



WPF'e Giriş

Öğr.Gör.Erkan HÜRNALI

T.C. ANKARA ÜNİVERSİTESİ



Yol Haritamız



Giriş
Sunum Katmanları
Neydi?
Sunum Katmanları ile
Neler Yapılabilirdi
Neden Microsoft?



WPF Nedir?
VCL Application,
FireMonkey
Application, Windows
Forms Application,
WPF Application
İlişkileri ve
Karşılaştırmaları
.NET Framework
«Merhaba WPF»



Tasarım ve Kodlammanın
Birbirinden Ayrılmaması

XAML Dili
Microsoft Blend



XBAP Nedir?

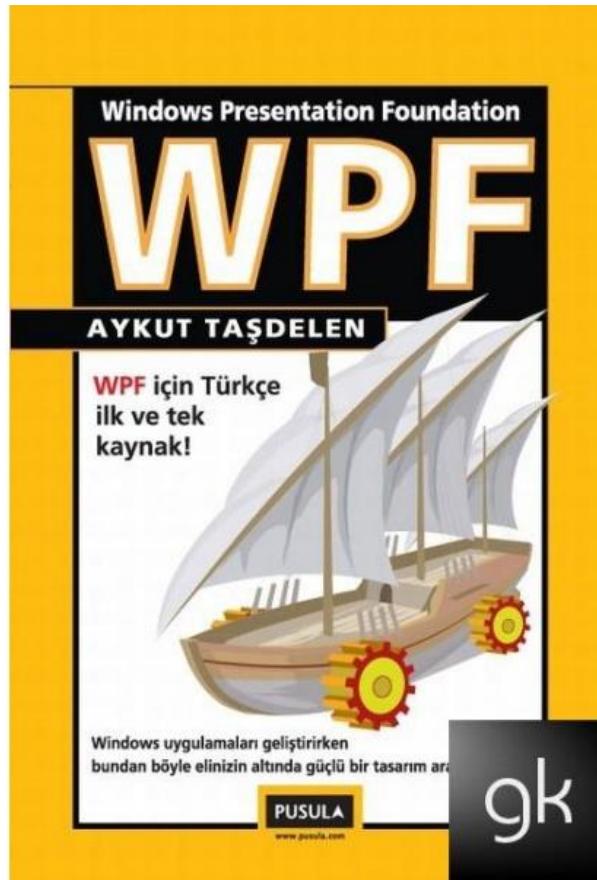
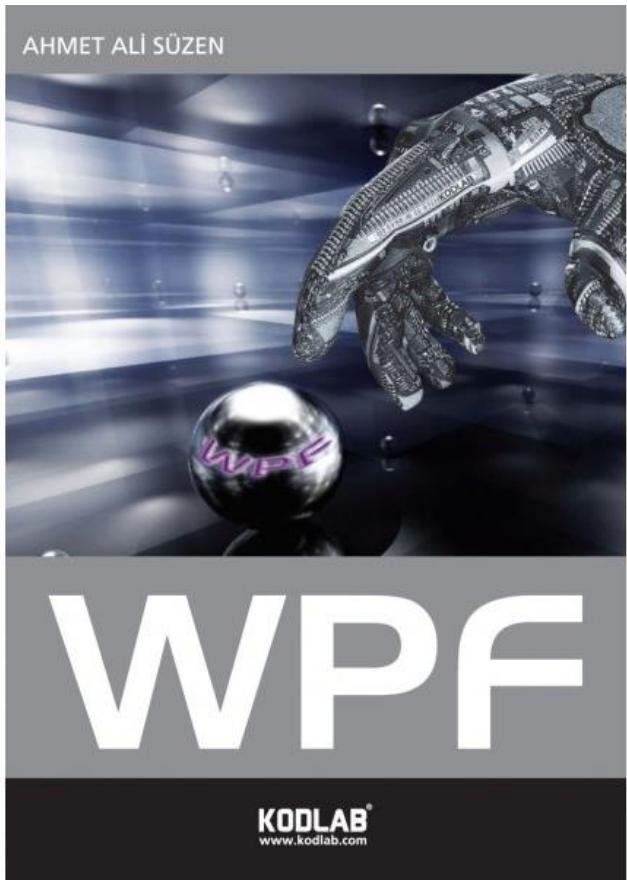
«Merhaba
XBAP»



Silverlight Nedir?

