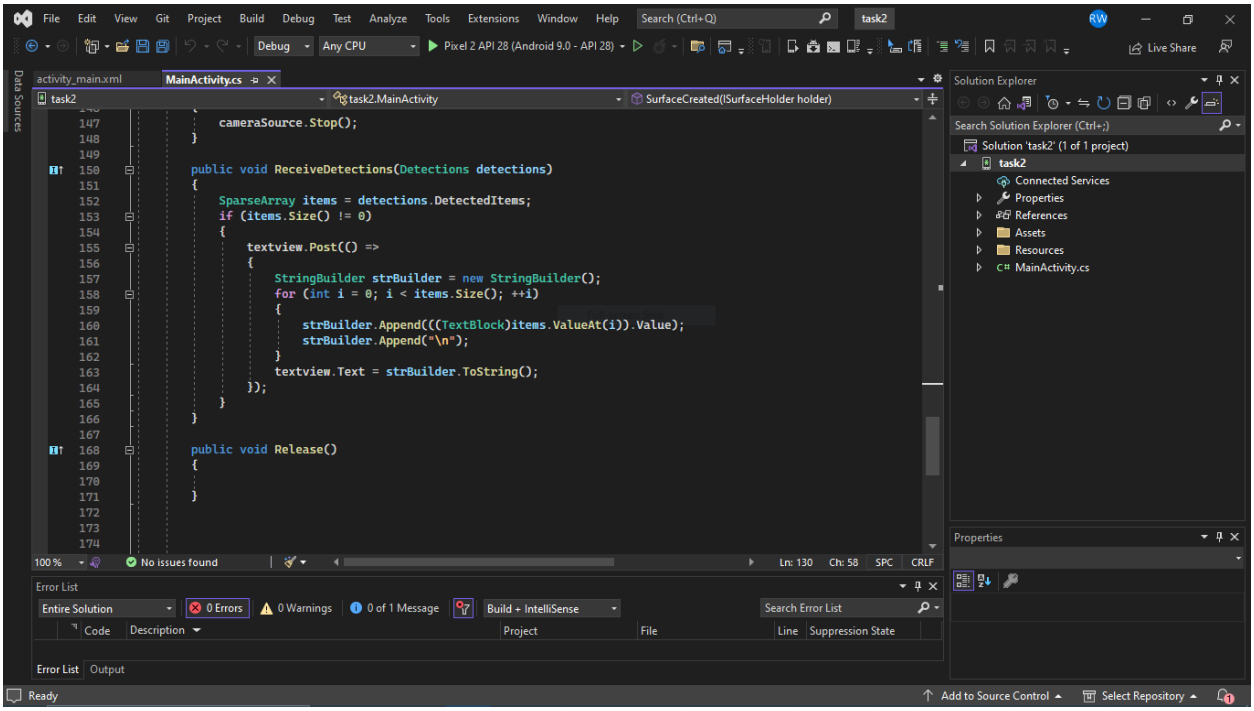


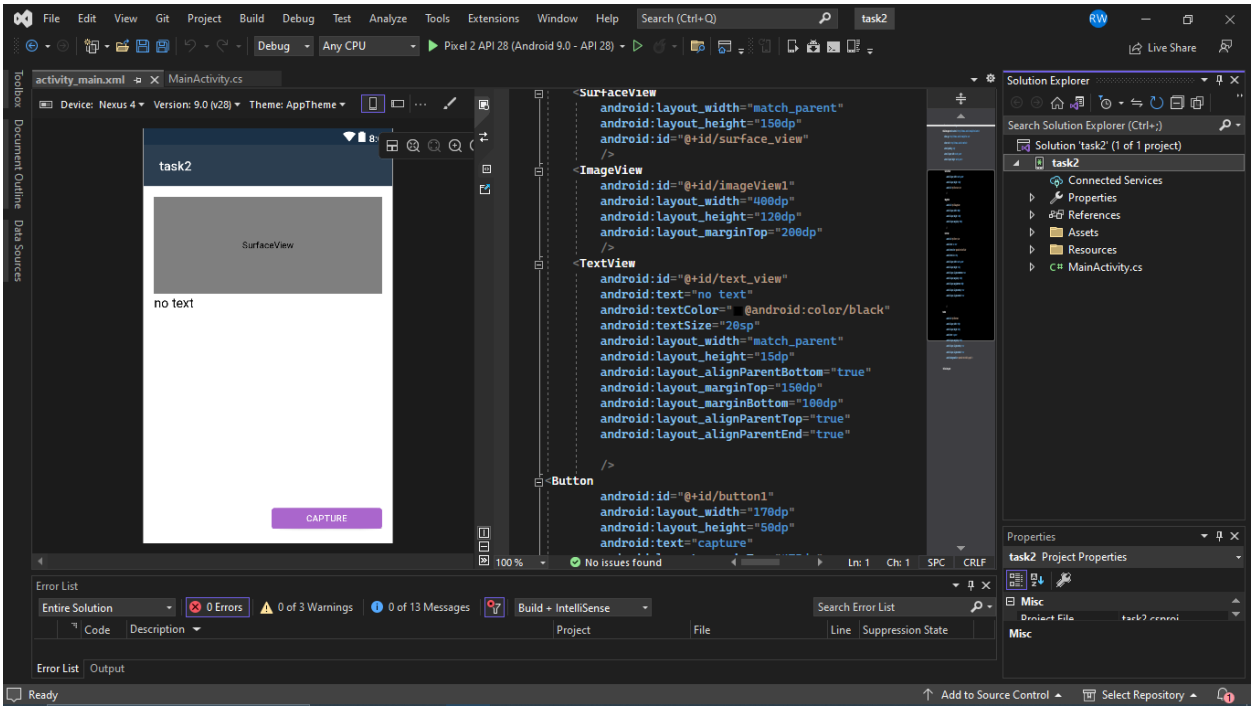


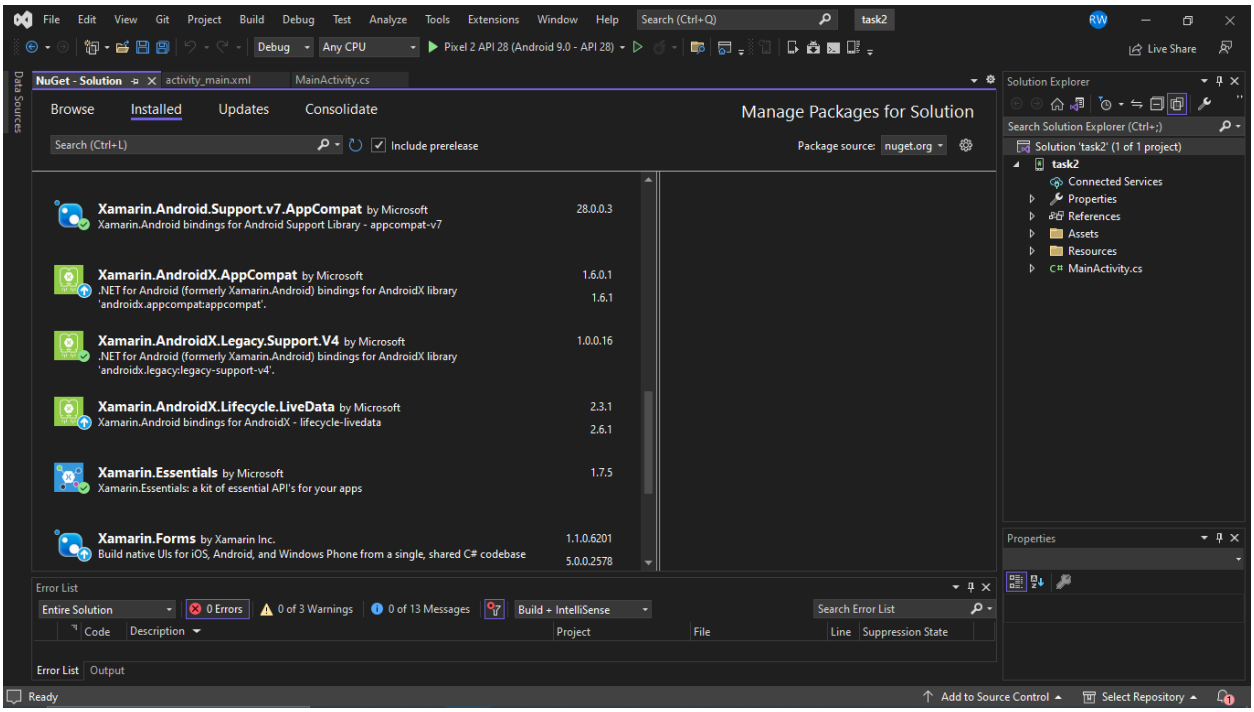

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task2
Debug
Any CPU
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
activity_main.xml
MainActivity.cs
task2
task2.MainActivity
TakePhoto()
private void button1_Click(object sender, EventArgs e)
{
TakePhoto();
}
async void TakePhoto()
{
await CrossMedia.Current.Initialize();
var file = await CrossMedia.Current.TakePhotoAsync(new Plugin.Media.Abstractions.StoreCameraMediaOpti
{
PhotoSize = Plugin.Media.Abstractions.PhotoSize.Medium,
CompressionQuality = 40,
Name = "image.jpg",
Directory = "sample"
});
if (file == null) { return; }
byte[] imageArray = System.IO.File.ReadAllBytes(file.Path);
Bitmap bitmap = BitmapFactory.DecodeByteArray(imageArray, 0, imageArray.Length);
imageView1.SetImageBitmap(bitmap);
}
public override void OnRequestPermissionsResult(int requestCode, string[] permissions, Android.Content.PM
No issues found
Ln: 102 Ch: 10 SPC CRLF
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task2' (1 of 1 project)
task2
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
Properties
Error List
Entire Solution
0 Errors
0 Warnings
0 of 1 Message
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task2
Debug
Any CPU
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
activity_main.xml
MainActivity.cs
task2
task2.MainActivity
SurfaceCreated(ISurfaceHolder holder)
public override void OnRequestPermissionsResult(int requestCode, string[] permissions, Android.Content.PM
{
switch (requestCode)
{
case RequestCameraPermissionID:
{
if (grantResults[0] == Permission.Granted)
{
cameraSource.Start(cameraview.Holder);
}
}
break;
}
Xamarin.Essentials.Platform.OnRequestPermissionsResult(requestCode, permissions, grantResults);
base.OnRequestPermissionsResult(requestCode, permissions, grantResults);
}
public void SurfaceChanged(ISurfaceHolder holder, [GeneratedEnum] Format format, int width, int height)
{
}
public void SurfaceCreated(ISurfaceHolder holder)
{
if (ActivityCompat.CheckSelfPermission(ApplicationContext, Manifest.Permission.Camera) != Android.Con
No issues found
Ln: 130 Ch: 58 SPC CRLF
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task2' (1 of 1 project)
task2
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
Properties
Error List
Entire Solution
0 Errors
0 Warnings
0 of 1 Message
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task2
Debug
Any CPU
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
activity_main.xml
MainActivity.cs
task2
task2.MainActivity
SurfaceCreated(ISurfaceHolder holder)
public void SurfaceCreated(ISurfaceHolder holder)
{
if (ActivityCompat.CheckSelfPermission(ApplicationContext, Manifest.Permission.Camera) != Android.Con
{
ActivityCompat.RequestPermissions(this, new string[]
{
Android.Manifest.Permission.Camera
}, RequestCameraPermissionID);
return;
}
cameraSource.Start(cameraview.Holder);
}
public void SurfaceDestroyed(ISurfaceHolder holder)
{
cameraSource.Stop();
}
public void ReceiveDetections(Detections detections)
{
SparseArray items = detections.DetectedItems;
if (items.Size() != 0)
{
textview.Post(() =>
{
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task2' (1 of 1 project)
task2
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
Properties
100 %
No issues found
Ln: 130 Ch: 58 SPC CRLF
Error List
Entire Solution
0 Errors
0 Warnings
0 of 1 Message
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task2
Debug
Any CPU
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
activity_main.xml
MainActivity.cs
task2
task2.MainActivity
SurfaceCreated(ISurfaceHolder holder)
cameraSource.Stop();
}
public void ReceiveDetections(Detections detections)
{
SparseArray items = detections.DetectedItems;
if (items.Size() != 0)
{
textview.Post(() =>
{
StringBuilder strBuilder = new StringBuilder();
for (int i = 0; i < items.Size(); ++i)
{
strBuilder.Append(((TextBlock)items.ValueAt(i)).Value);
strBuilder.Append("\n");
}
textview.Text = strBuilder.ToString();
});
}
}
public void Release()
{
}
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task2' (1 of 1 project)
task2
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
Properties
100 %
No issues found
Ln: 130 Ch: 58 SPC CRLF
Error List
Entire Solution
0 Errors
0 Warnings
0 of 1 Message
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Ready
Add to Source Control
Select Repository



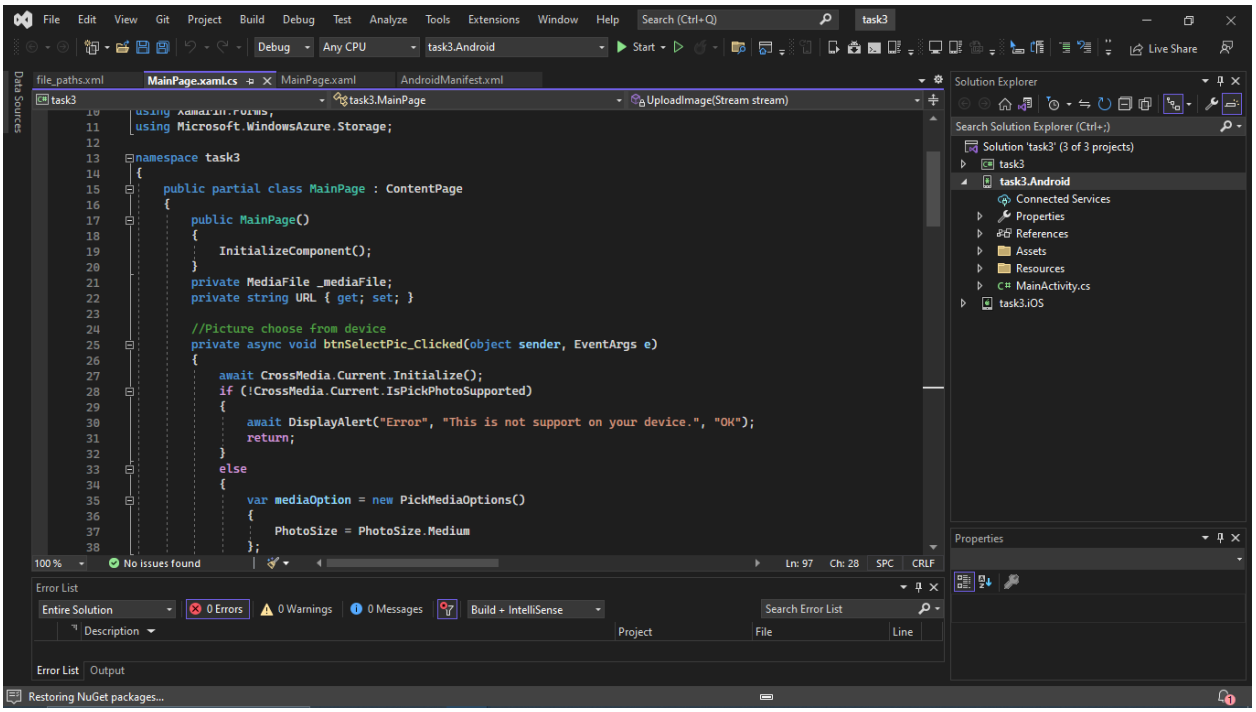


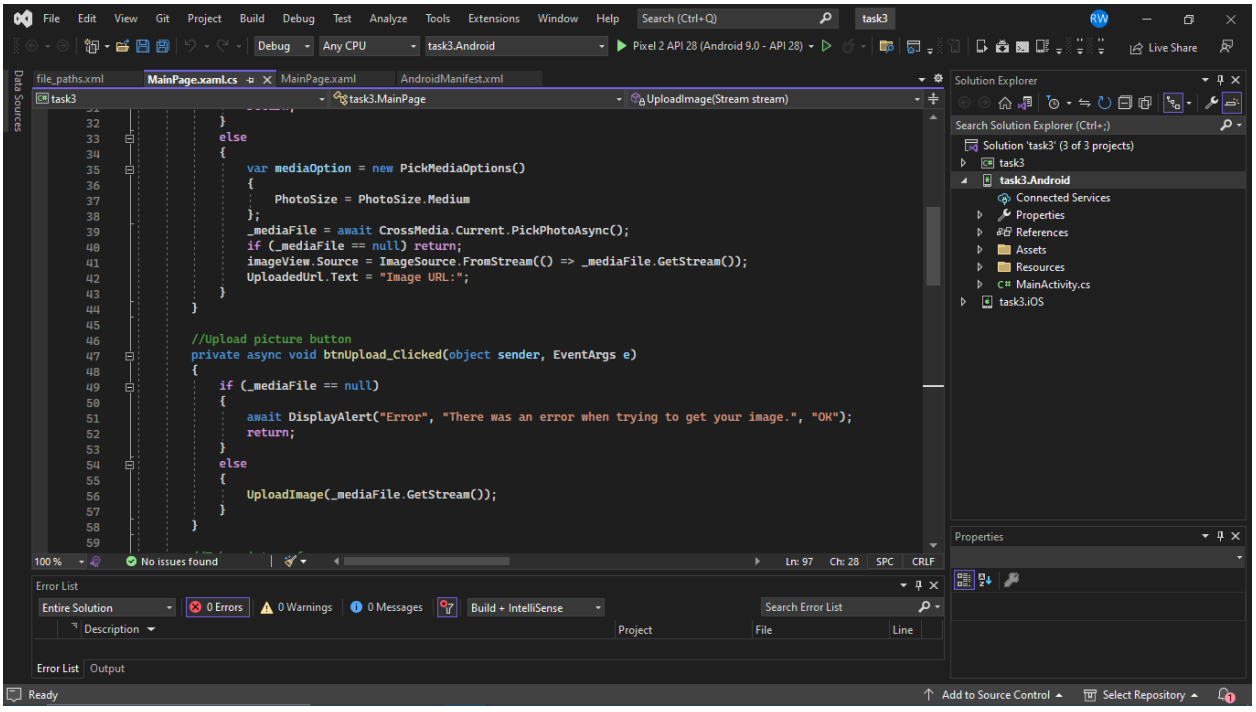
https://www.bing.com/videos/search?q=text+recognition+xamarin+app&&view=detail&mid=B2E503307627DE828651B2E503307627DE828651&&FORM=VRDGAR&ru=%2Fvideos%2Fsearch%3Fq%3Dtext%2Brecognition%2Bxamarin%2Bapp%26FORM%3DHDRSC6

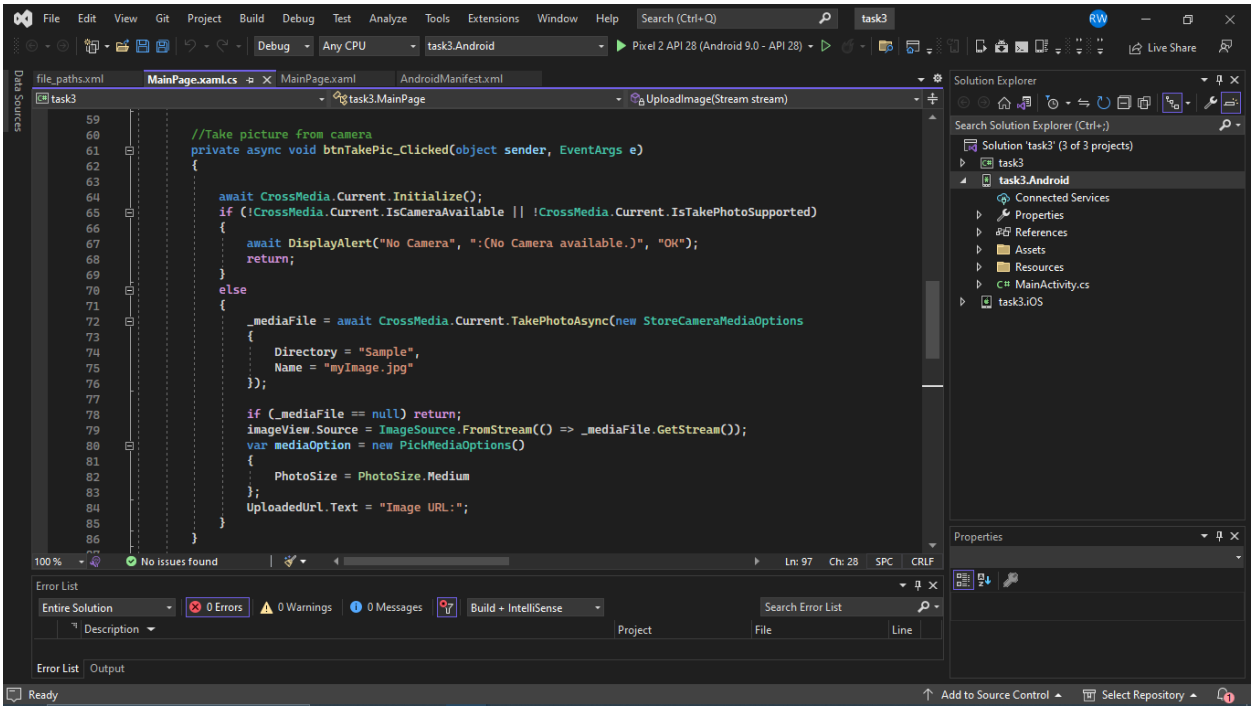
https://www.youtube.com/watch?v=3aRlYjSQPc8&ab_channel=EDMTDev

https://www.c-sharpcorner.com/article/xamarin-android-text-recognition-by-mobile-camera/

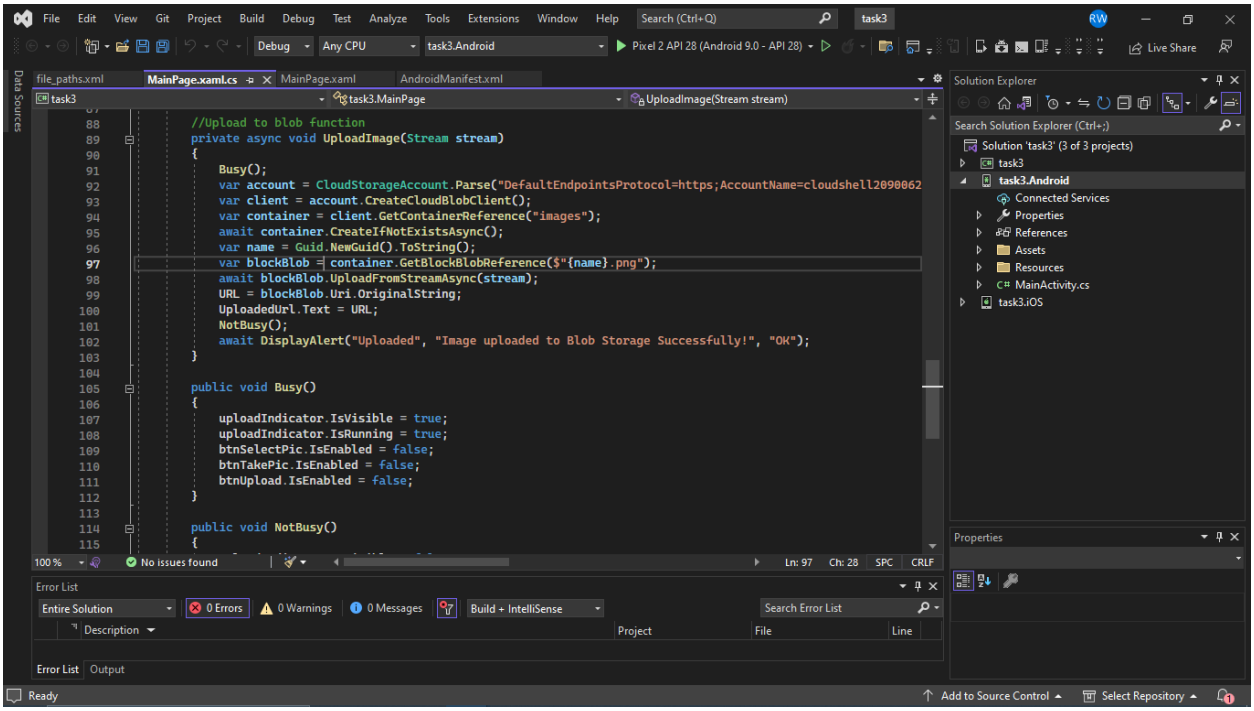
xamarin task 3:
According to the previous task, add a new page that connect your app to Azure,
and send the captured image to the cloud, confirm the process with an alert telling the user that the process is done



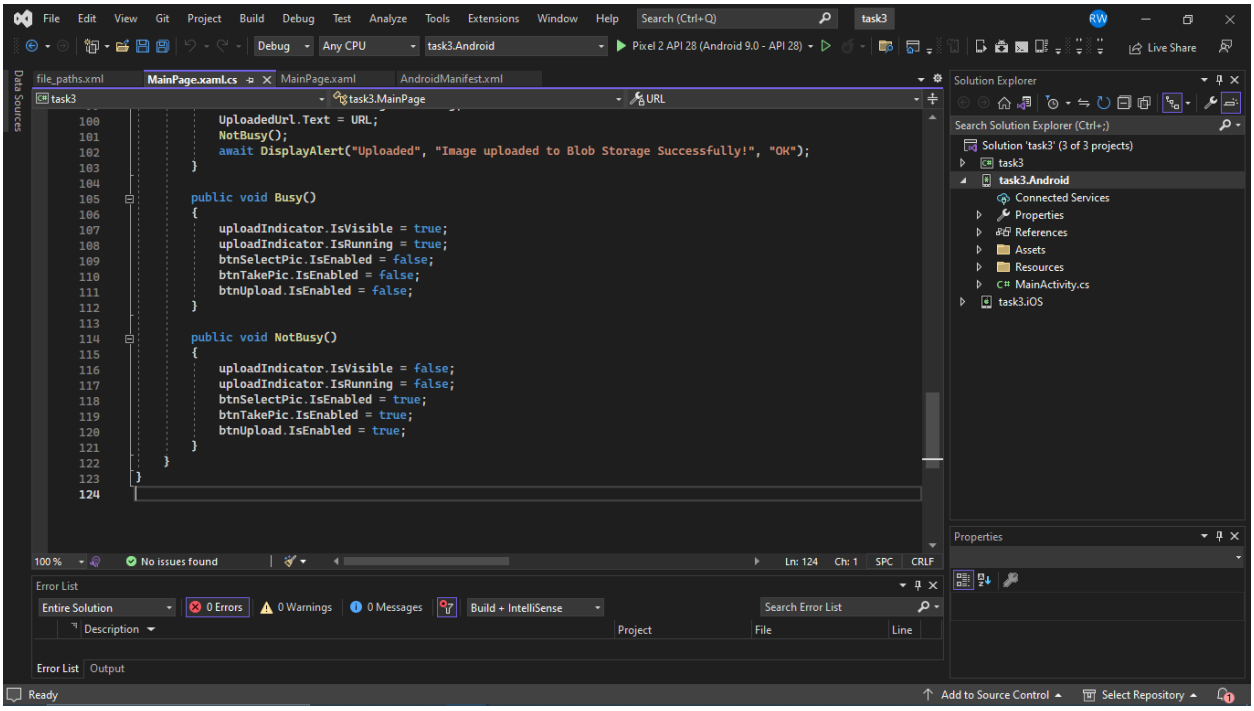


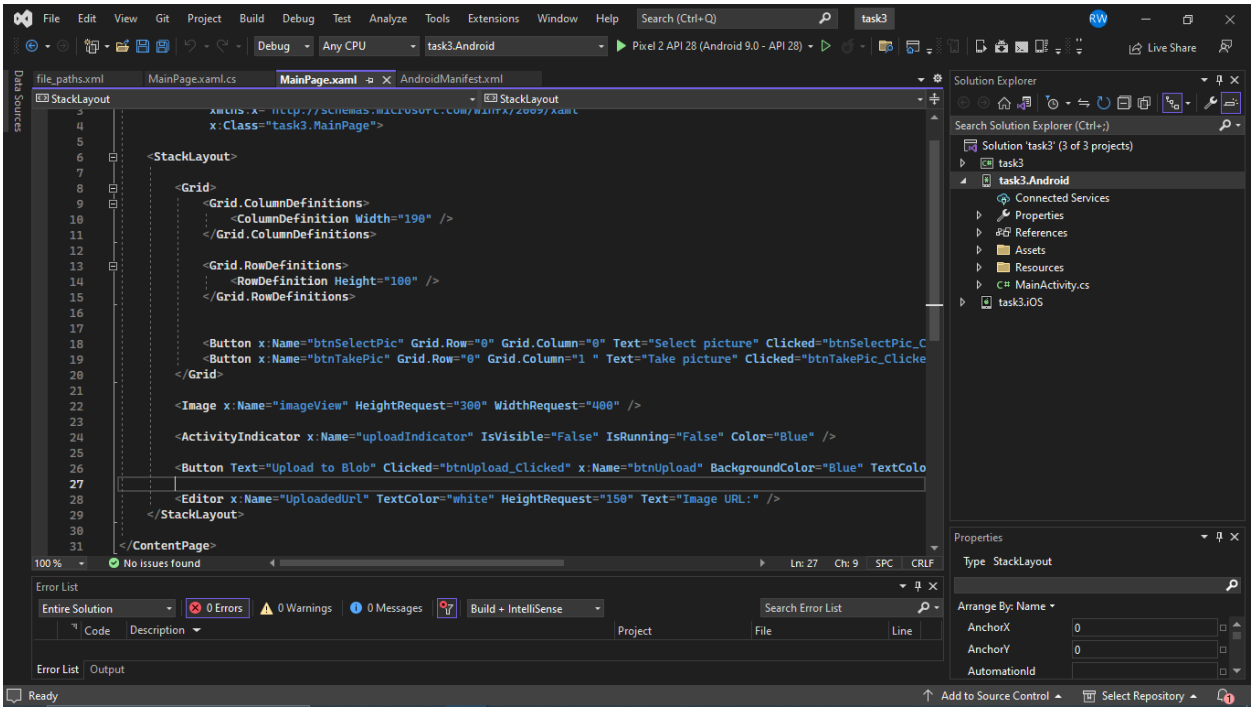


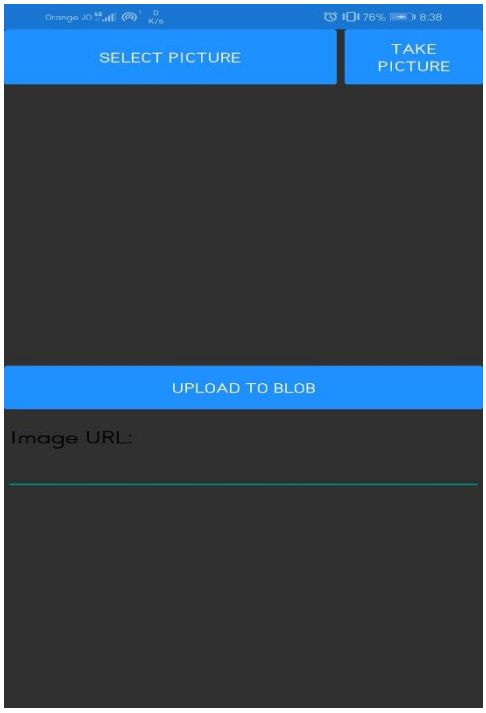
```
//Take picture from camera
private async void btnTakePic_Clicked(object sender, EventArgs e)
{

    await CrossMedia.Current.Initialize();
    if (!CrossMedia.Current.IsCameraAvailable || !CrossMedia.Current.IsTakePhotoSupported)
    {
        await DisplayAlert("No Camera", ":(No Camera available.)", "OK");
        return;
    }
    else
    {
        _mediaFile = await CrossMedia.Current.TakePhotoAsync(new StoreCameraMediaOptions
        {
            Directory = "Sample",
            Name = "myImage.jpg"
        });

        if (_mediaFile == null) return;
        imageView.Source = ImageSource.FromStream(() => _mediaFile.GetStream());
        var mediaOption = new PickMediaOptions()
        {
            PhotoSize = PhotoSize.Medium
        };
        UploadedUrl.Text = "Image URL:";
    }
}
```



```
//Upload to blob function
private async void UploadImage(Stream stream)
{
    Busy();
    var account = CloudStorageAccount.Parse("DefaultEndpointsProtocol=https;AccountName=cloudshell2090062
    var client = account.CreateCloudBlobClient();
    var container = client.GetContainerReference("images");
    await container.CreateIfNotExistsAsync();
    var name = Guid.NewGuid().ToString();
    var blockBlob = container.GetBlockBlobReference($"{name}.png");
    await blockBlob.UploadFromStreamAsync(stream);
    URL = blockBlob.Uri.OriginalString;
    UploadedUrl.Text = URL;
    NotBusy();
    await DisplayAlert("Uploaded", "Image uploaded to Blob Storage Successfully!", "OK");
}

public void Busy()
{
    uploadIndicator.IsVisible = true;
    uploadIndicator.IsRunning = true;
    btnSelectPic.IsEnabled = false;
    btnTakePic.IsEnabled = false;
    btnUpload.IsEnabled = false;
}

public void NotBusy()
{
```


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task3
Debug
Any CPU
task3.Android
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
file_paths.xml
MainPage.xaml.cs
MainPage.xaml
AndroidManifest.xml
task3
task3.MainPage
URL
UploadedUrl.Text = URL;
NotBusy();
await DisplayAlert("Uploaded", "Image uploaded to Blob Storage Successfully!", "OK");
}
public void Busy()
{
uploadIndicator.IsVisible = true;
uploadIndicator.IsRunning = true;
btnSelectPic.IsEnabled = false;
btnTakePic.IsEnabled = false;
btnUpload.IsEnabled = false;
}
public void NotBusy()
{
uploadIndicator.IsVisible = false;
uploadIndicator.IsRunning = false;
btnSelectPic.IsEnabled = true;
btnTakePic.IsEnabled = true;
btnUpload.IsEnabled = true;
}
}
}
100 %
No issues found
Ln: 124 Ch: 1 SPC CRLF
Error List
Entire Solution
0 Errors
0 Warnings
0 Messages
Build + IntelliSense
Search Error List
Description
Project
File
Line
Error List
Output
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task3' (3 of 3 projects)
task3
task3.Android
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
task3.iOS
Properties
Ready
Add to Source Control
Select Repository

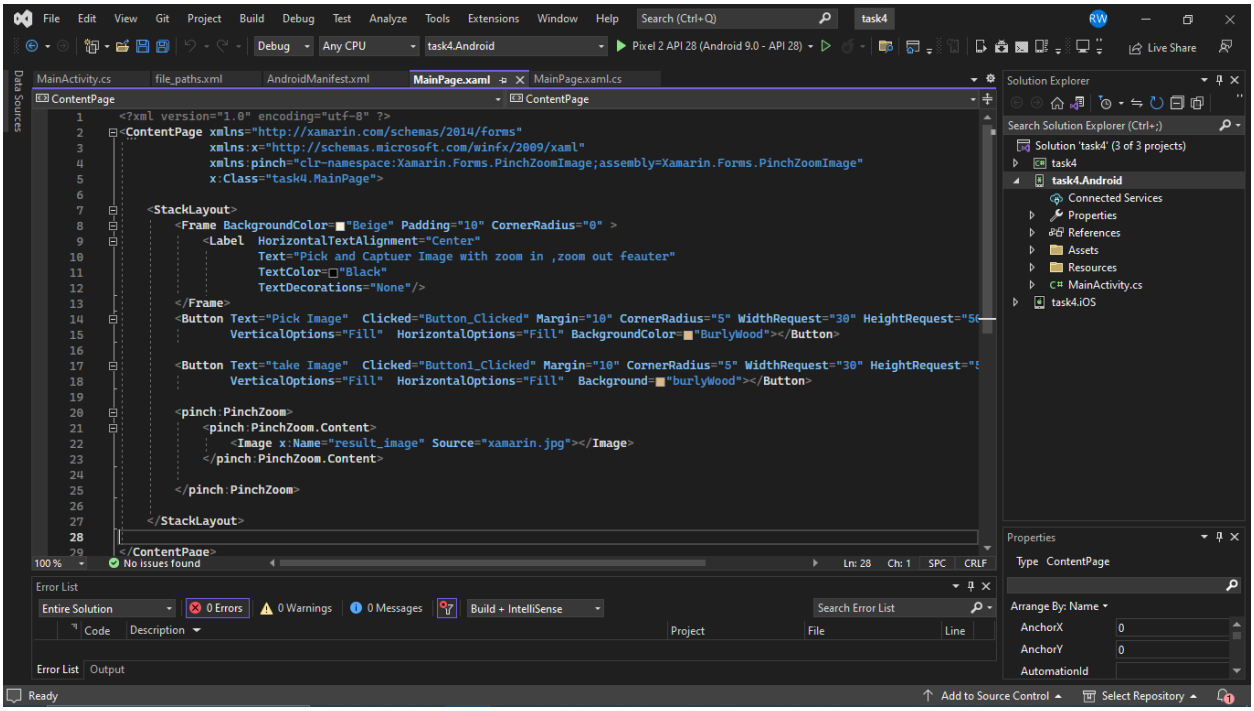

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task3
Debug
Any CPU
task3.Android
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
file_paths.xml
MainPage.xaml.cs
MainPage.xaml
AndroidManifest.xml
StackLayout
StackLayout
x:Class="task3.MainPage">
<StackLayout>
<Grid>
<Grid.ColumnDefinitions>
<ColumnDefinition Width="190" />
</Grid.ColumnDefinitions>
<Grid.RowDefinitions>
<RowDefinition Height="100" />
</Grid.RowDefinitions>
<Button x:Name="btnSelectPic" Grid.Row="0" Grid.Column="0" Text="Select picture" Clicked="btnSelectPic_C
<Button x:Name="btnTakePic" Grid.Row="0" Grid.Column="1 " Text="Take picture" Clicked="btnTakePic_Clicke
</Grid>
<Image x:Name="imageView" HeightRequest="300" WidthRequest="400" />
<ActivityIndicator x:Name="uploadIndicator" IsVisible="False" IsRunning="False" Color="Blue" />
<Button Text="Upload to Blob" Clicked="btnUpload_Clicked" x:Name="btnUpload" BackgroundColor="Blue" TextColo
<Editor x:Name="UploadedUrl" TextColor="white" HeightRequest="150" Text="Image URL:" />
</StackLayout>
</ContentPage>
100 %
No issues found
Ln: 27 Ch: 9 SPC CRLF
Error List
Entire Solution
0 Errors
0 Warnings
0 Messages
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Error List
Output
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task3' (3 of 3 projects)
task3
task3.Android
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
task3.iOS
Properties
Type StackLayout
Arrange By: Name
AnchorX
AnchorY
AutomationId
Ready
Add to Source Control
Select Repository

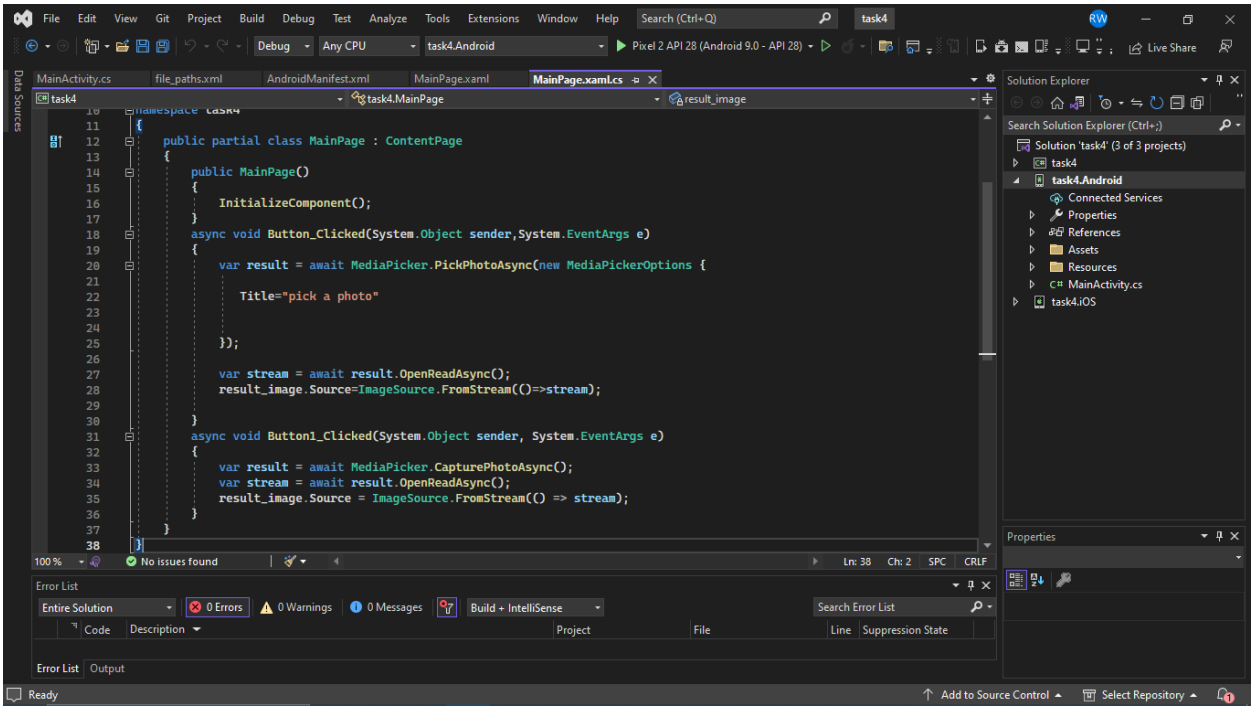


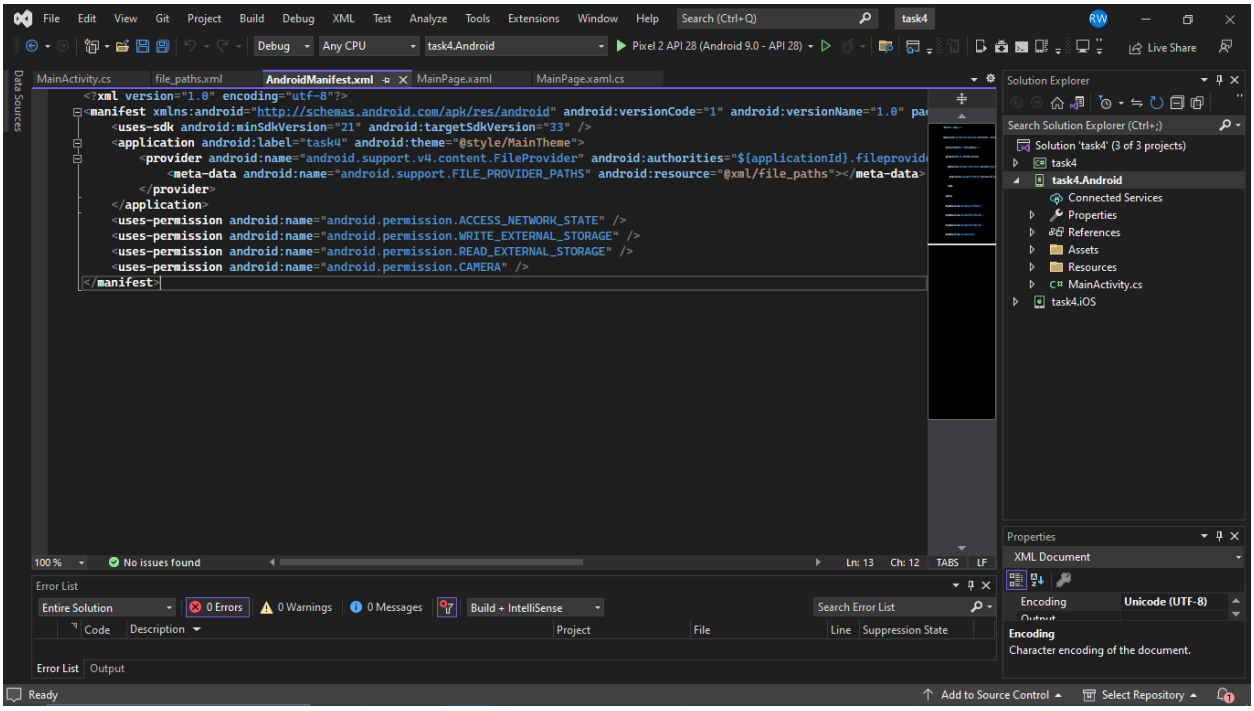
https://learn.microsoft.com/en-us/azure/container-instances/container-instances-quickstart-portal

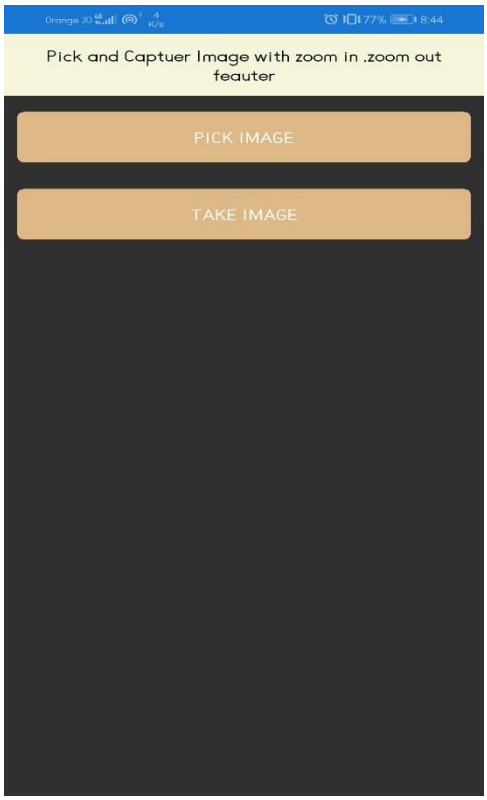
https://www.c-sharpcorner.com/article/xamarin-forms-upload-image-to-blob-storage/