«Merhaba
Silverlight»

Giriş



Ayrıca dersin arayüzünde,

- ✓ E-Kitaplar (Maalesef ingilizce)
- ✓ Bloglar ve Öğretici (Tutorials) Bağlantıları

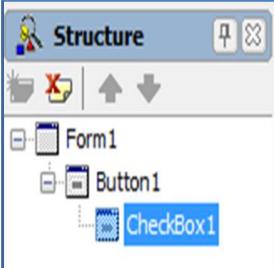
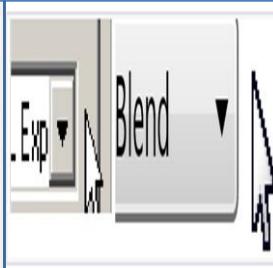
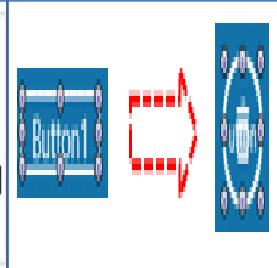
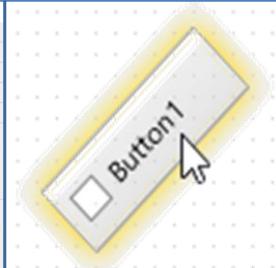
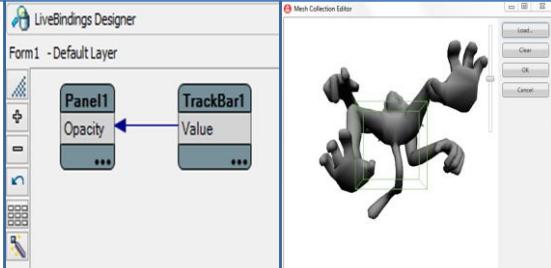
....yer alacaktır.

Sunum Katmanları Neydi?



- Çok katmanlı yazılım mimarisi
- Tasarımcı – Programcı Ayrımı
- Kaynak canavarı olan günümüz uygulamaları
- CPU – GPU (mythbusters ☺)
- Firemonkey, WPF, Silverlight

Sunum Katmanlarıyla Neler Yapılabilirdi?

							
Nesne Kompozisyonları	Vektörel Çizimler	Stiller	Efektler	Animasyonlar	Tetikleyiciler	Veri Bağlamalar	3D

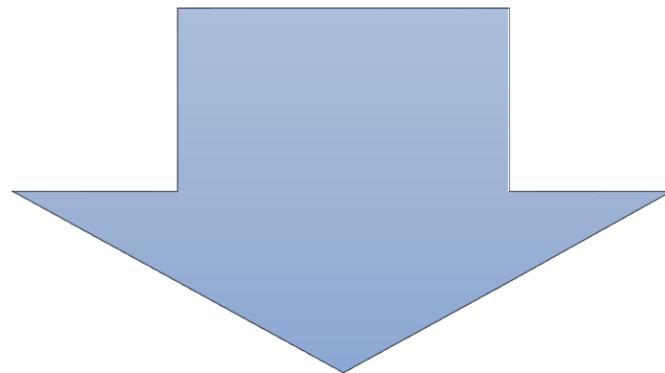
Neden Microsoft?

- Bol Kaynak
- MSDN
- Express Sürümeler
- DreamSpark
- Mantar – MVP’ler
- Web’e Bakan Yüzü: XBAP, Silverlight
- Popüler Kültür (!)

WPF Nedir?

WPF yeni nesil kullanıcı arayüzü geliştirme ve görüntüleme platformudur. Bu yeni platformun sağlamış olduğu yeni özellikler ile görsel olarak daha modern ,kullanıcı ile daha etkileşimli, içerik sunumunda daha esnek, uygulamalarda kullanılan ses ve görüntü lerin daha kolay bir şekilde gösterilmesi ve zengin içerikli uygulamaların kolay ve hızlı bir şekilde geliştirilmesi sağlanmaktadır. WPF'in mimarisinden dolayı çalıştığı sistem üzerindeki donanımı yoğun işlemlerde dahi en etkin biçimde kullanarak performans konusunda tatmin edici sonuçlar vermektedir.

Karşılaştırmalar

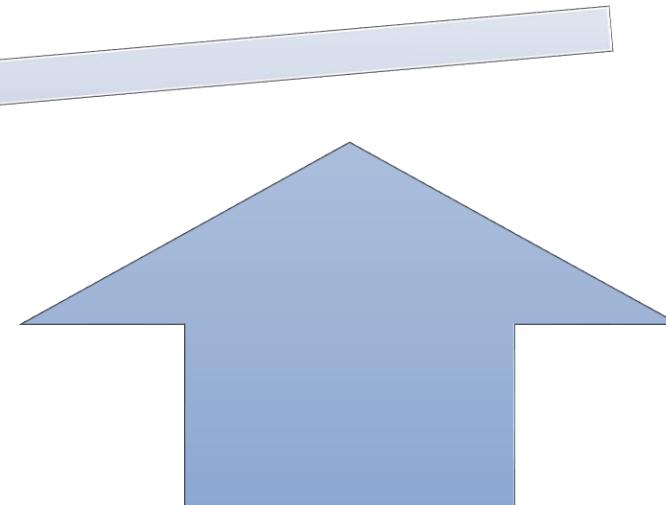


#CPU

- VCL Application
- Windows Forms

#GPU

- FireMonkey Application
- WPF Application



.Net Framework



System.Windows

Style ⑩
Trigger ⑩
UIElement3D NEW
Visibility ⑩
Window ⑩

System.Windows.Controls

Border ⑩
Button ⑩
CheckBox ⑩
ColumnDefinition ⑩
ContextMenu ⑩
ControlTemplate ⑩
DockPanel ⑩
FlowDocumentReader ⑩
Frame ⑩
Grid ⑩
Image ⑩
InkCanvas ⑩
ItemCollection ⑩
ItemsPresenter ⑩
ListBox ⑩

RowDefinition ⑩

ScrollViewer ⑩
Slider ⑩
SpellCheck ⑩
StackPanel ⑩
TabControl ⑩
TabItem ⑩
TextBlock ⑩
TextBox ⑩
ToolBar ⑩
ToolTip ⑩
TreeView ⑩
UIElementCollection ⑩
ViewBox ⑩
Viewport3D ⑩
VirtualizingStackPanel ⑩
WrapPanel ⑩

System.Windows.Controls.Primitives

Popup ⑩
RepeatButton ⑩
ScrollBar ⑩
StatusBar ⑩
TabPanel ⑩

ObjectDataProvider ⑩
XmlDataProvider ⑩

System.Windows.Documents

Block ⑩
Bold ⑩
Figure ⑩
FixedDocument ⑩
Floater ⑩
FlowDocument ⑩
Hyperlink ⑩
Inline ⑩
Italic ⑩
List ⑩
ListItem ⑩
Paragraph ⑩
Run ⑩
Section ⑩
Span ⑩
Table ⑩
TableCell ⑩
TableColumn ⑩
TableRowGroup ⑩
TextPointer ⑩

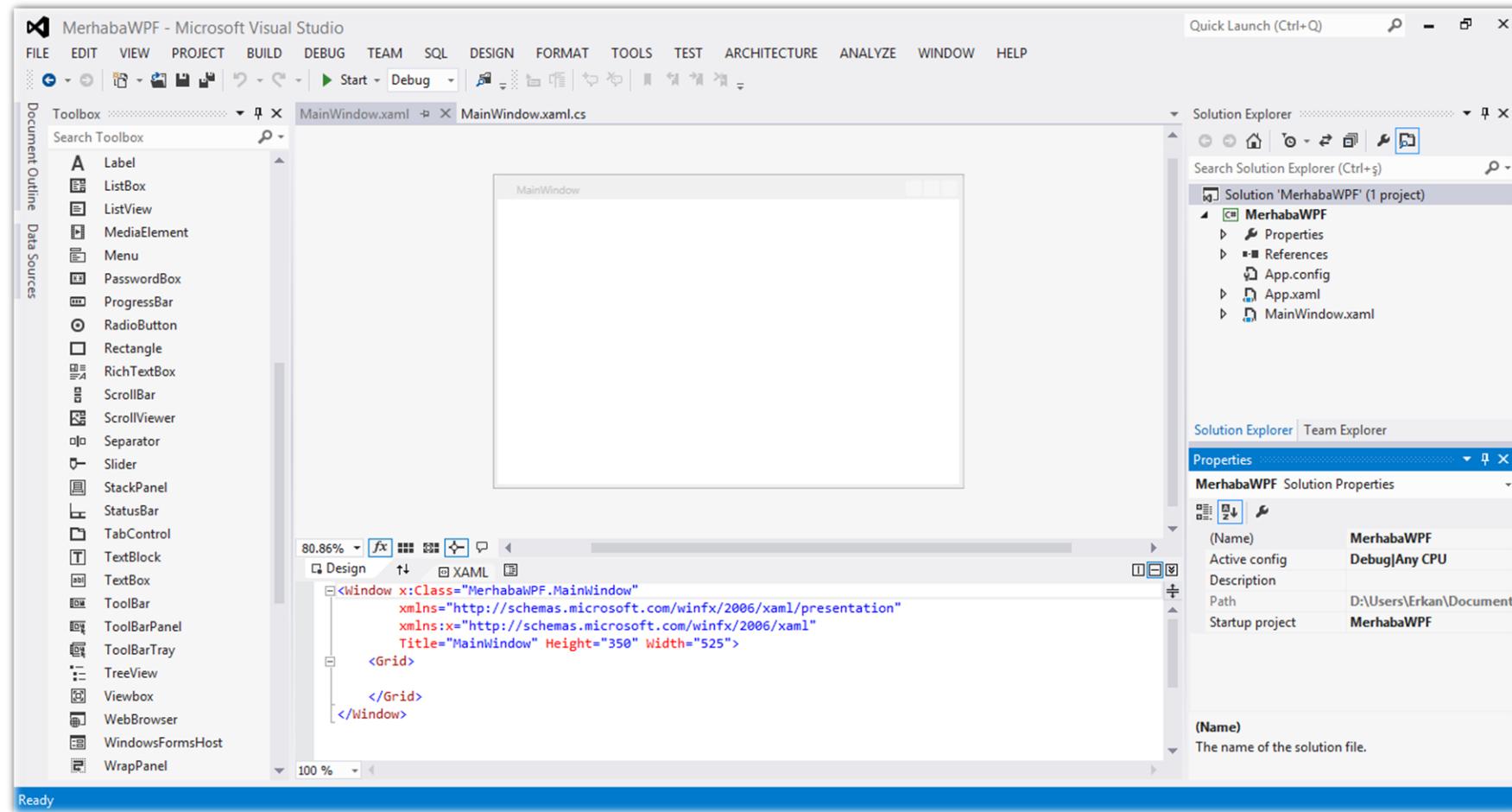
.NET'in Getirdikleri - Götürdükleri

Tartışma Konuları

- Doğal (Native) Kod - Aradıl (IL)
- Dağıtılmabilirlik - Taşınabilirlik
- Performans
- Güvenlik