Xamarin task 4:
Add zoom in zoom out feature to an image





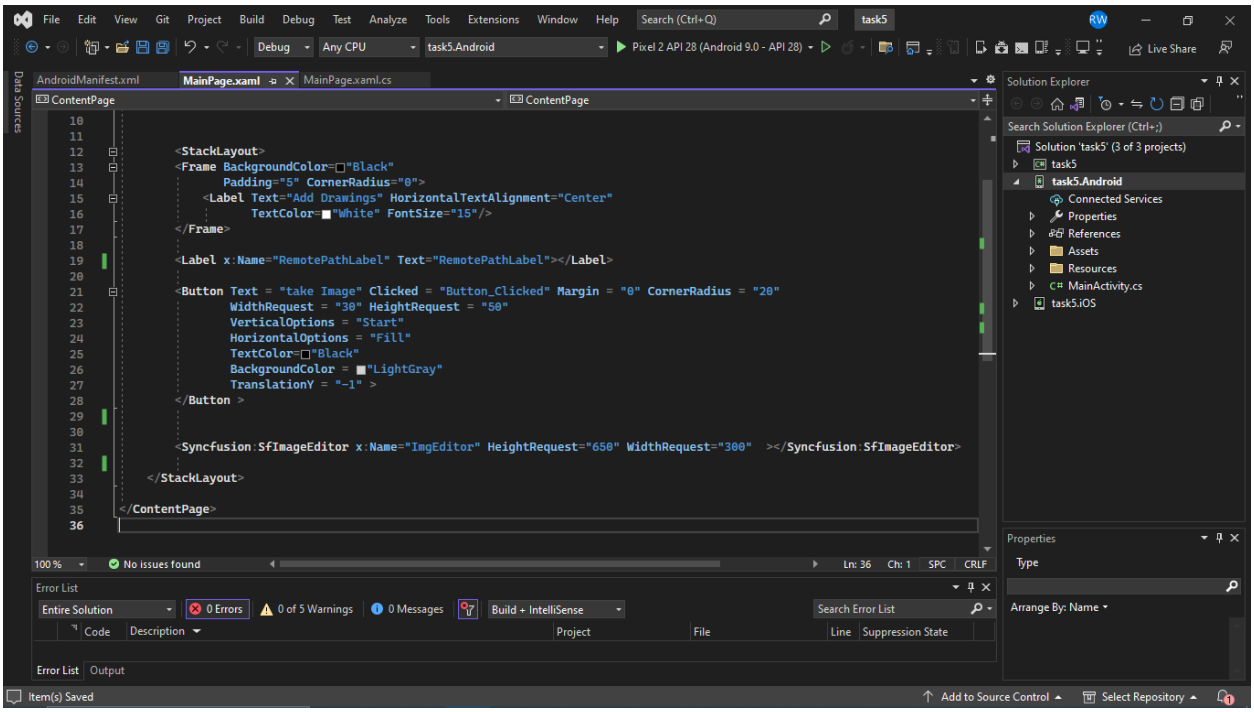


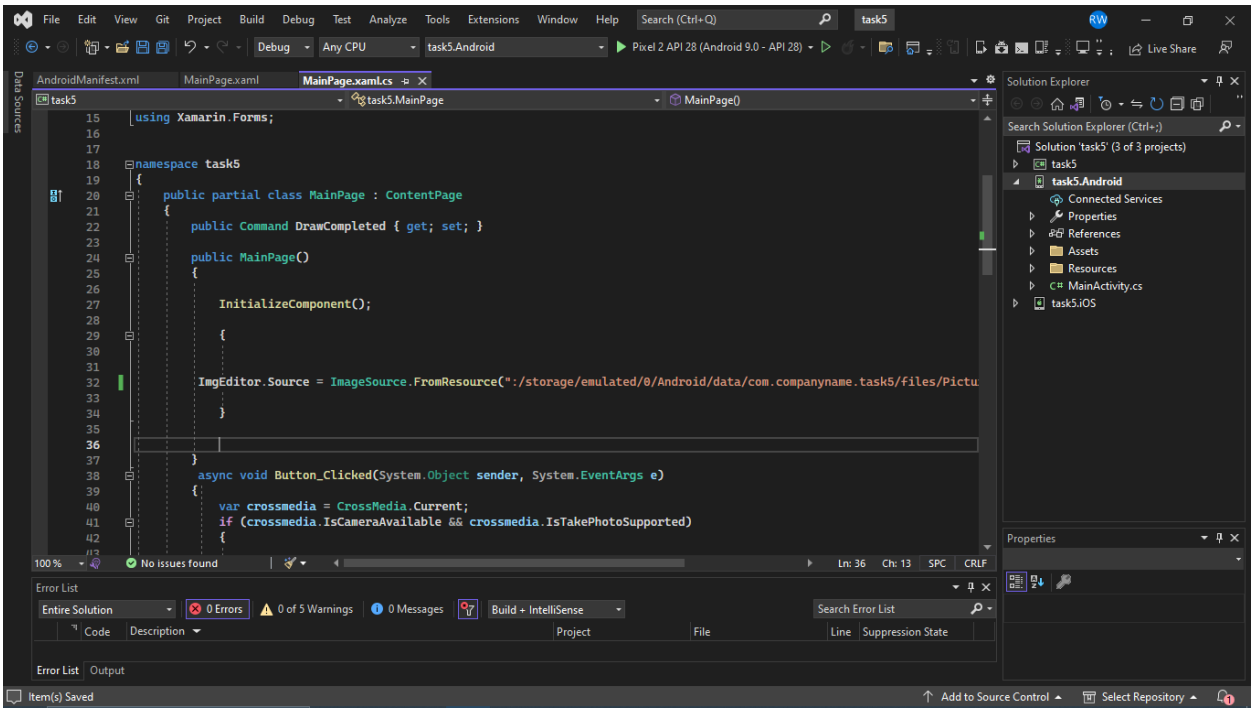


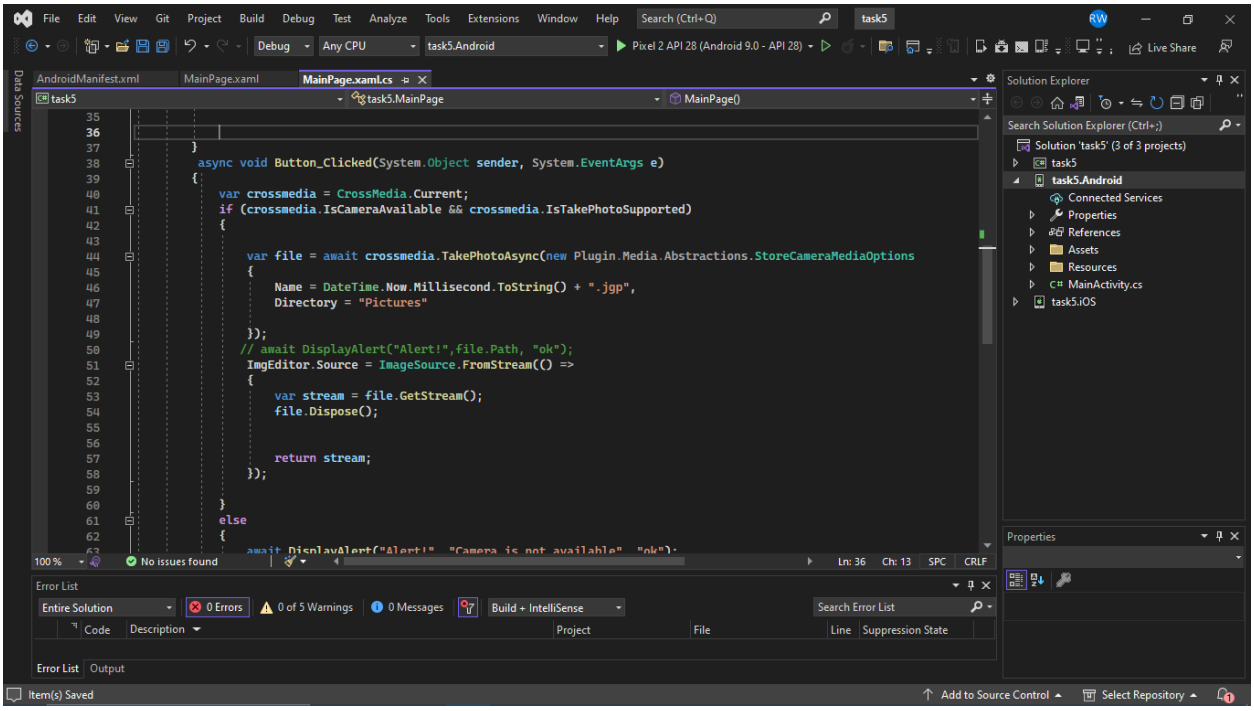
https://www.c-sharpcorner.com/article/zoom-in/

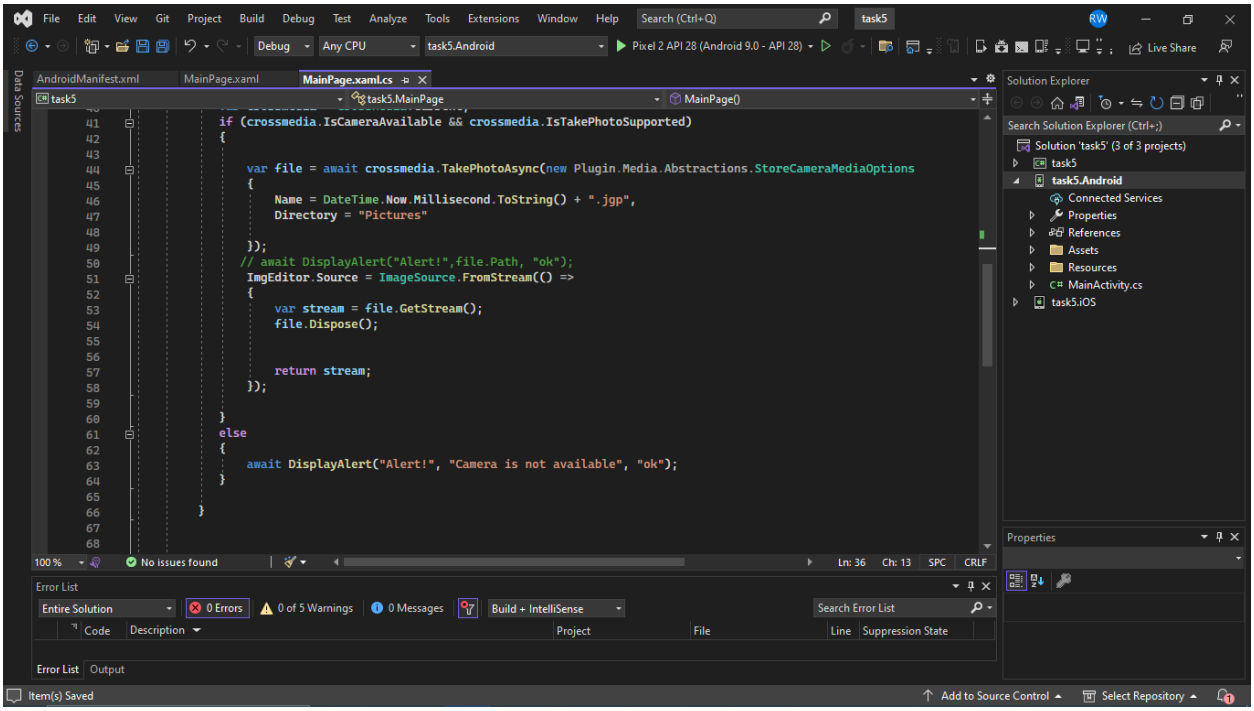
https://www.youtube.com/watch?v=_IEmth2CWqY

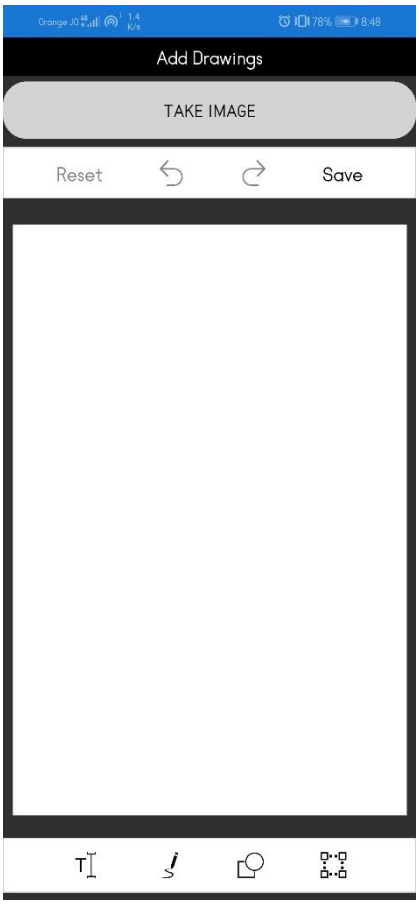
Xamarin task 5: add some drawing to the image and save it





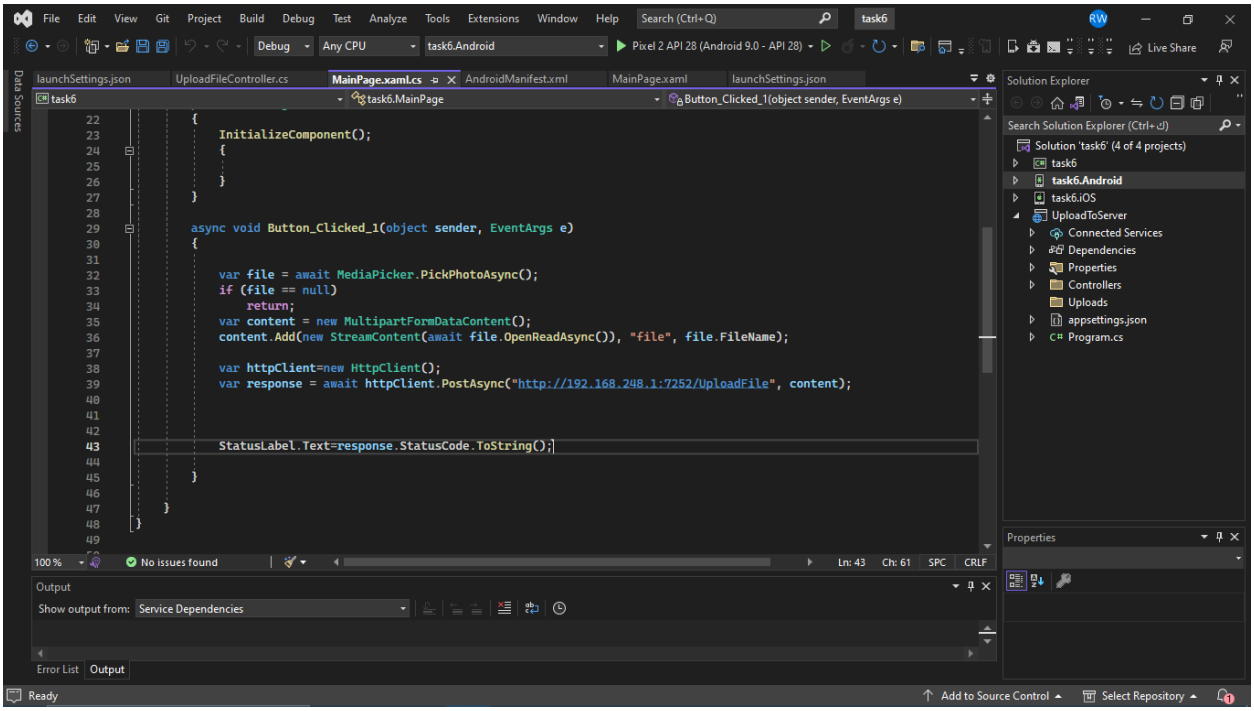

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task5
Debug
Any CPU
task5.Android
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
AndroidManifest.xml
MainPage.xaml
MainPage.xaml.cs
task5
task5.MainPage
MainPage()
35
36
37 }
38 async void Button_Clicked(System.Object sender, System.EventArgs e)
39 {
40 var crossmedia = CrossMedia.Current;
41 if (crossmedia.IsCameraAvailable && crossmedia.IsTakePhotoSupported)
42 {
43
44 var file = await crossmedia.TakePhotoAsync(new Plugin.Media.Abstractions.StoreCameraMediaOptions
45 {
46 Name = DateTime.Now.Millisecond.ToString() + ".jgp",
47 Directory = "Pictures"
48
49 });
50 // await DisplayAlert("Alert!",file.Path, "ok");
51 ImgEditor.Source = ImageSource.FromStream(() =>
52 {
53 var stream = file.GetStream();
54 file.Dispose();
55
56
57 return stream;
58 });
59
60 }
61 else
62 {
63 await DisplayAlert("Alert!", "Camera is not available", "ok");
100 %
No issues found
Ln: 36
Ch: 13
SPC
CRLF
Error List
Entire Solution
0 Errors
0 of 5 Warnings
0 Messages
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Item(s) Saved
Add to Source Control
Select Repository
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task5' (3 of 3 projects)
task5
task5.Android
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
task5.iOS
Properties


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task5
Debug
Any CPU
task5.Android
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
AndroidManifest.xml
MainPage.xaml
MainPage.xaml.cs
task5
task5.MainPage
MainPage()
41 if (crossmedia.IsCameraAvailable && crossmedia.IsTakePhotoSupported)
42 {
43
44 var file = await crossmedia.TakePhotoAsync(new Plugin.Media.Abstractions.StoreCameraMediaOptions
45 {
46 Name = DateTime.Now.Millisecond.ToString() + ".jgp",
47 Directory = "Pictures"
48
49 });
50 // await DisplayAlert("Alert!",file.Path, "ok");
51 ImgEditor.Source = ImageSource.FromStream(() =>
52 {
53 var stream = file.GetStream();
54 file.Dispose();
55
56
57 return stream;
58 });
59
60 }
61 else
62 {
63 await DisplayAlert("Alert!", "Camera is not available", "ok");
64 }
65
66 }
67
68
100 %
No issues found
Ln: 36
Ch: 13
SPC
CRLF
Error List
Entire Solution
0 Errors
0 of 5 Warnings
0 Messages
Build + IntelliSense
Search Error List
Code
Description
Project
File
Line
Suppression State
Error List
Output
Item(s) Saved
Add to Source Control
Select Repository
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'task5' (3 of 3 projects)
task5
task5.Android
Connected Services
Properties
References
Assets
Resources
MainActivity.cs
task5.iOS
Properties

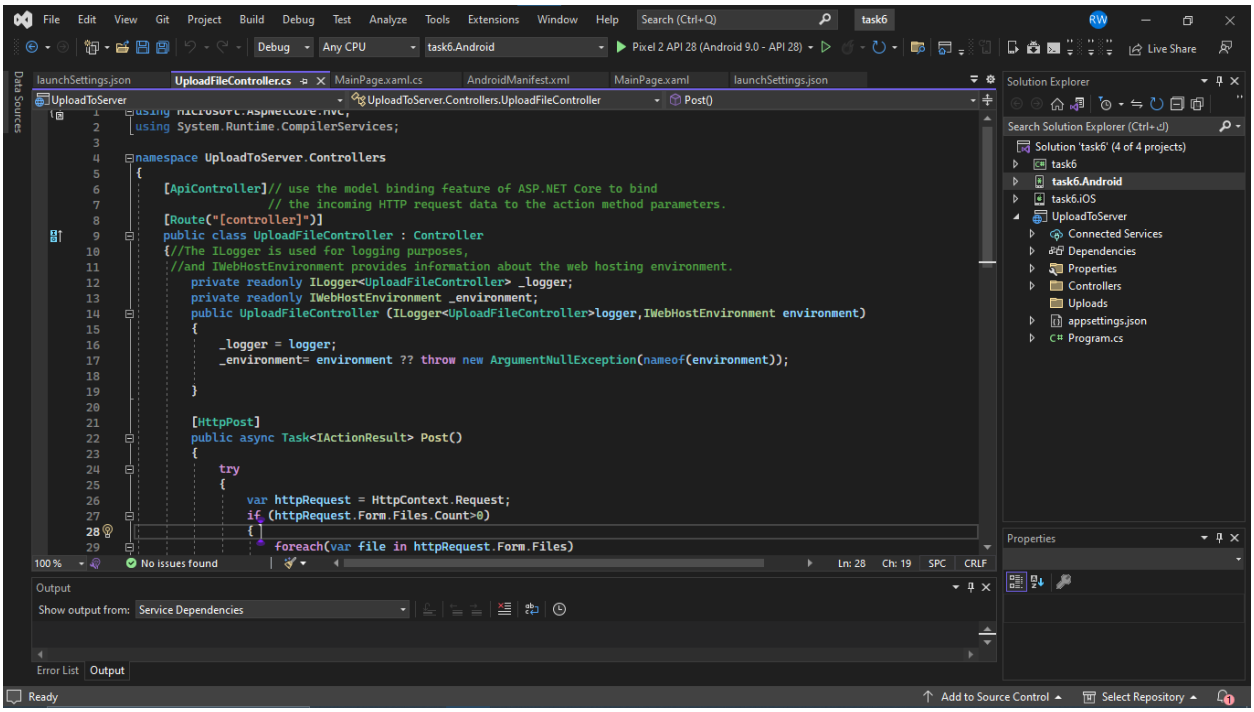


https://youtu.be/SW1fsk7YbeA

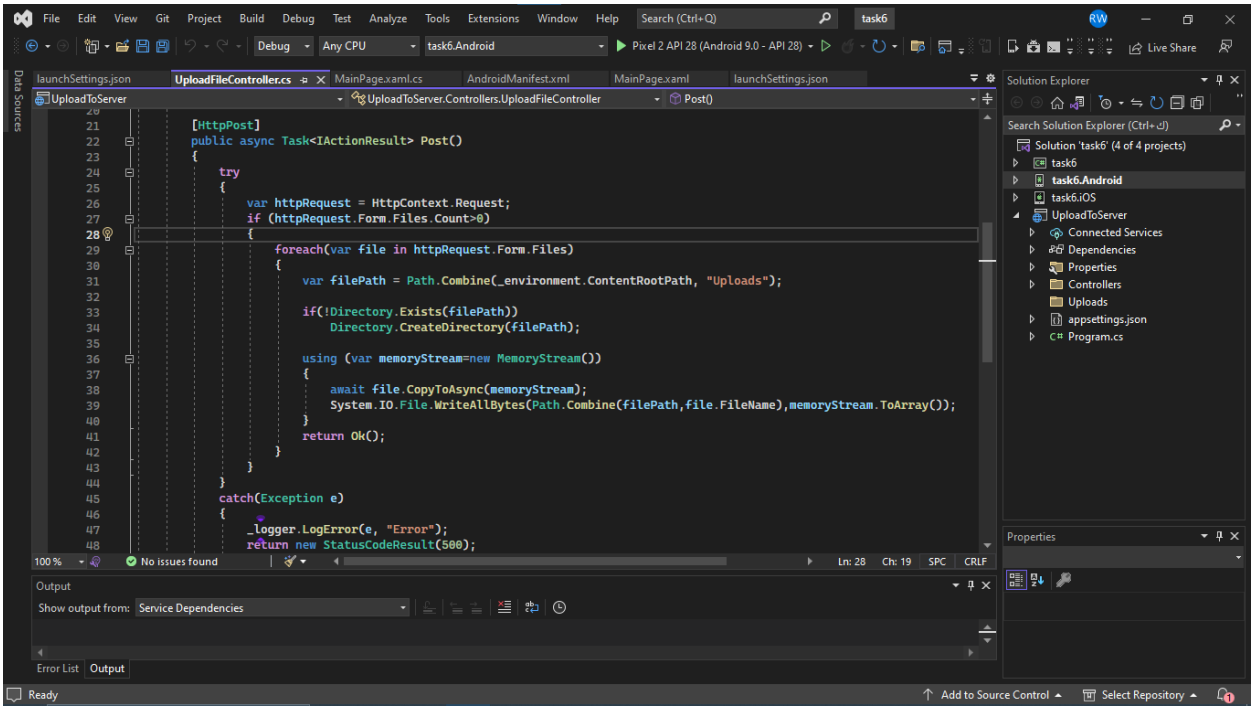
Xamarin task 6: send a captured image to a local server using web API ,you need to make your pc as a server