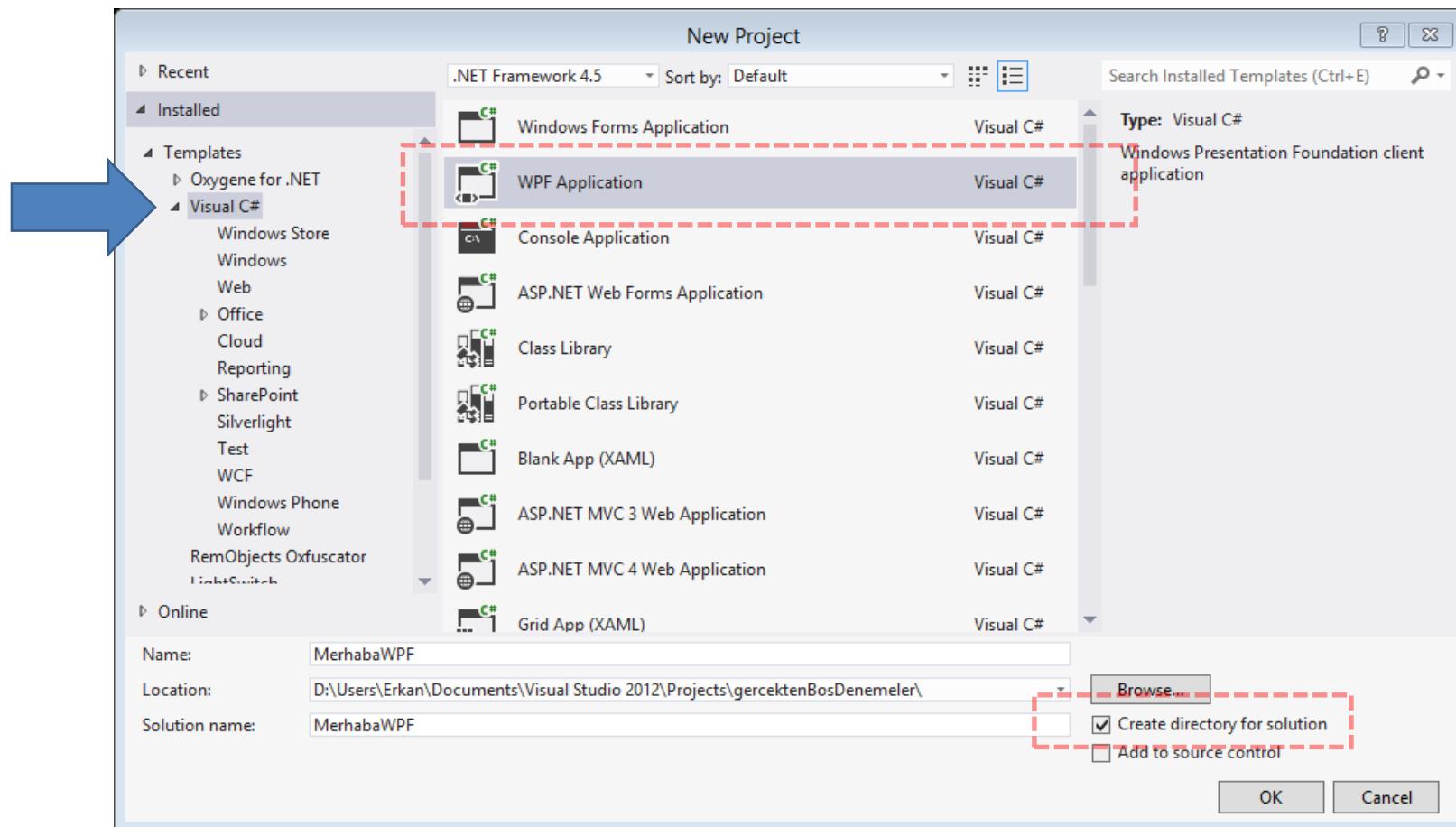


Visual Studio – Gelişmiş Bir IDE

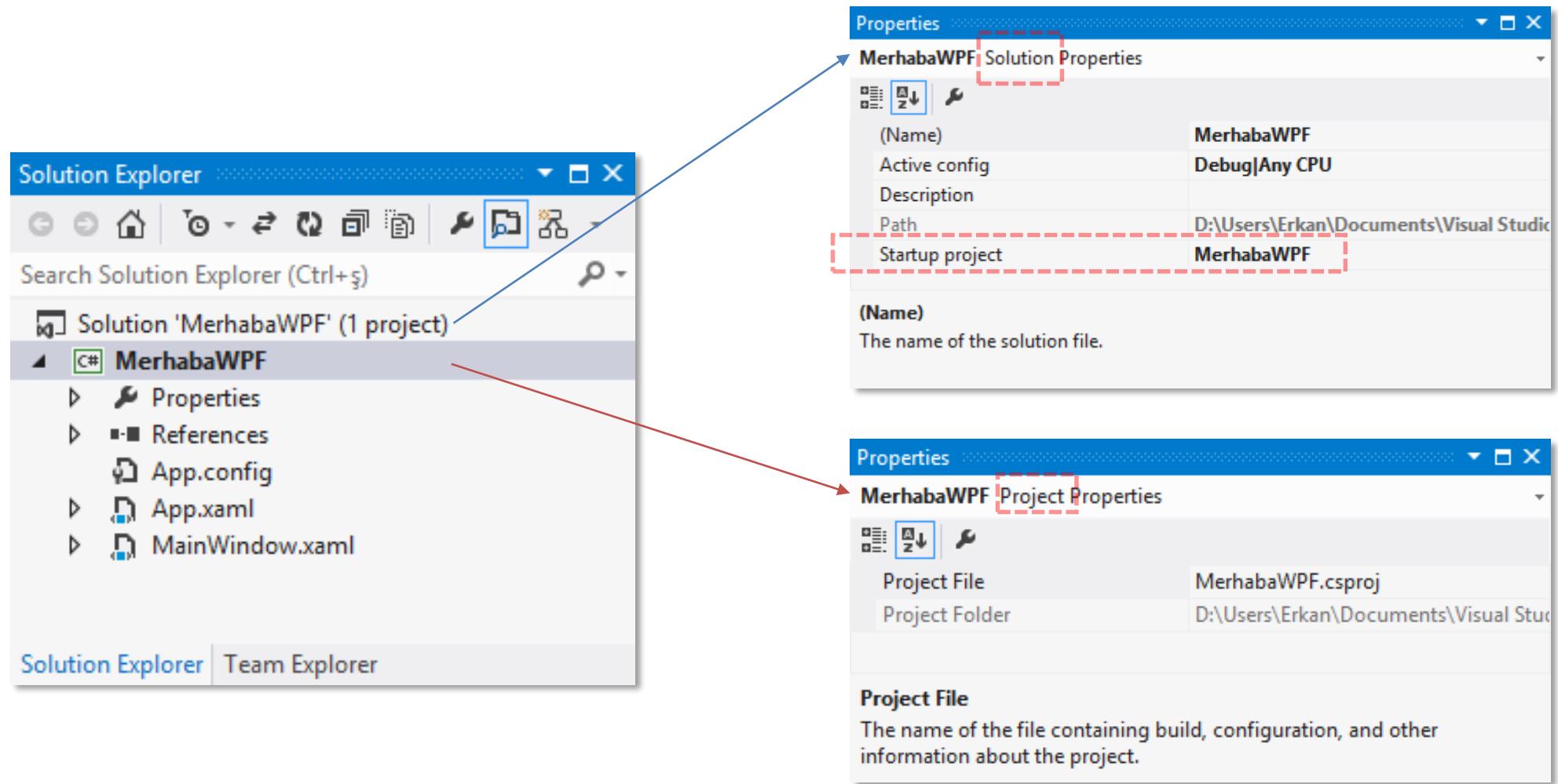


Bi' de hantallığı olmasa... 😊

Merhaba WPF – New Project



Merhaba WPF – Genel Görünüm



Merhaba WPF – Örneğimiz

- İsmimi yazabileceğim bir yerler olsun



TextBox

- Karar verdiğimde



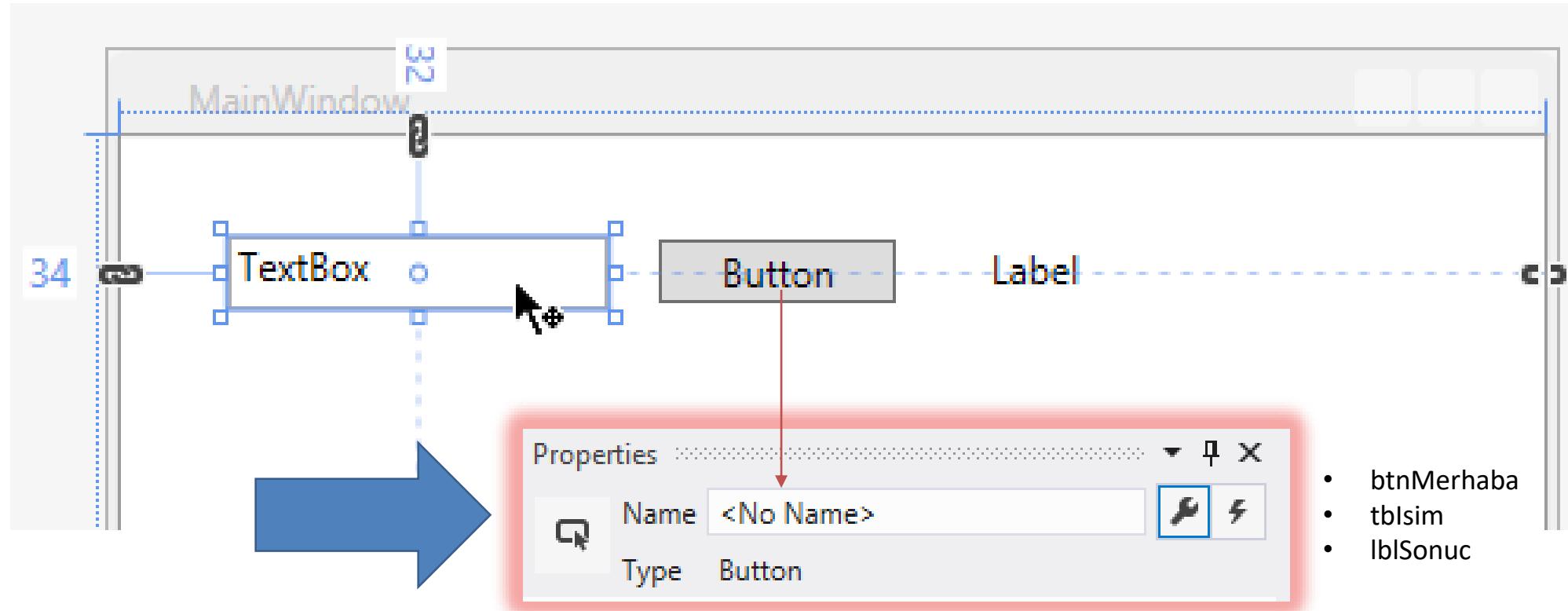
Button

- Bana ismimle hitap ederek «Merhaba» desin ☺



Label

Merhaba WPF – Tasarım



Merhaba WPF – Kodlama

The screenshot shows the Microsoft Visual Studio IDE interface. The title bar displays "MainWindow.xaml*" and "MainWindow.xaml.cs*". The main window shows the code for "MerhabaWPF.MainWindow". A tooltip is open over the word "System;" in the "using" statement, listing various namespaces:

- a System;
- b using System.Collections.Generic;
- b using System.Linq;
- b using System.Text;
- b using System.Threading.Tasks;
- b using System.Windows;
- b using System.Windows.Controls;
- b using System.Windows.Data;
- b using System.Windows.Documents;
- b using System.Windows.Input;
- b using System.Windows.Media;
- b using System.Windows.Media.Imaging;
- b using System.Windows.Navigation;
- b using System.Windows.Shapes;

```
MainWindow.xaml*
MainWindow.xaml.cs* X

MerhabaWPF.MainWindow
+ using ...
namespace MerhabaWPF
{
    /// <summary> ...
    public partial class MainWindow : Window
    {
        public MainWindow()
        {
            InitializeComponent();
        }

        private void btnMerhaba_Click(object sender, RoutedEventArgs e)
        {
            lblSonuc.Content = "Merhaba " + tbIsim.Text;
        }
    }
}
```

Merhaba WPF – Kodlama



Kullanıcının Müdahale Edebildikleri



Kullanıcının Müdahale Edemedikleri

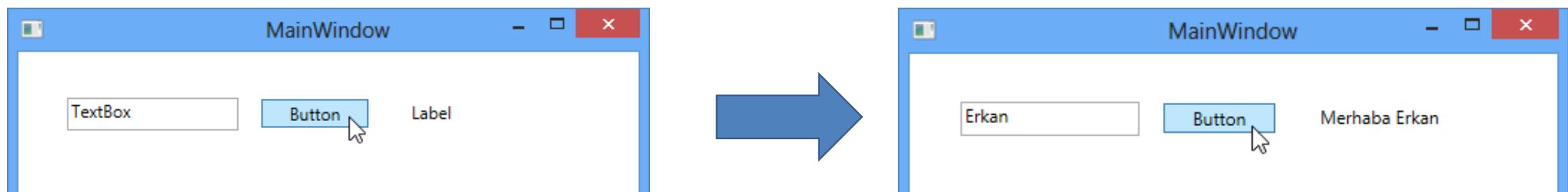


- Text (Delphi)
- Text (C Sharp – Windows Forms)
- Text (C Sharp – WPF)

- Caption (Delphi)
- Text (C Sharp – Windows Forms)
- Content (C Sharp – WPF)