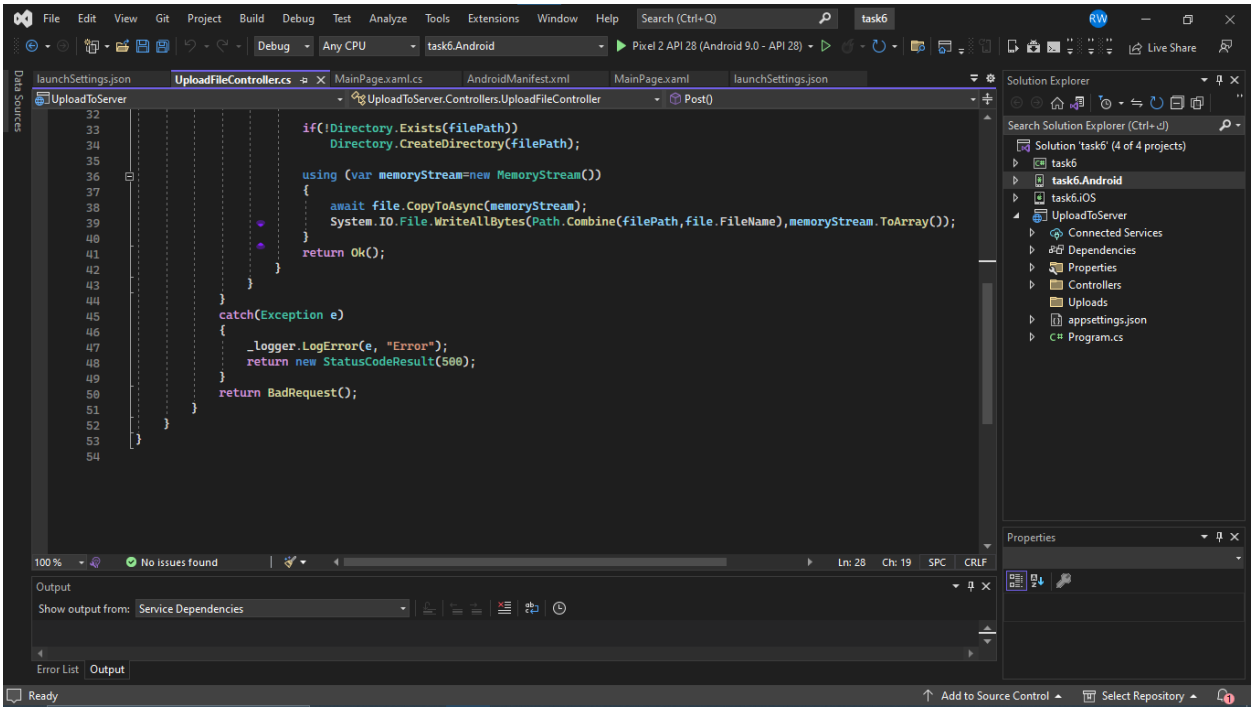


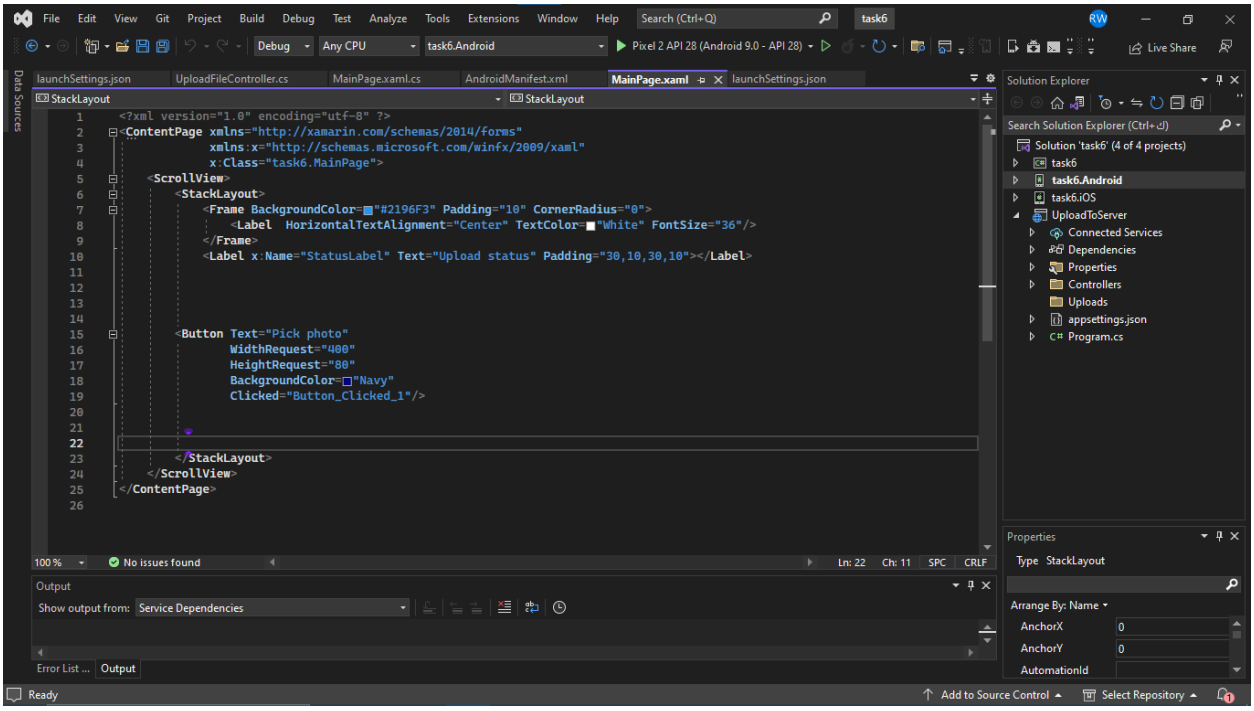
```
{
    InitializeComponent();
    {

    }
}

async void Button_Clicked_1(object sender, EventArgs e)
{

    var file = await MediaPicker.PickPhotoAsync();
    if (file == null)
        return;
    var content = new MultipartFormDataContent();
    content.Add(new StreamContent(await file.OpenReadAsync()), "file", file.FileName);

    var httpClient=new HttpClient();
    var response = await httpClient.PostAsync("http://192.168.248.1:7252/UploadFile", content);


    StatusLabel.Text=response.StatusCode.ToString();

}
}
}
```



```
using System.Runtime.CompilerServices;

namespace UploadToServer.Controllers
{
    [ApiController]// use the model binding feature of ASP.NET Core to bind
                   // the incoming HTTP request data to the action method parameters.
    [Route("[controller]")]
    public class UploadFileController : Controller
    {//The ILogger is used for logging purposes,
     //and IWebHostEnvironment provides information about the web hosting environment.
        private readonly ILogger<UploadFileController> _logger;
        private readonly IWebHostEnvironment _environment;
        public UploadFileController (ILogger<UploadFileController>logger,IWebHostEnvironment environment)
        {
            _logger = logger;
            _environment= environment ?? throw new ArgumentNullException(nameof(environment));


        }

        [HttpPost]
        public async Task<IActionResult> Post()
        {
            try
            {
                var httpRequest = HttpContext.Request;
                if (httpRequest.Form.Files.Count>0)
                {
                    foreach(var file in httpRequest.Form.Files)
```

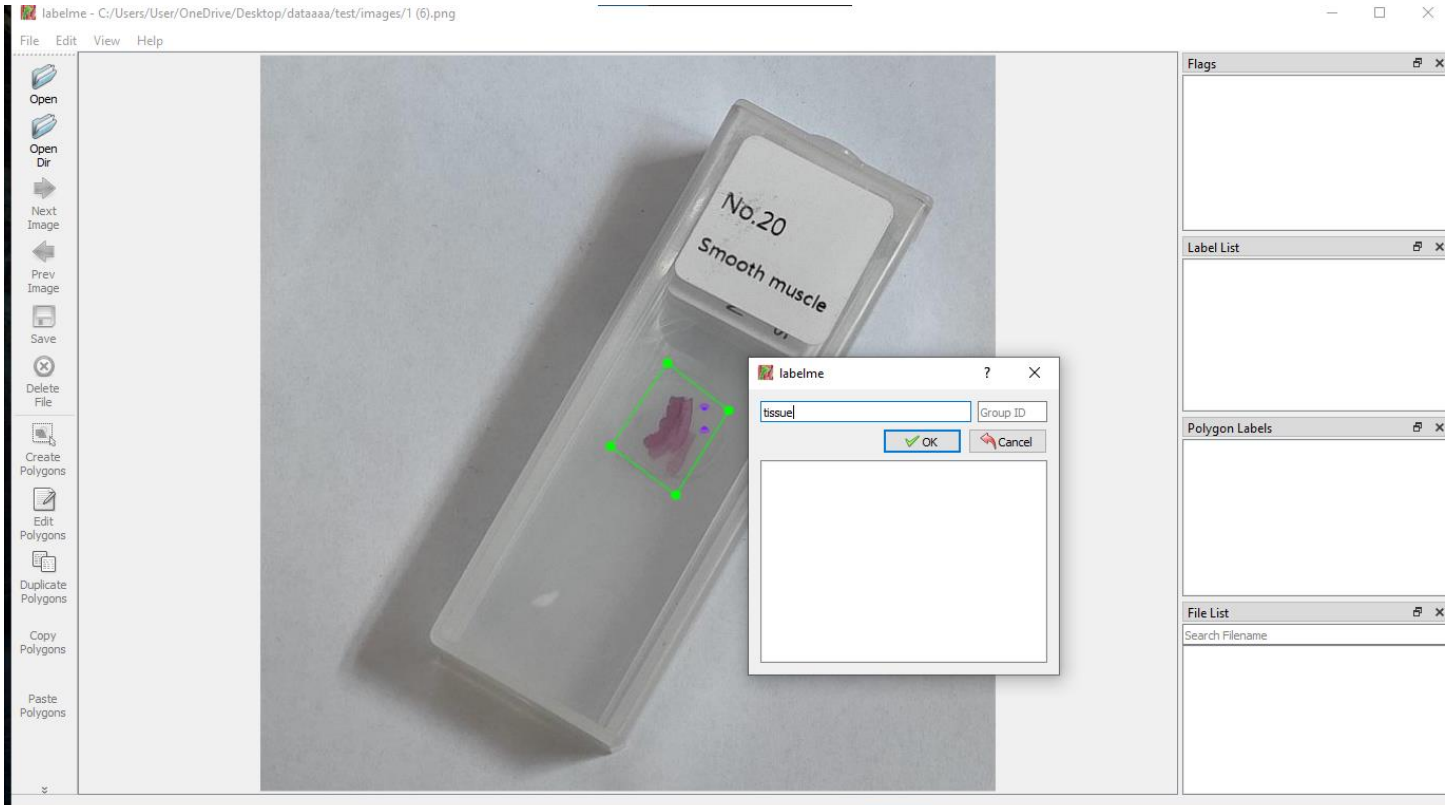

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task6
Debug
Any CPU
task6.Android
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
launchSettings.json
UploadFileController.cs
MainPage.xaml.cs
AndroidManifest.xml
MainPage.xaml
launchSettings.json
UploadToServer
UploadToServer.Controllers.UploadFileController
Post()
[HttpPost]
public async Task<IActionResult> Post()
{
try
{
var httpRequest = HttpContext.Request;
if (httpRequest.Form.Files.Count>0)
{
foreach(var file in httpRequest.Form.Files)
{
var filePath = Path.Combine(_environment.ContentRootPath, "Uploads");
if(!Directory.Exists(filePath))
Directory.CreateDirectory(filePath);
using (var memoryStream=new MemoryStream())
{
await file.CopyToAsync(memoryStream);
System.IO.File.WriteAllBytes(Path.Combine(filePath,file.FileName),memoryStream.ToArray());
}
return Ok();
}
}
}
catch(Exception e)
{
_logger.LogError(e, "Error");
return new StatusCodeResult(500);
100 %
No issues found
Ln: 28
Ch: 19
SPC
CRLF
Output
Show output from: Service Dependencies
Error List
Output
Solution Explorer
Search Solution Explorer (Ctrl+ل)
Solution 'task6' (4 of 4 projects)
task6
task6.Android
task6.iOS
UploadToServer
Connected Services
Dependencies
Properties
Controllers
Uploads
appsettings.json
Program.cs
Properties
Ready
Add to Source Control
Select Repository

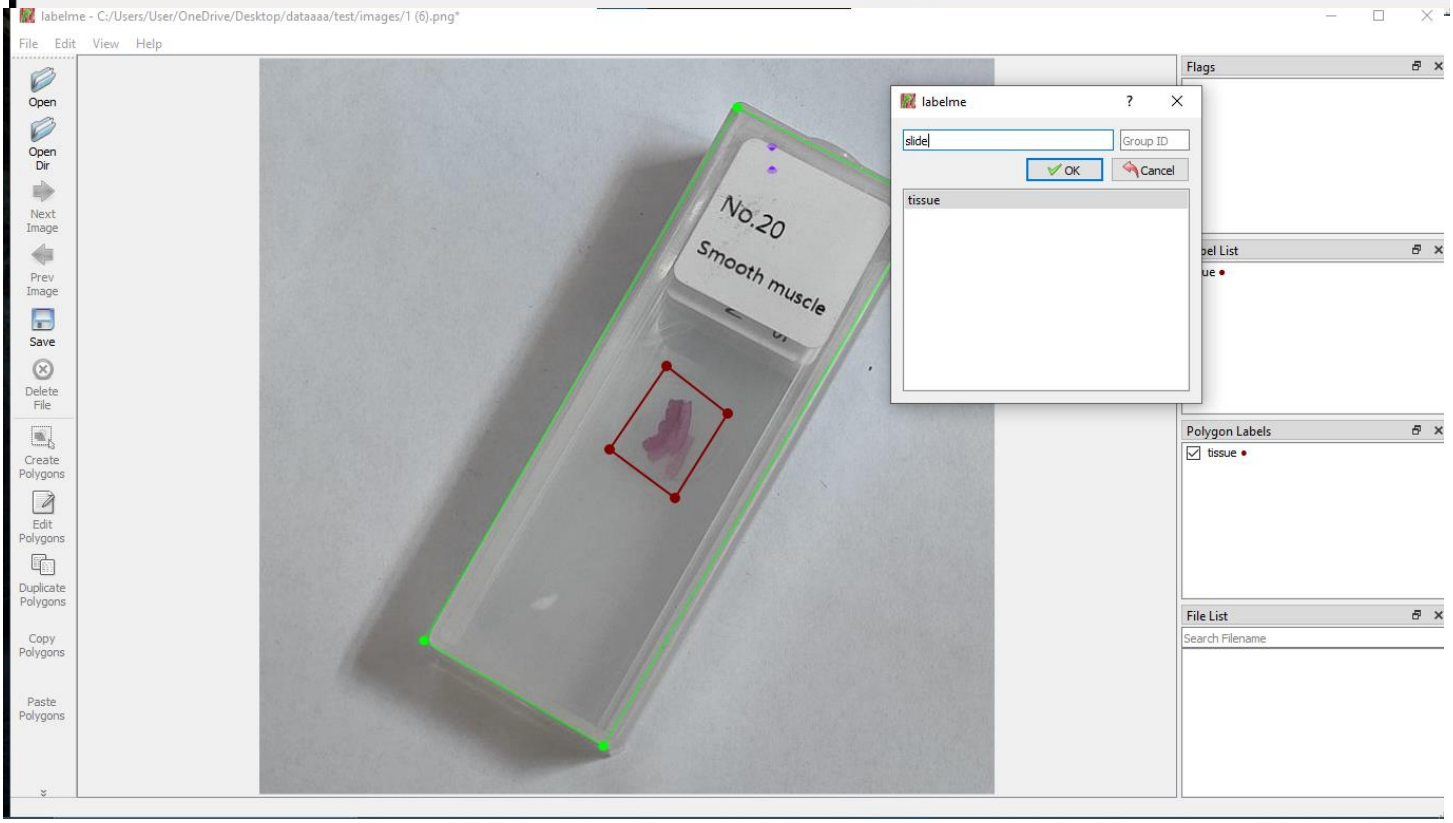

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task6
Debug
Any CPU
task6.Android
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
launchSettings.json
UploadFileController.cs
MainPage.xaml.cs
AndroidManifest.xml
MainPage.xaml
launchSettings.json
UploadToServer
UploadToServer.Controllers.UploadFileController
Post()
if(!Directory.Exists(filePath))
Directory.CreateDirectory(filePath);
using (var memoryStream=new MemoryStream())
{
await file.CopyToAsync(memoryStream);
System.IO.File.WriteAllBytes(Path.Combine(filePath,file.FileName),memoryStream.ToArray());
}
return Ok();
}
}
}
catch(Exception e)
{
_logger.LogError(e, "Error");
return new StatusCodeResult(500);
}
return BadRequest();
}
}
}
100 %
No issues found
Ln: 28
Ch: 19
SPC
CRLF
Output
Show output from: Service Dependencies
Error List
Output
Solution Explorer
Search Solution Explorer (Ctrl+ل)
Solution 'task6' (4 of 4 projects)
task6
task6.Android
task6.iOS
UploadToServer
Connected Services
Dependencies
Properties
Controllers
Uploads
appsettings.json
Program.cs
Properties
Ready
Add to Source Control
Select Repository

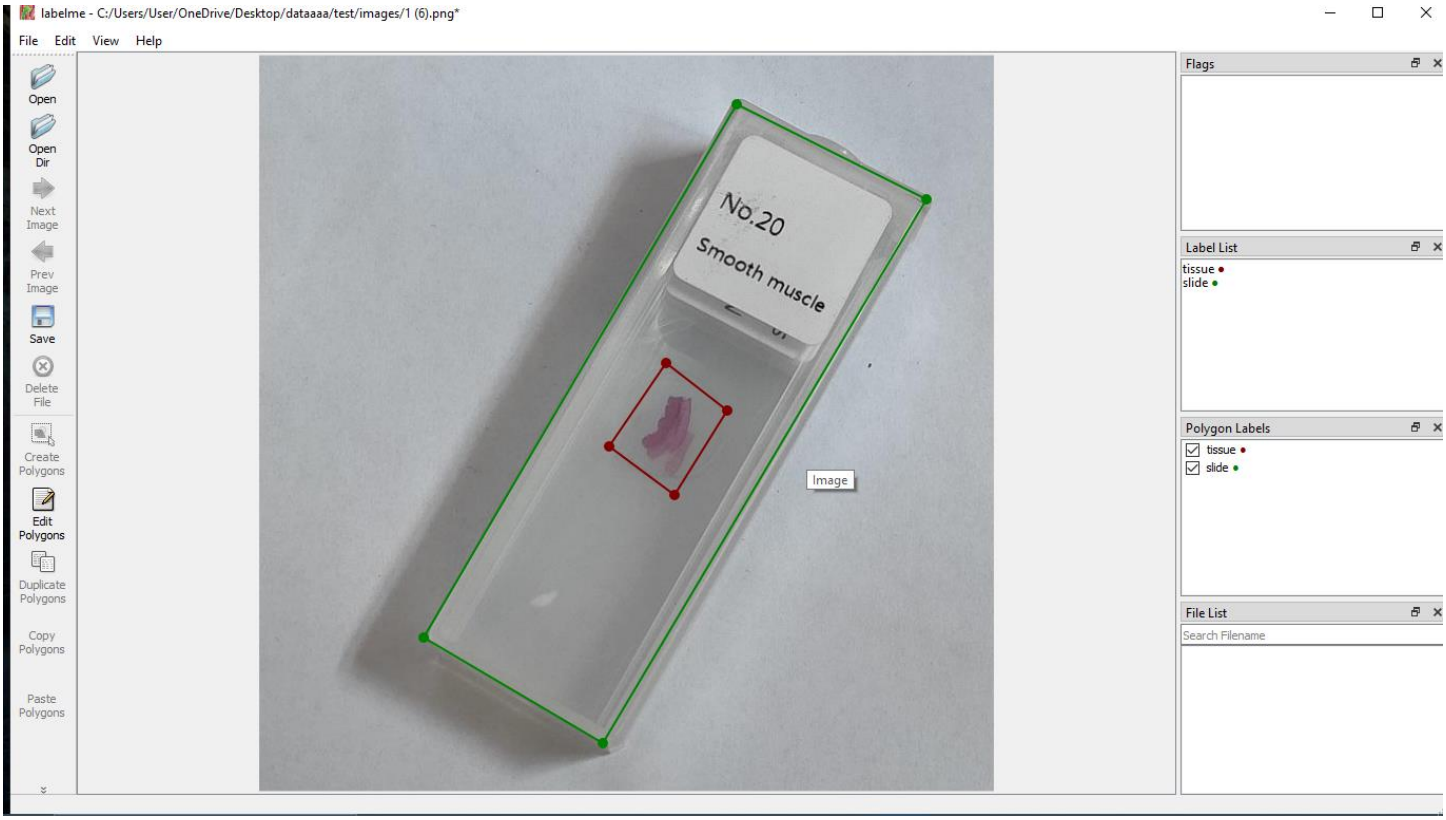

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search (Ctrl+Q)
task6
Debug
Any CPU
task6.Android
Pixel 2 API 28 (Android 9.0 - API 28)
Live Share
launchSettings.json
UploadFileController.cs
MainPage.xaml.cs
AndroidManifest.xml
MainPage.xaml
launchSettings.json
StackLayout
StackLayout
<?xml version="1.0" encoding="utf-8" ?>
<ContentPage xmlns="http://xamarin.com/schemas/2014/forms"
xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
x:Class="task6.MainPage">
<ScrollView>
<StackLayout>
<Frame BackgroundColor="#2196F3" Padding="10" CornerRadius="0">
<Label HorizontalTextAlignment="Center" TextColor="White" FontSize="36"/>
</Frame>
<Label x:Name="StatusLabel" Text="Upload status" Padding="30,10,30,10"></Label>
<Button Text="Pick photo"
WidthRequest="400"
HeightRequest="80"
BackgroundColor="Navy"
Clicked="Button_Clicked_1"/>
</StackLayout>
</ScrollView>
</ContentPage>
100 %
No issues found
Ln: 22
Ch: 11
SPC
CRLF
Output
Show output from:
Service Dependencies
Error List ...
Output
Solution Explorer
Search Solution Explorer (Ctrl+ü)
Solution 'task6' (4 of 4 projects)
task6
task6.Android
task6.iOS
UploadToServer
Connected Services
Dependencies
Properties
Controllers
Uploads
appsettings.json
Program.cs
Properties
Type StackLayout
Arrange By: Name
AnchorX
AnchorY
AutomationId
Ready
Add to Source Control
Select Repository