Object

Merhaba WPF – Sonuç

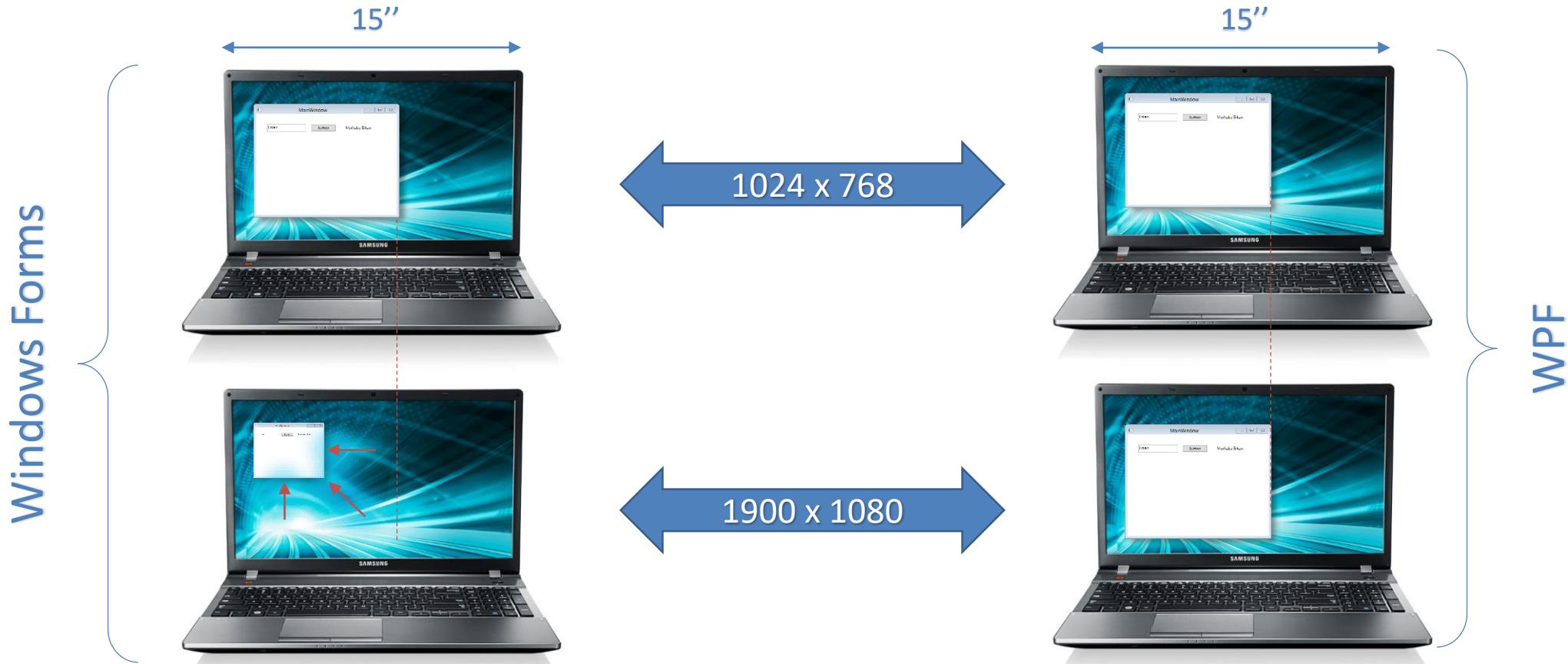


Merhaba WPF – N'oldu!

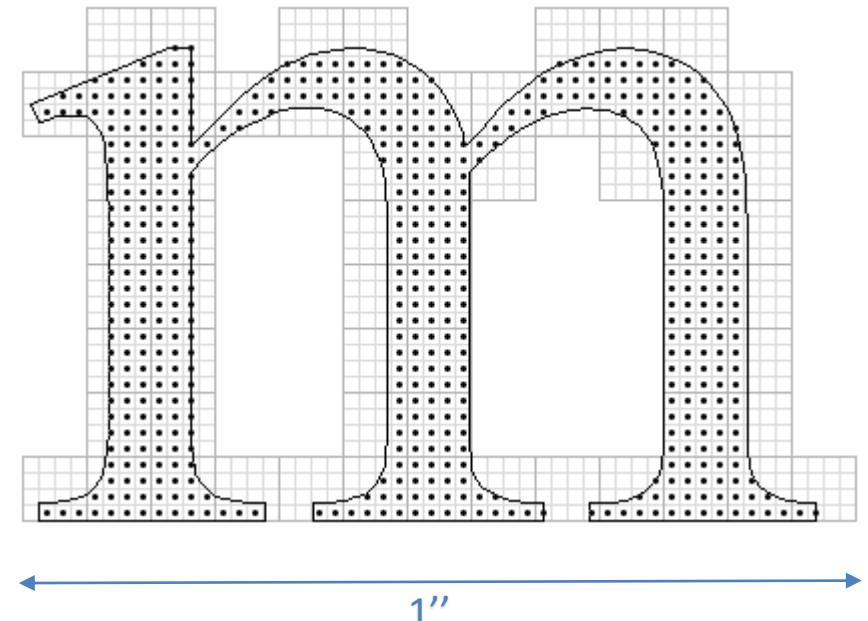
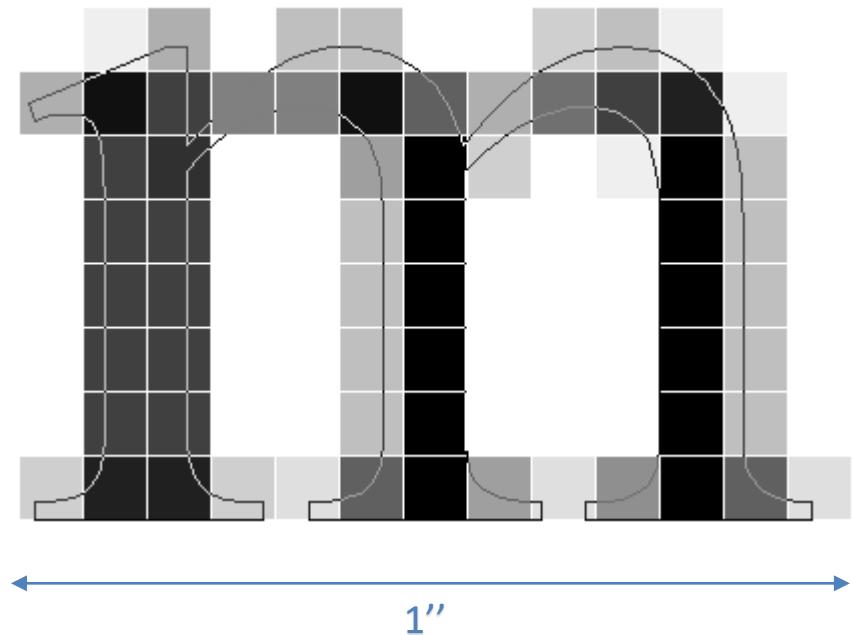