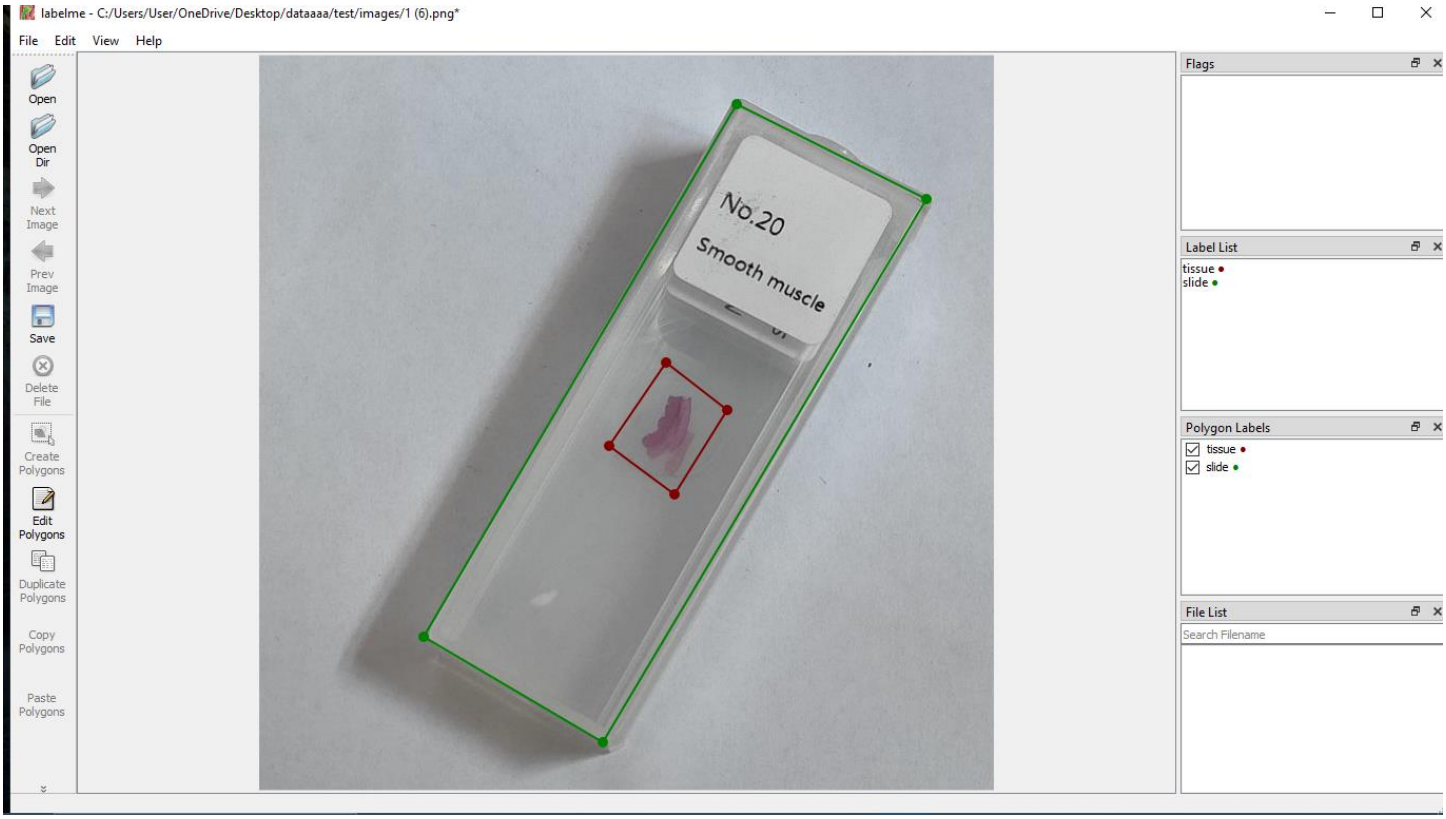
Xamarin task7: deploy the yolo model (best.pt) on a camera captured image.

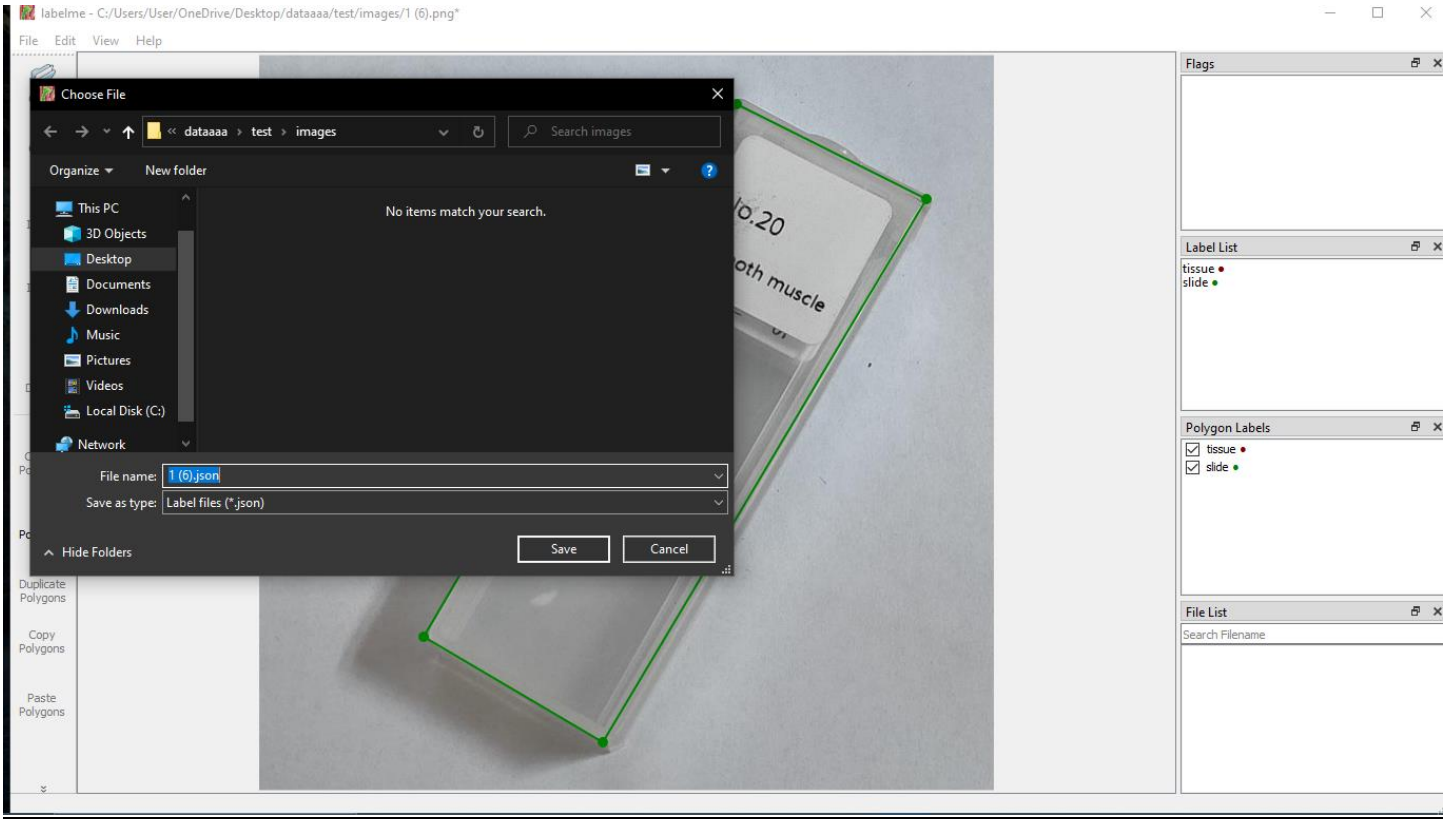
“Machine learning is a subfield of artificial intelligence that focuses on the development of algorithms and statistical models that enable computers to learn and make predictions or decisions without being explicitly programmed. It involves training algorithms on large datasets to identify patterns and relationships. and then using these patterns to make predictions or decisions about new data.” [2]

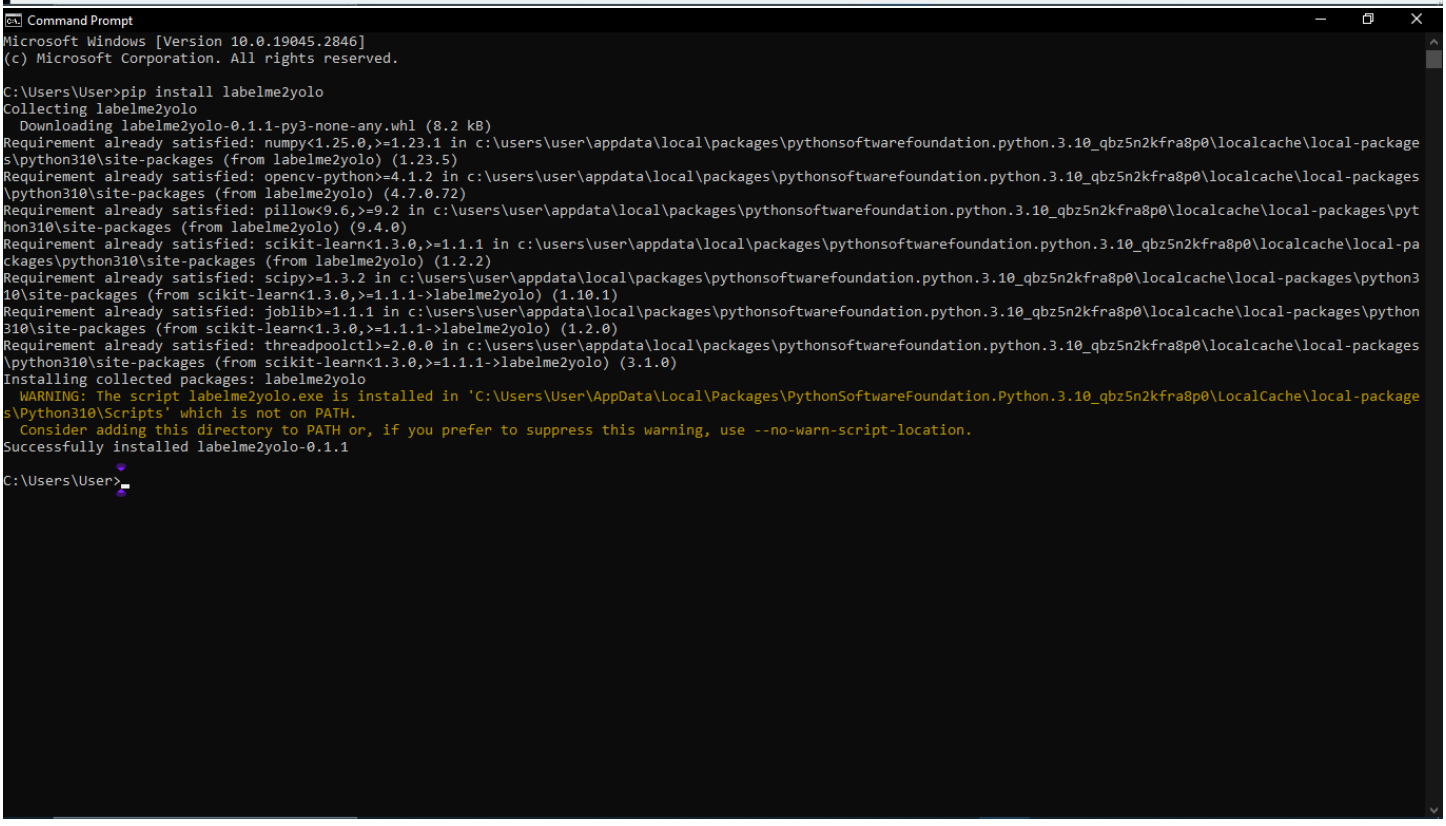




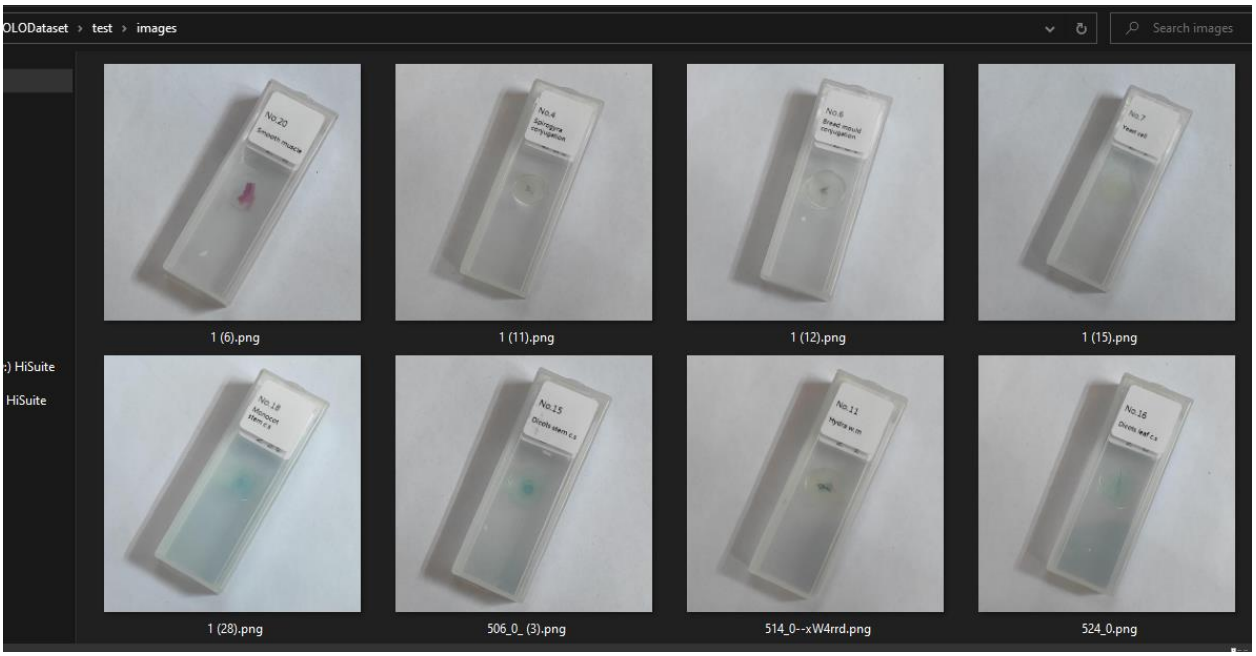

labelme - C:/Users/User/OneDrive/Desktop/dataaaa/test/images/1 (6).png*
File Edit View Help
Open
Open Dir
Next Image
Prev Image
Save
Delete File
Create Polygons
Edit Polygons
Duplicate Polygons
Copy Polygons
Paste Polygons
No.20
Smooth muscle
Image
Flags
Label List
tissue
slide
Polygon Labels
tissue
slide
File List
Search Filename


labelme - C:/Users/User/OneDrive/Desktop/dataaaa/test/images/1 (6).png*
File Edit View Help
Open
Open Dir
Next Image
Prev Image
Save
Delete File
Create Polygons
Edit Polygons
Duplicate Polygons
Copy Polygons
Paste Polygons
No.20
Smooth muscle
Flags
Label List
tissue
slide
Polygon Labels
tissue
slide
File List
Search Filename





(Pip install labelme2yolo)


OLODataset › test › images
Search images
1 (6).png
1 (11).png
1 (12).png
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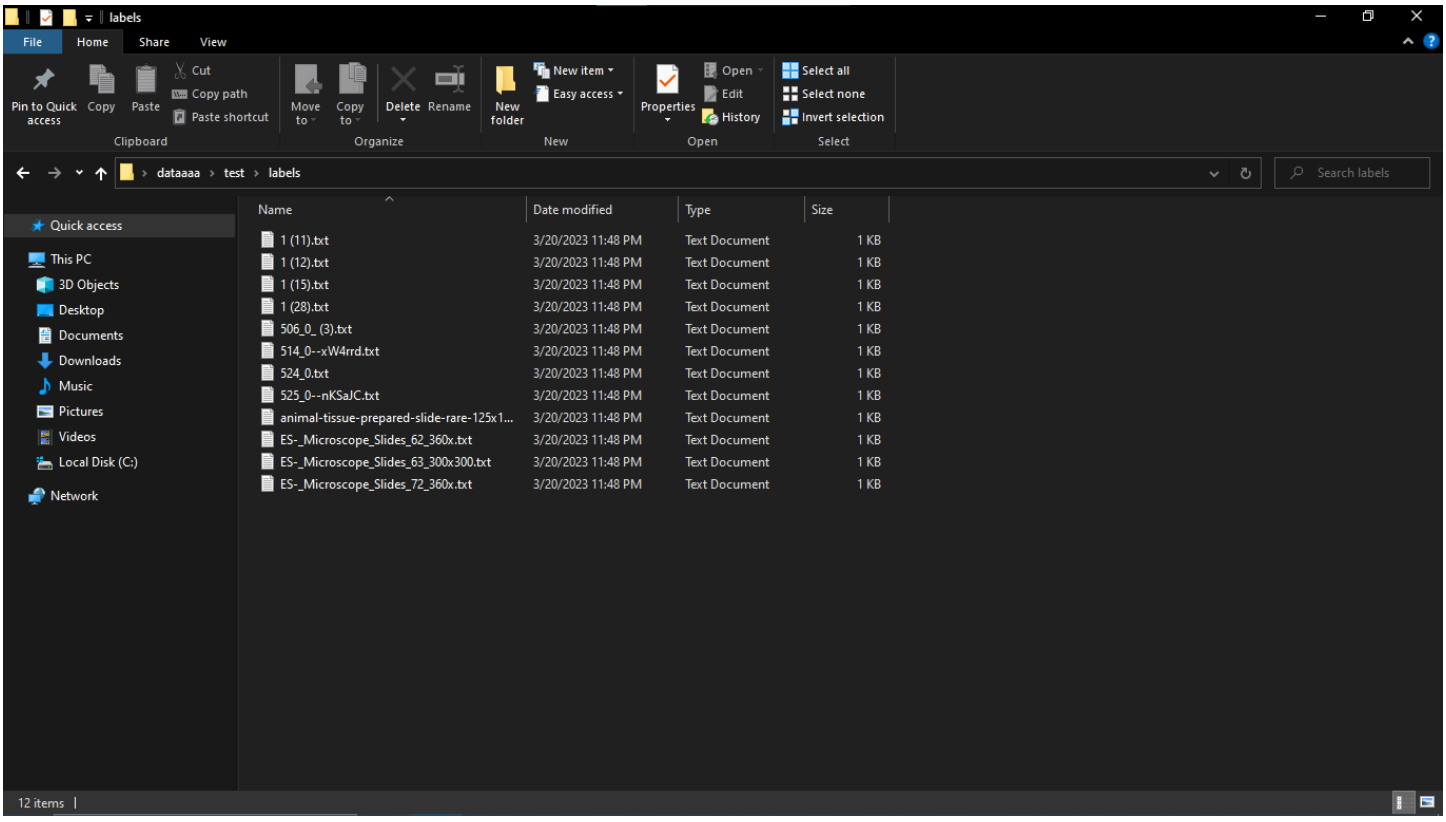
1 (28).png
506_0_ (3).png
514_0--xW4rrd.png
524_0.png


labels
File
Home
Share
View
Pin to Quick access
Copy
Paste
Cut
Copy path
Paste shortcut
Clipboard
Move to
Copy to
Delete
Rename
Organize
New item
Easy access
New folder
New
Properties
Open
Edit
History
Open
Select all
Select none
Invert selection
Select
dataaaa › test › labels
Search labels
Quick access
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
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1 (11).txt 3/20/2023 11:48 PM Text Document 1 KB
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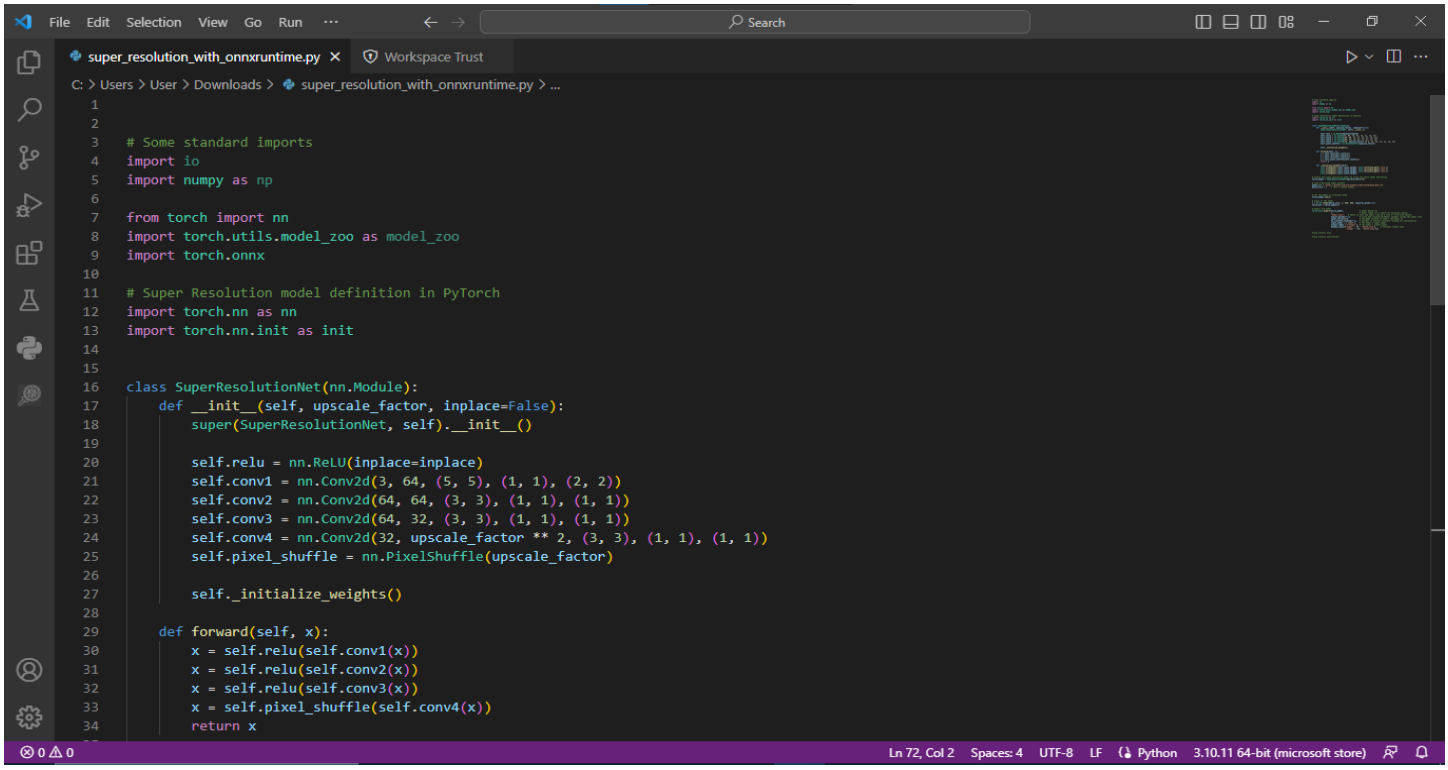
525_0--nKSaJC.txt 3/20/2023 11:48 PM Text Document 1 KB
animal-tissue-prepared-slide-rare-125x1... 3/20/2023 11:48 PM Text Document 1 KB
ES-_Microscope_Slides_62_360x.txt 3/20/2023 11:48 PM Text Document 1 KB
ES-_Microscope_Slides_63_300x300.txt 3/20/2023 11:48 PM Text Document 1 KB
ES-_Microscope_Slides_72_360x.txt 3/20/2023 11:48 PM Text Document 1 KB
12 items

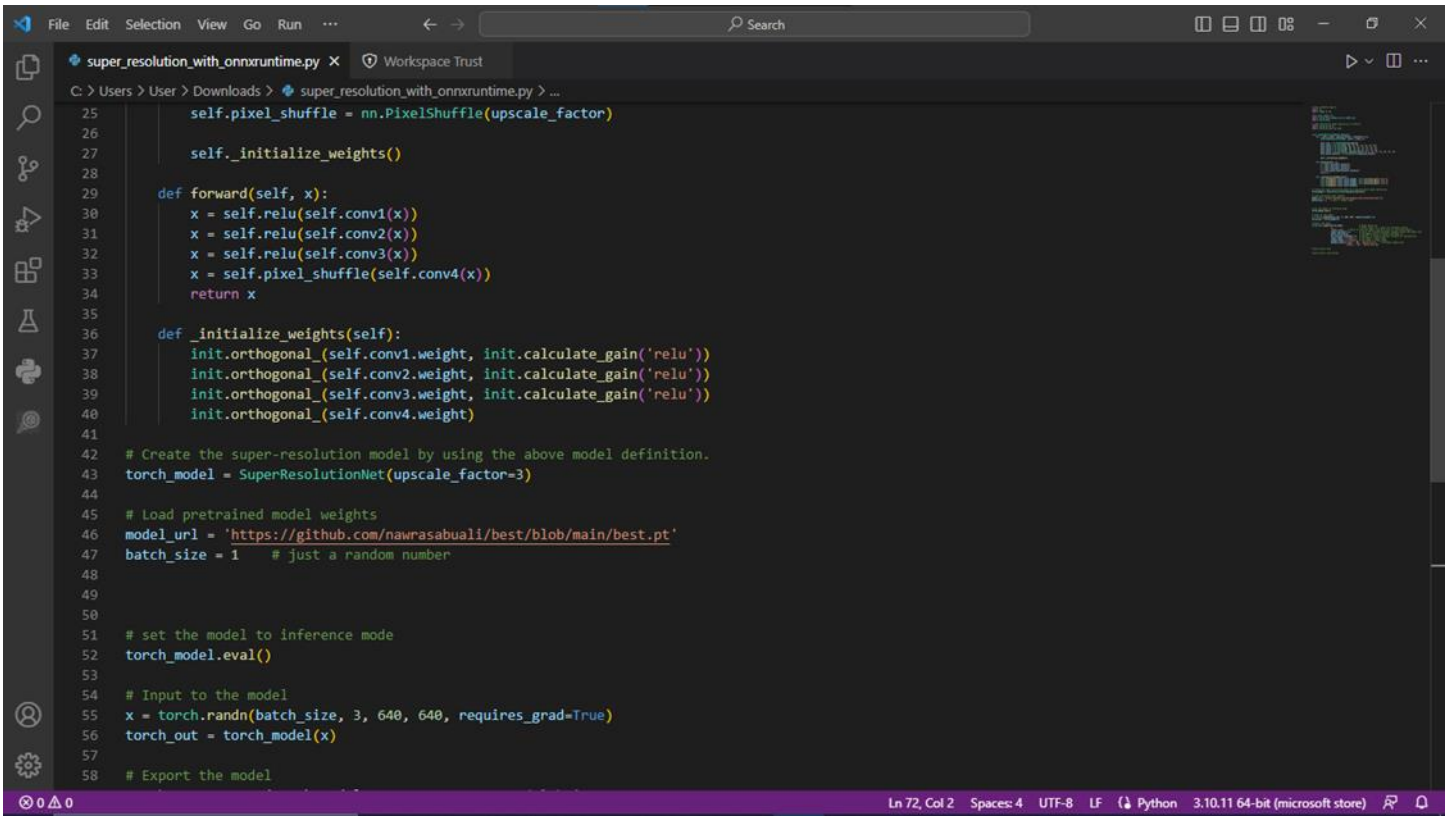
Part of the dataset (some slide images and their labels).

Given best.pt file

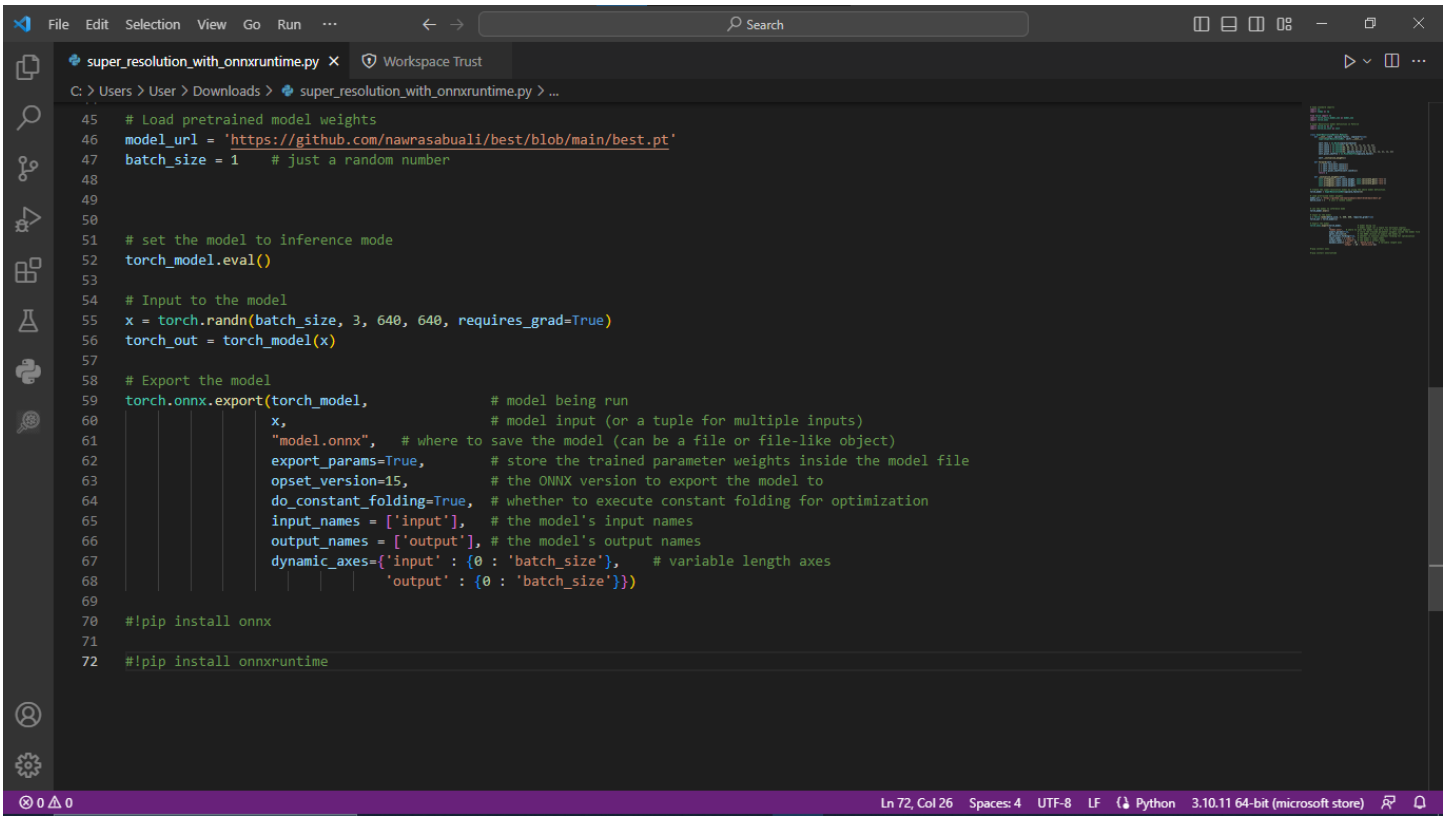
convert best.pt to onnx file



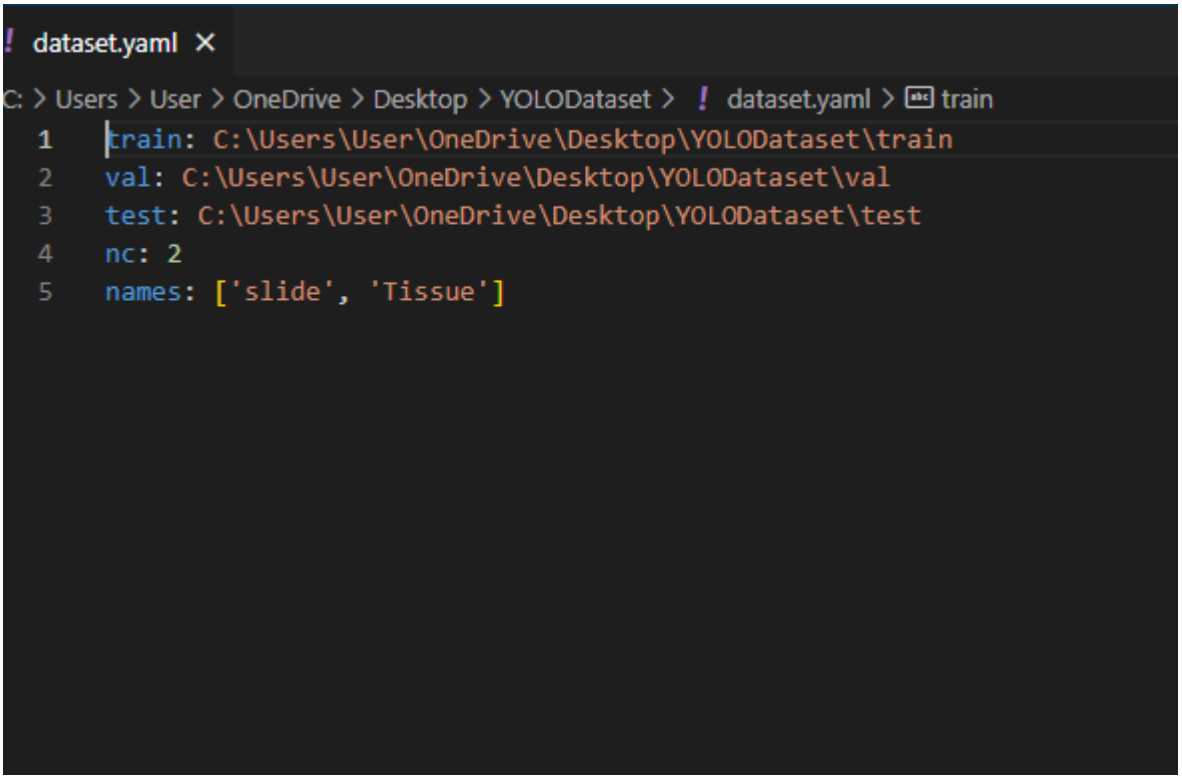
```python
# Some standard imports
import io
import numpy as np

from torch import nn
import torch.utils.model_zoo as model_zoo
import torch.onnx

# Super Resolution model definition in PyTorch
import torch.nn as nn
import torch.nn.init as init


class SuperResolutionNet(nn.Module):
    def __init__(self, upscale_factor, inplace=False):
        super(SuperResolutionNet, self).__init__()

        self.relu = nn.ReLU(inplace=inplace)
        self.conv1 = nn.Conv2d(3, 64, (5, 5), (1, 1), (2, 2))
        self.conv2 = nn.Conv2d(64, 64, (3, 3), (1, 1), (1, 1))
        self.conv3 = nn.Conv2d(64, 32, (3, 3), (1, 1), (1, 1))
        self.conv4 = nn.Conv2d(32, upscale_factor ** 2, (3, 3), (1, 1), (1, 1))
        self.pixel_shuffle = nn.PixelShuffle(upscale_factor)

        self._initialize_weights()

    def forward(self, x):
        x = self.relu(self.conv1(x))
        x = self.relu(self.conv2(x))
        x = self.relu(self.conv3(x))
        x = self.pixel_shuffle(self.conv4(x))
        return x
```



```python
        self.pixel_shuffle = nn.PixelShuffle(upscale_factor)

        self._initialize_weights()

    def forward(self, x):
        x = self.relu(self.conv1(x))
        x = self.relu(self.conv2(x))
        x = self.relu(self.conv3(x))
        x = self.pixel_shuffle(self.conv4(x))
        return x

    def _initialize_weights(self):
        init.orthogonal_(self.conv1.weight, init.calculate_gain('relu'))
        init.orthogonal_(self.conv2.weight, init.calculate_gain('relu'))
        init.orthogonal_(self.conv3.weight, init.calculate_gain('relu'))
        init.orthogonal_(self.conv4.weight)

# Create the super-resolution model by using the above model definition.
torch_model = SuperResolutionNet(upscale_factor=3)

# Load pretrained model weights
model_url = 'https://github.com/nawrasabuali/best/blob/main/best.pt'
batch_size = 1    # just a random number



# set the model to inference mode
torch_model.eval()

# Input to the model
x = torch.randn(batch_size, 3, 640, 640, requires_grad=True)
torch_out = torch_model(x)

# Export the model
```



https://www.youtube.com/watch?v=DMRlOWfRBKU&ab_channel=TheCodingBug

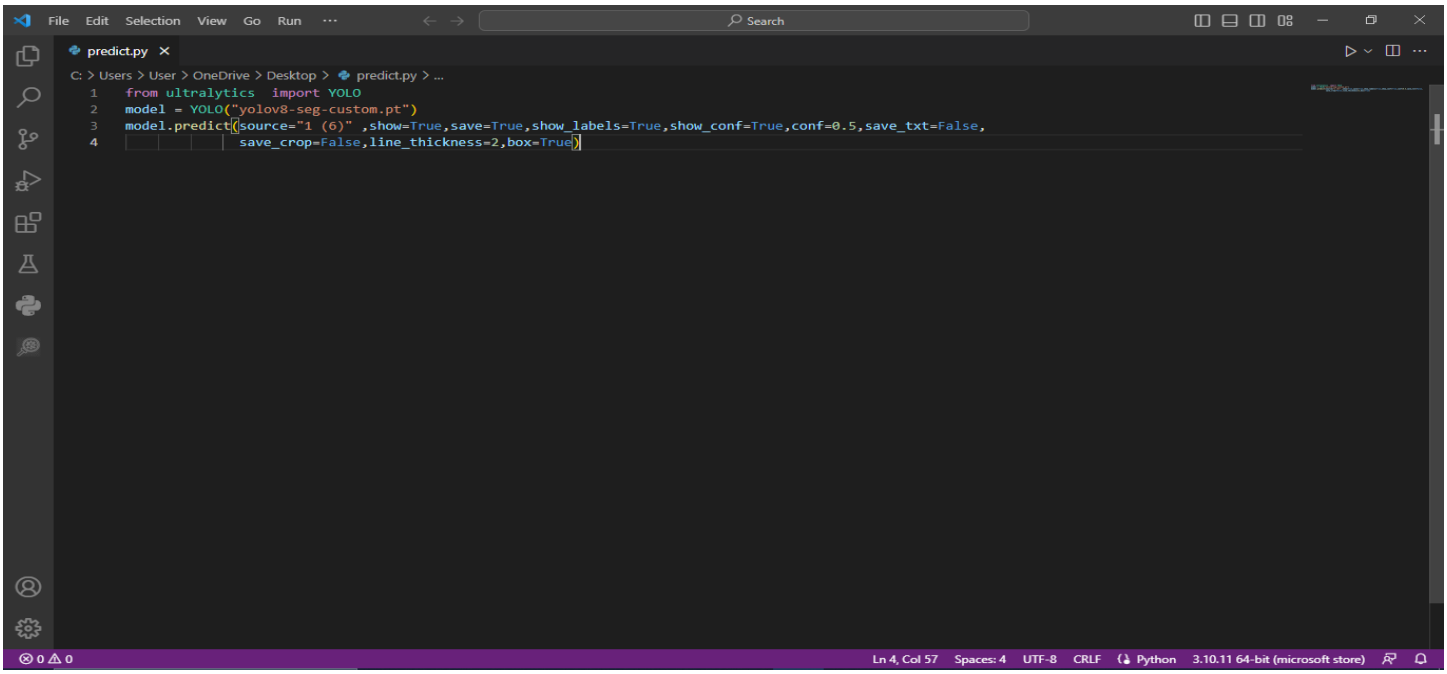


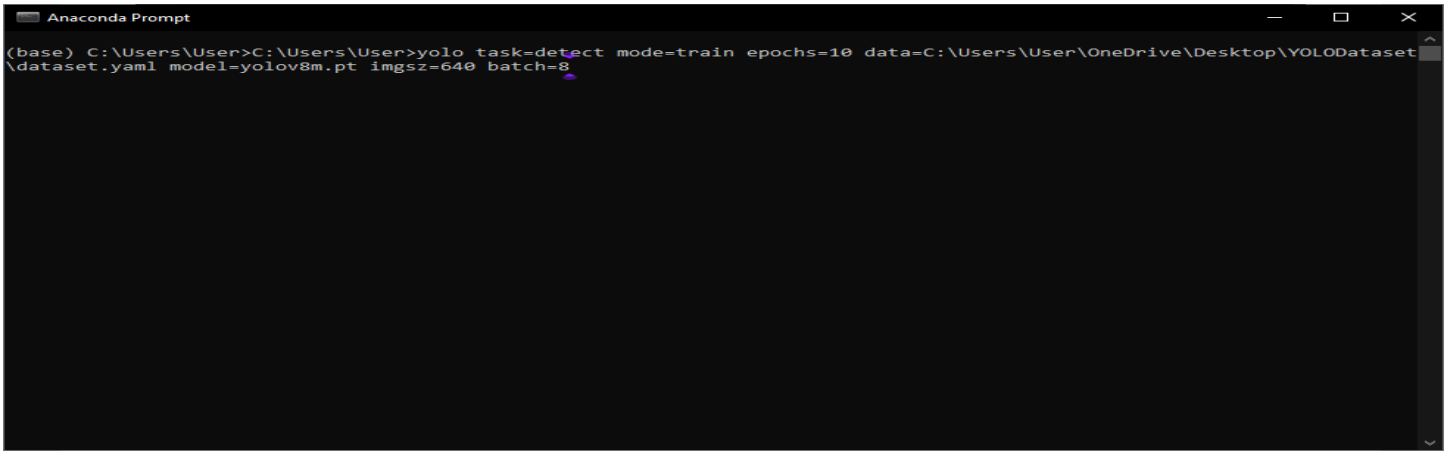
What is YOLO exactly?

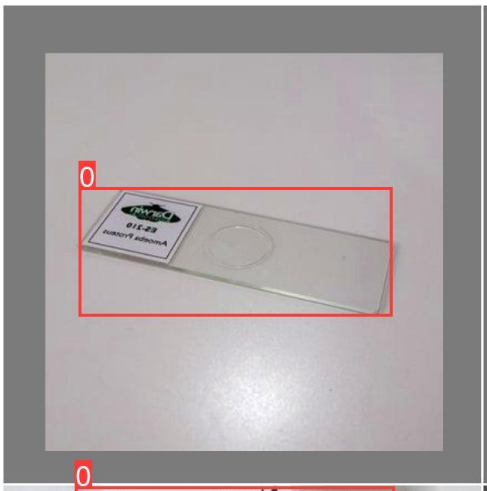
YOLO (You Only Look Once) is a method / way to do object detection. It is the algorithm /strategy behind how the code is going to detect objects in the image.[5]

“**Deep learning**: is subset of machine learning that uses neural networks with multiple layers to analyze complex patterns and relationships in data. It is inspired by the structure and function of the human brain, and has been successful in a variety of tasks, such as image recognition, natural language processing, and speech recognition.

Deep learning models are trained using large amounts of data and algorithms that are able to learn and improve over time, becoming more accurate as they process more data. This makes them well-suited to complex, real-world problems and enables them to learn and adapt to new situations.”[2]



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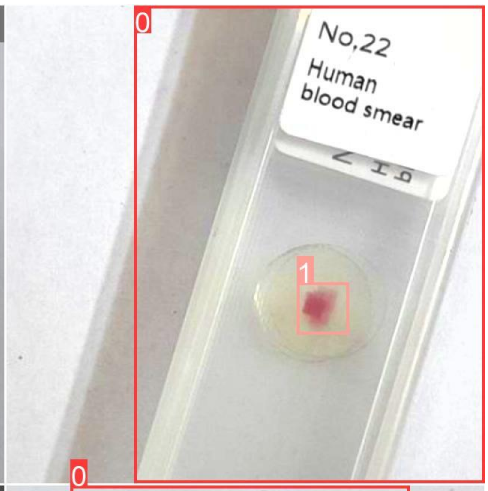
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Human
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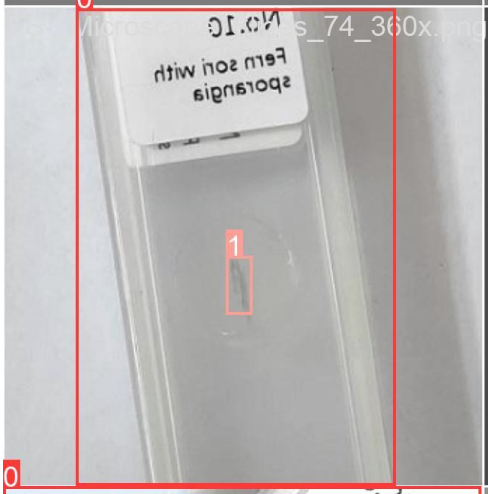
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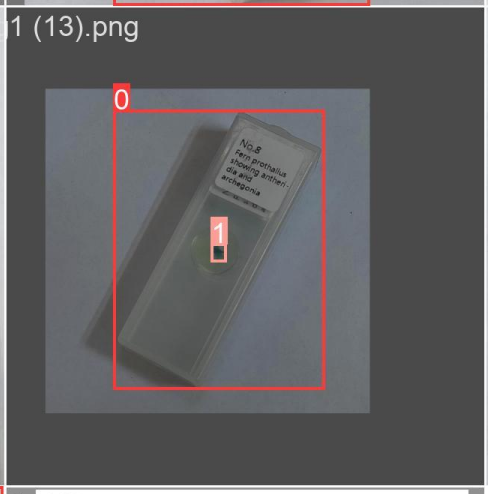
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1


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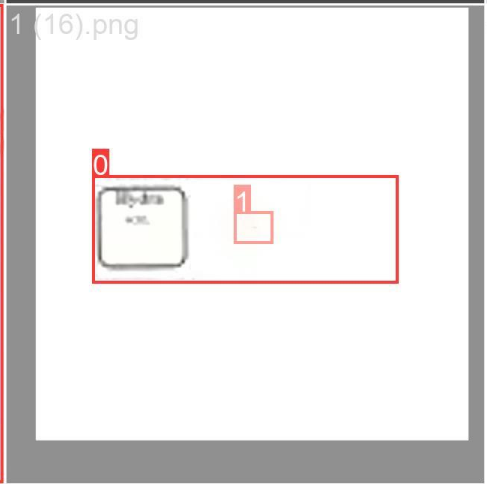
Euglena w.m


0
Striated muscle
1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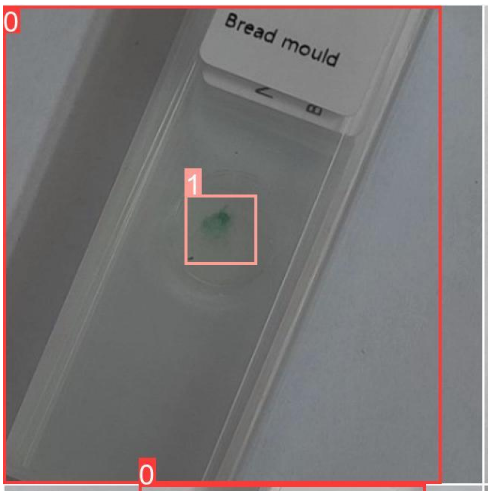
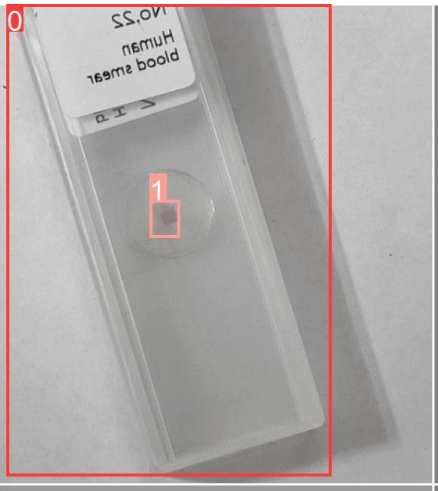
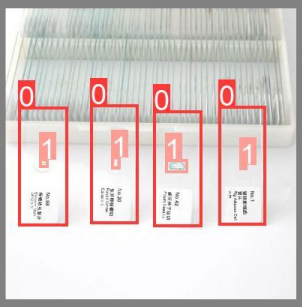
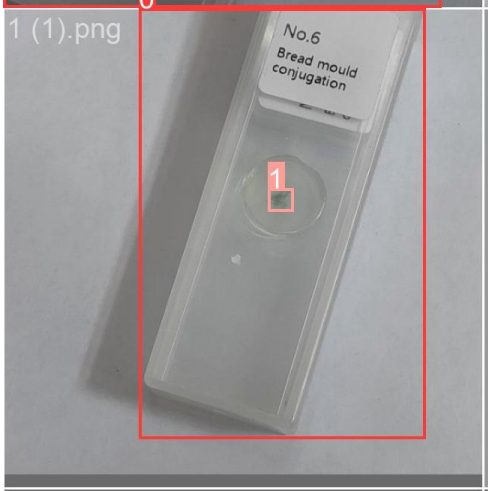




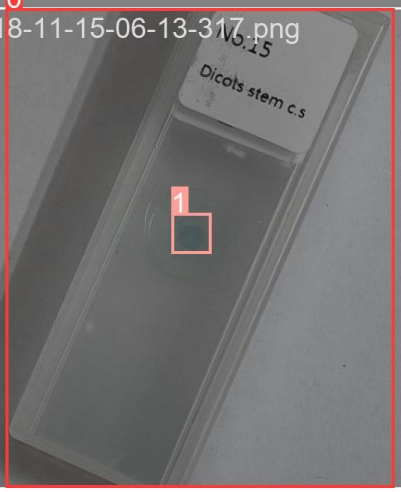


1 (1).png



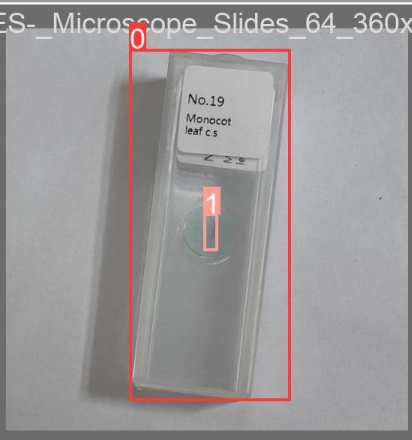
1 (8).png

2018-11-15-06-13-317.png

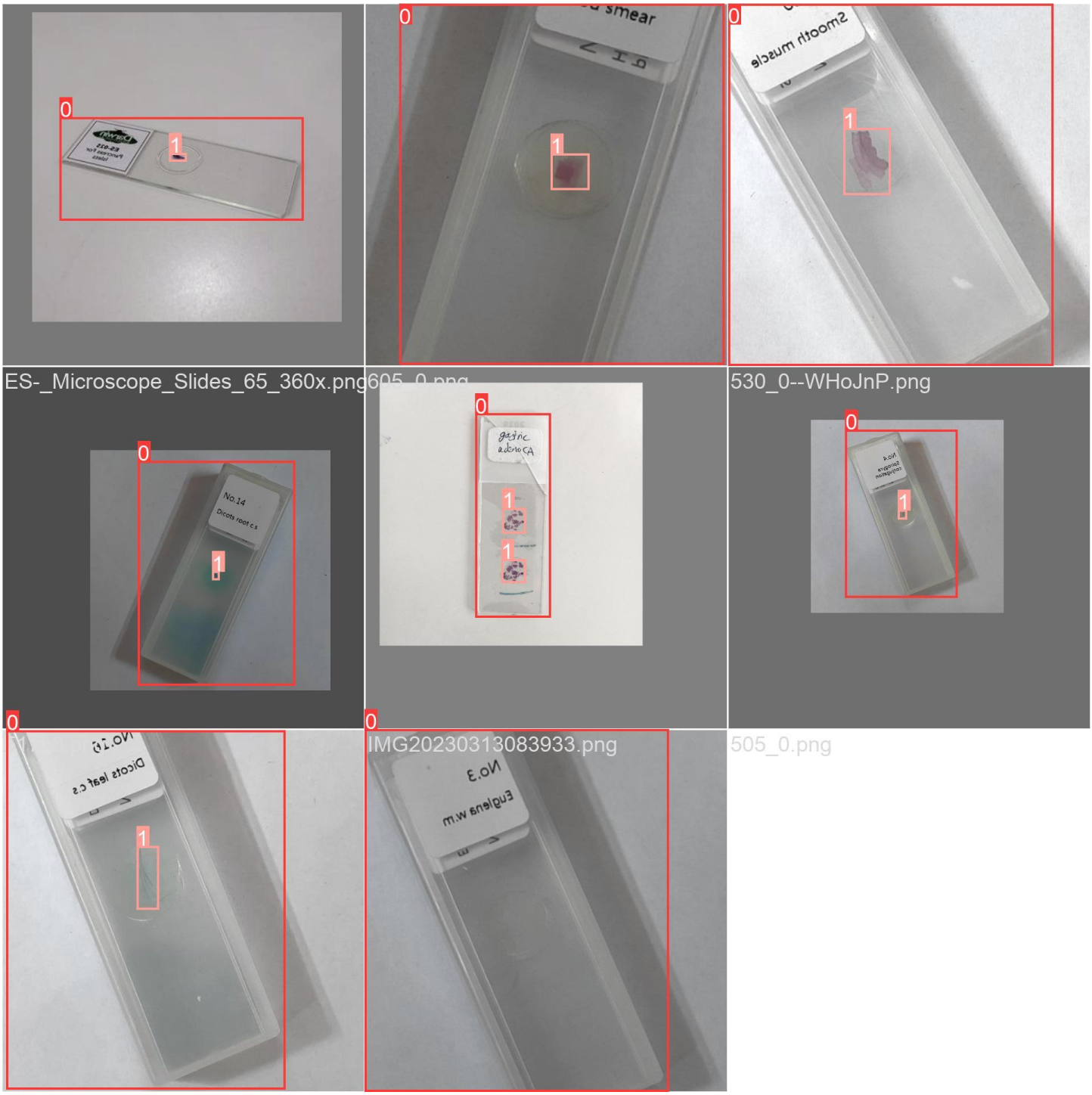


507_0--sb7OZH.png

ES-_Microscope_Slides_64_360x.png



523_0--4hpWGp.png



“The Open Neural Network Exchange (ONNX) is an open-source artificial intelligence ecosystem of technology companies and research organizations that establish open standards for representing machine learning algorithms and software tools to promote innovation and collaboration in the AI sector.”[3]


slide
Tissue
1 (11).png
1 (28).png
ES-_Microscope_Slides_10_Herbs.jpg
prepared-slide-set-c
1 (23).png
1 (30).png
IMG20230315144044.png
1 (26).png
1 (9).png
IMG20230315144057.png

https://learn.microsoft.com/en-us/azure/machine-learning/how-to-use-automl-onnx-model-dotnet

https://heartbeat.comet.ml/object-detection-in-android-ios-using-xamarin-forms-and-onnx-aa7d1d5bed3c

https://towardsdatascience.com/how-to-create-a-simple-object-detection-system-with-python-and-imageai-ee1bcaf6b111

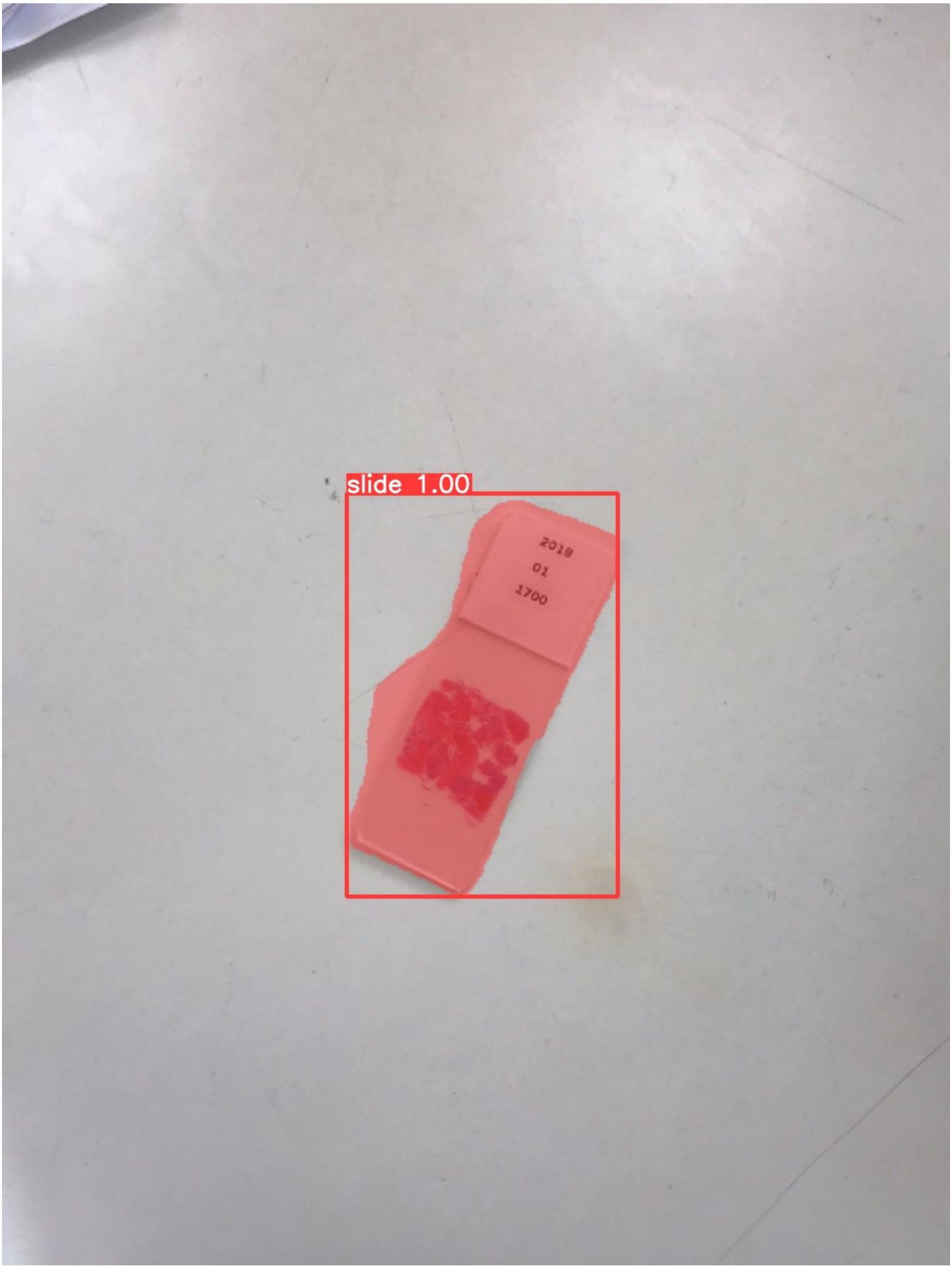
https://towardsdatascience.com/trian-yolov8-instance-segmentation-on-your-data-6ffa04b2debd

https://www.tutorialspoint.com/how-to-detect-a-rectangle-and-square-in-an-image-using-opencv-python

The **ultralytics** package provides an easy-to-use interface for running YOLO (You Only Look Once) object detection models. The **YOLO** class in the package allows you to load a pre-trained YOLO model and perform object detection on images or videos. The code you provided uses the **predict** method of the **YOLO** class to perform object detection on an input image. The **predict** method takes several arguments that control the behavior of the object detection and how the results are displayed and saved.

Here's a brief explanation of the arguments used in your code:

- **source**: The path to the input image file.
- **show**: If **True**, displays the input image with the detected objects highlighted. Default is **True**.
- **save**: If **True**, saves the output image with the detected objects highlighted. Default is **True**.
- **show_conf**: If **True**, shows the confidence score for each detected object. Default is **True**.
- **conf**: The minimum confidence score required for a detected object to be displayed or saved. Default is **0.25**.
- **show_labels**: If **True**, shows the label for each detected object. Default is **True**.
- **save_crop**: If **True**, saves a crop of each detected object. Default is **False**.
- **box**: If **True**, draws a bounding box around each detected object. Default is **True**


slide 1.00
2019
01
1700

Object detection is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos. Well-researched domains of object detection include face detection and pedestrian detection. Object detection has applications in many areas of computer vision, including image retrieval and video surveillance.[4]

Methods for object detection generally fall into either neural network-based or non-neural approaches. For non-neural approaches, it becomes necessary to first define features using one of the methods below, then using a technique such as support vector machine (SVM) to do the classification. On the other hand, neural techniques are able to do end-to-end object detection without specifically defining features, and are typically based on convolutional neural networks (CNN).

Non-neural approaches:

Viola–Jones object detection framework based on Haar features

Scale-invariant feature transform (SIFT)

Histogram of oriented gradients (HOG) features

Neural network approaches:

Region Proposals (R-CNN, Fast R-CNN, Faster R-CNN, cascade R-CNN.)

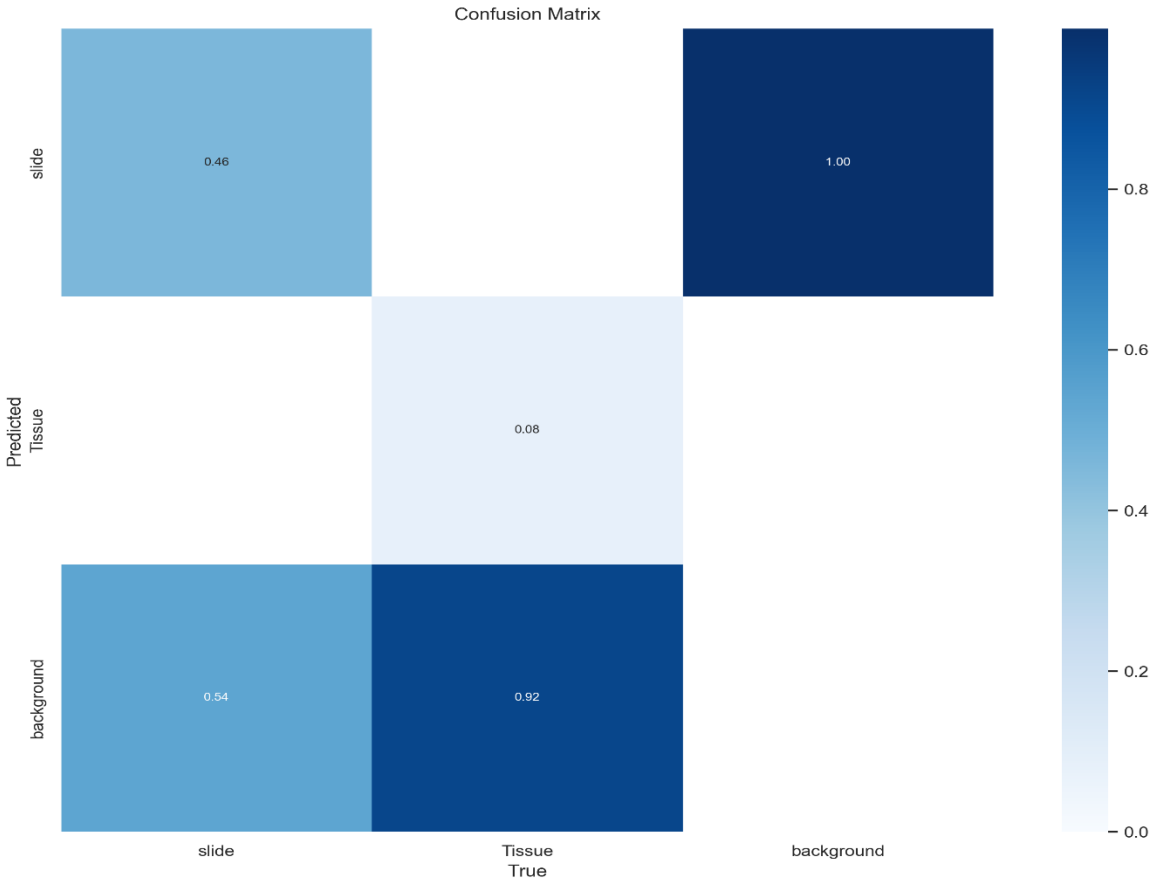
Single Shot MultiBox Detector (SSD)

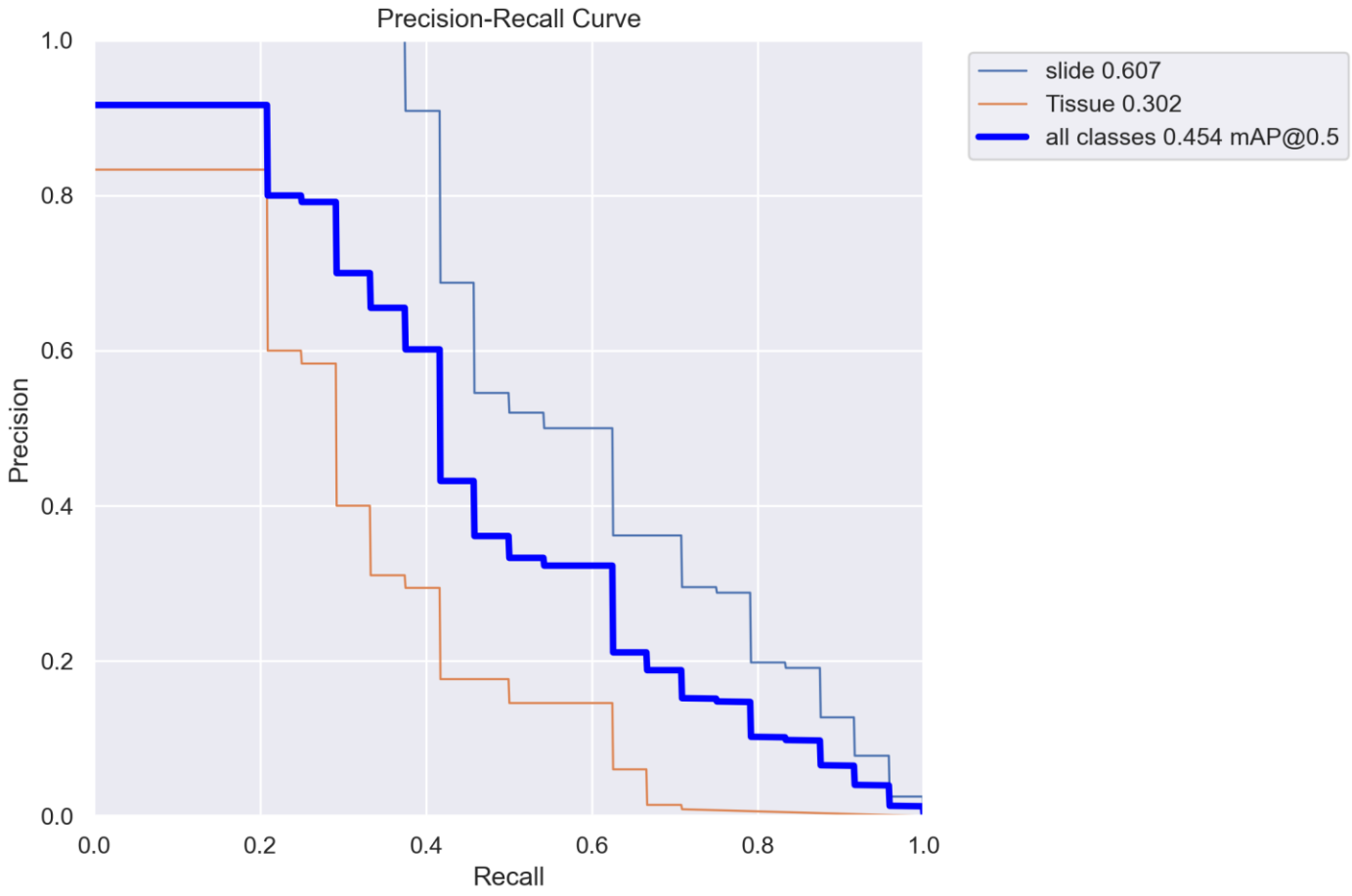
You Only Look Once (YOLO)

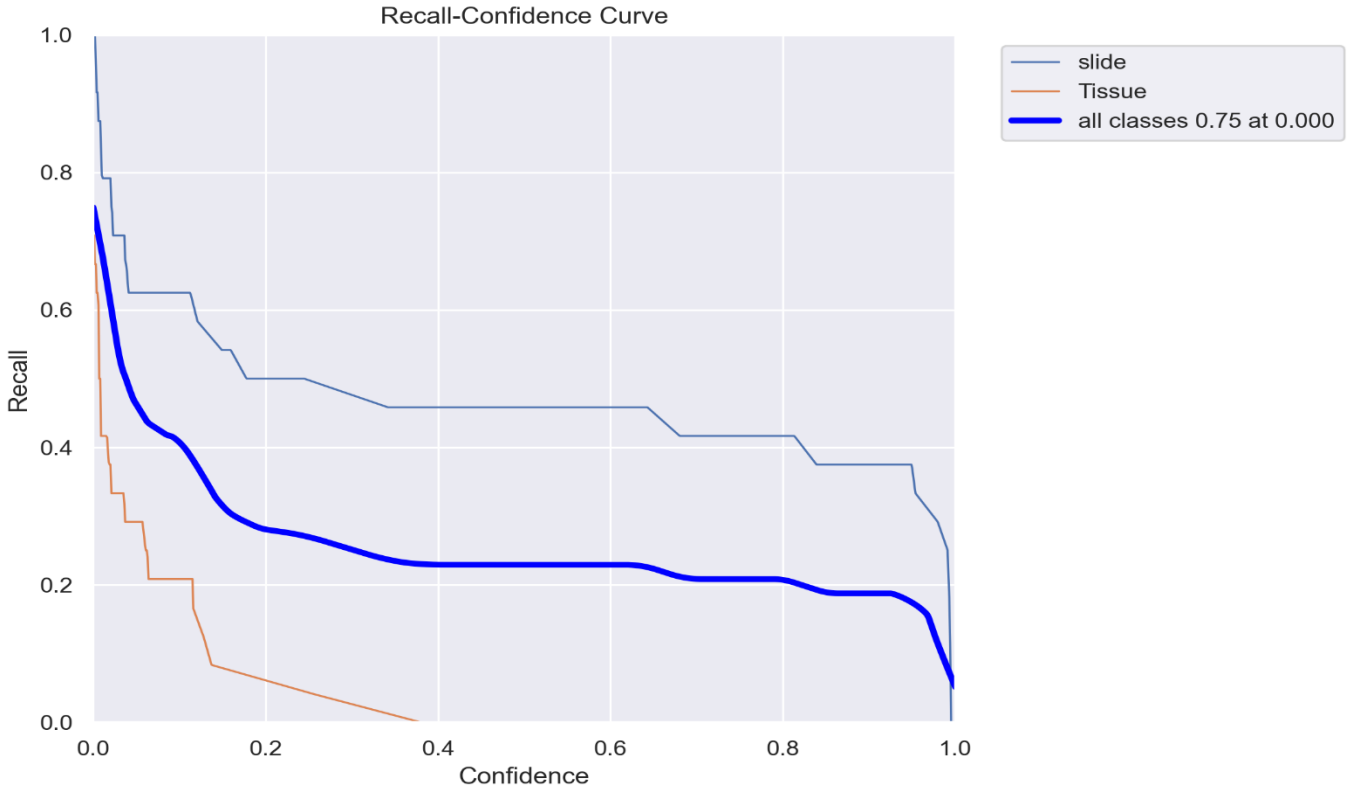
Single-Shot Refinement Neural Network for Object Detection (RefineDet)

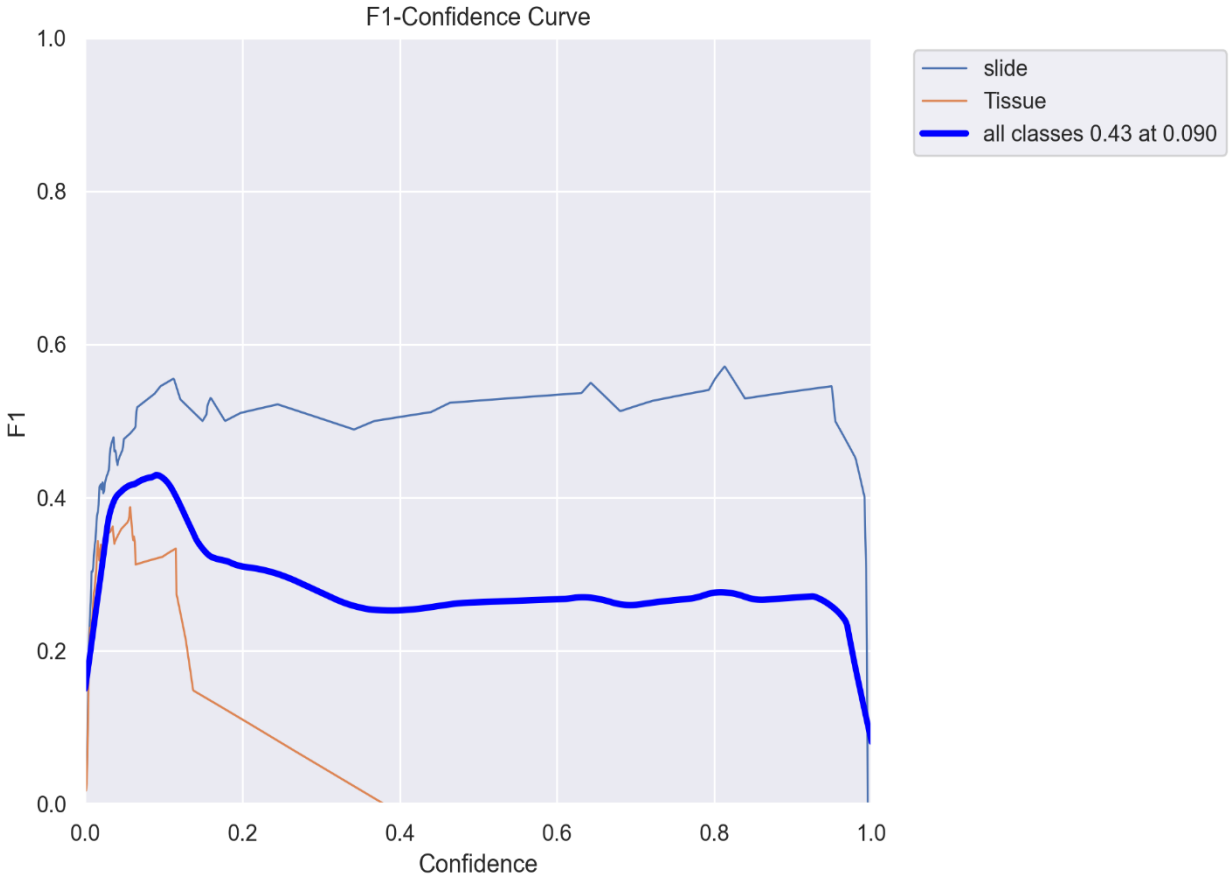
Retina-Net

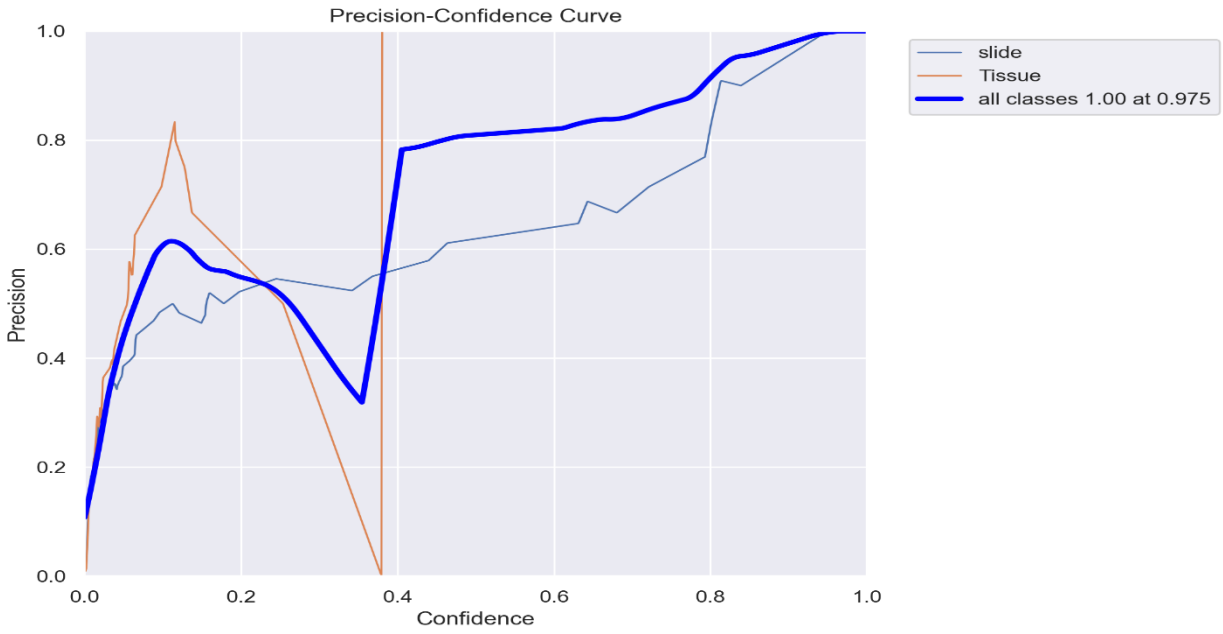
Deformable convolutional networks

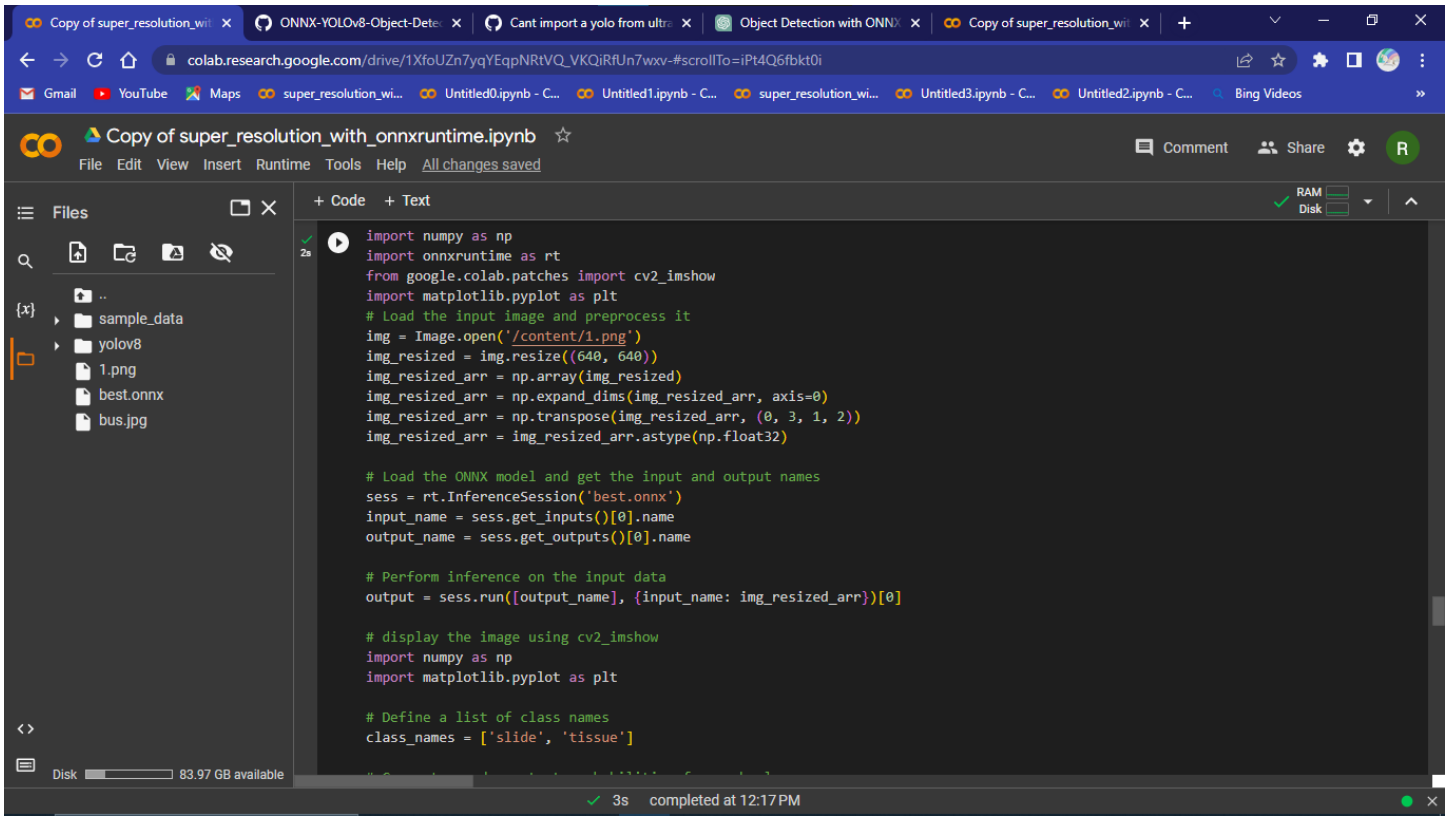

Confusion Matrix
slide
Tissue
background
Predicted
0.46
1.00
0.08
0.54
0.92
slide
Tissue
background
True
0.0
0.2
0.4
0.6
0.8

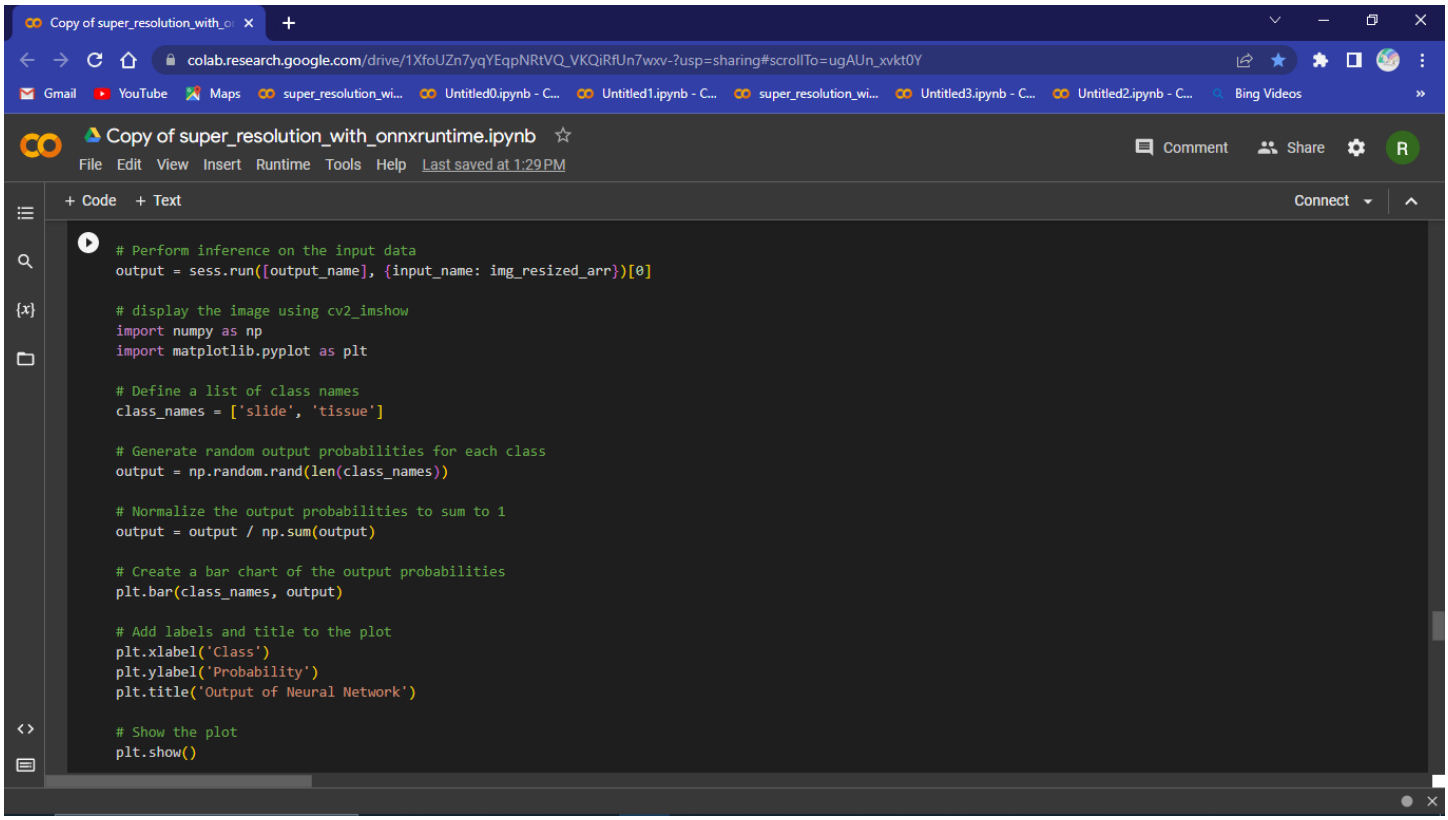

Precision-Recall Curve
slide 0.607
Tissue 0.302
all classes 0.454 mAP@0.5
Precision
Recall
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0

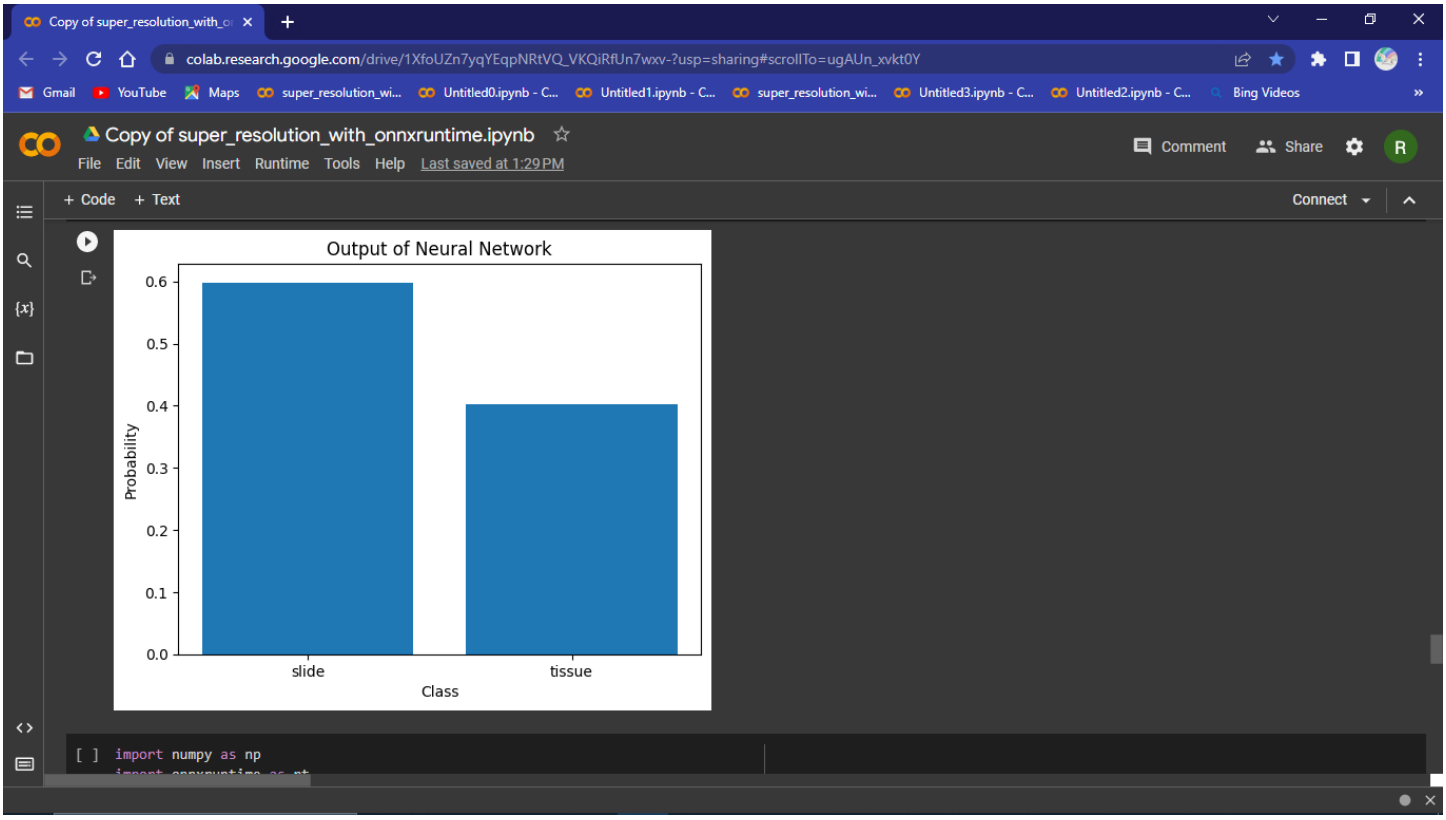

Recall-Confidence Curve
slide
Tissue
all classes 0.75 at 0.000
Recall
Confidence
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0


F1-Confidence Curve
slide
Tissue
all classes 0.43 at 0.090
F1
Confidence
0.0
0.2
0.4
0.6
0.8
1.0


Precision-Confidence Curve
slide
Tissue
all classes 1.00 at 0.975
Precision
Confidence
0.0
0.2
0.4
0.6
0.8
1.0


Copy of super_resolution_with_onnxruntime.ipynb
File Edit View Insert Runtime Tools Help All changes saved
Comment Share
+ Code + Text
RAM Disk
Files
sample_data
yolov8
1.png
best.onnx
bus.jpg
Disk 83.97 GB available
import numpy as np
import onnxruntime as rt
from google.colab.patches import cv2_imshow
import matplotlib.pyplot as plt
# Load the input image and preprocess it
img = Image.open('/content/1.png')
img_resized = img.resize((640, 640))
img_resized_arr = np.array(img_resized)
img_resized_arr = np.expand_dims(img_resized_arr, axis=0)
img_resized_arr = np.transpose(img_resized_arr, (0, 3, 1, 2))
img_resized_arr = img_resized_arr.astype(np.float32)
# Load the ONNX model and get the input and output names
sess = rt.InferenceSession('best.onnx')
input_name = sess.get_inputs()[0].name
output_name = sess.get_outputs()[0].name
# Perform inference on the input data
output = sess.run([output_name], {input_name: img_resized_arr})[0]
# display the image using cv2_imshow
import numpy as np
import matplotlib.pyplot as plt
# Define a list of class names
class_names = ['slide', 'tissue']
3s completed at 12:17 PM


Copy of super_resolution_with_onnxruntime.ipynb
File Edit View Insert Runtime Tools Help Last saved at 1:29 PM
Comment Share
+ Code + Text
Connect
# Perform inference on the input data
output = sess.run([output_name], {input_name: img_resized_arr})[0]
# display the image using cv2_imshow
import numpy as np
import matplotlib.pyplot as plt
# Define a list of class names
class_names = ['slide', 'tissue']
# Generate random output probabilities for each class
output = np.random.rand(len(class_names))
# Normalize the output probabilities to sum to 1
output = output / np.sum(output)
# Create a bar chart of the output probabilities
plt.bar(class_names, output)
# Add labels and title to the plot
plt.xlabel('Class')
plt.ylabel('Probability')
plt.title('Output of Neural Network')
# Show the plot
plt.show()


Copy of super_resolution_with_
colab.research.google.com/drive/1XfoUZn7yqYEqpNRtVQ_VKQiRfUn7wxv-?usp=sharing#scrollTo=ugAUn_xvkt0Y
Gmail
YouTube
Maps
super_resolution_wi...
Untitled0.ipynb - C...
Untitled1.ipynb - C...
super_resolution_wi...
Untitled3.ipynb - C...
Untitled2.ipynb - C...
Bing Videos
Copy of super_resolution_with_onnxruntime.ipynb
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Output of Neural Network
Probability
0.0
0.1
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Class
[ ] import numpy as np

[1]https://learn.microsoft.com/en-us/xamarin/get-started/what-is-xamarin

[2] https://www.geeksforgeeks.org/difference-between-machine-learning-and-deep-learning/

[3] https://en.wikipedia.org/wiki/Open_Neural_Network_Exchange

[4] https://en.wikipedia.org/wiki/Object_detection

[5] https://towardsdatascience.com/yolo-object-detection-with-opencv-and-python-21e50ac599e9