Görsel Programlama III (!) dersinde başımız göğe erdi mi? ☺

Merhaba WPF – Hatırlayın: Çözünürlük farkları artık dert değil demişti!

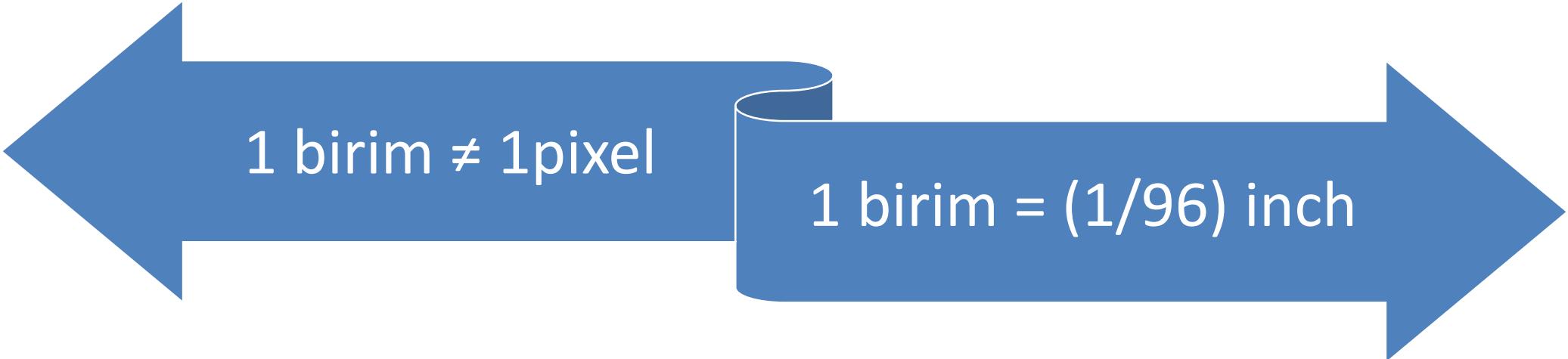


Merhaba WPF – Pekiyi! Ama Nasıl?



Hangisinin dpi'ı daha yüksek ?

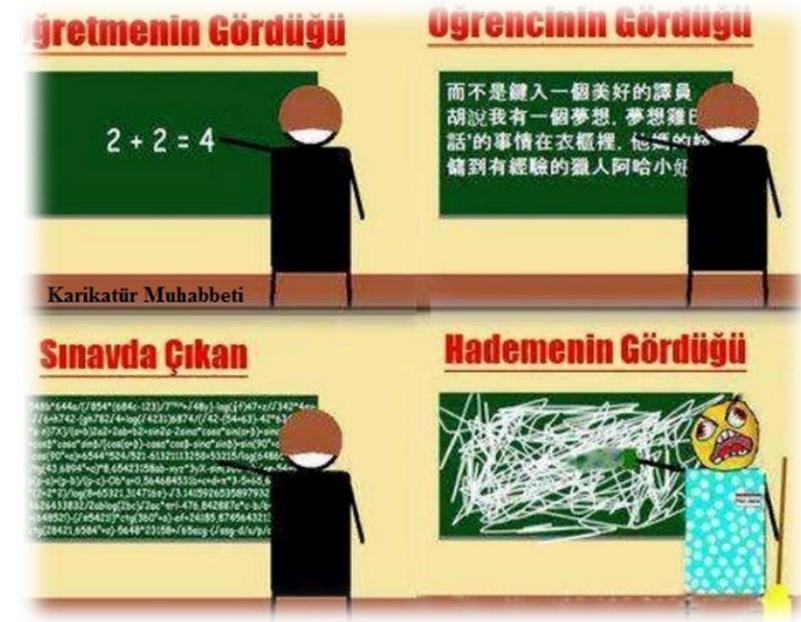
Merhaba WPF – O halde...



1 birim ≠ 1pixel

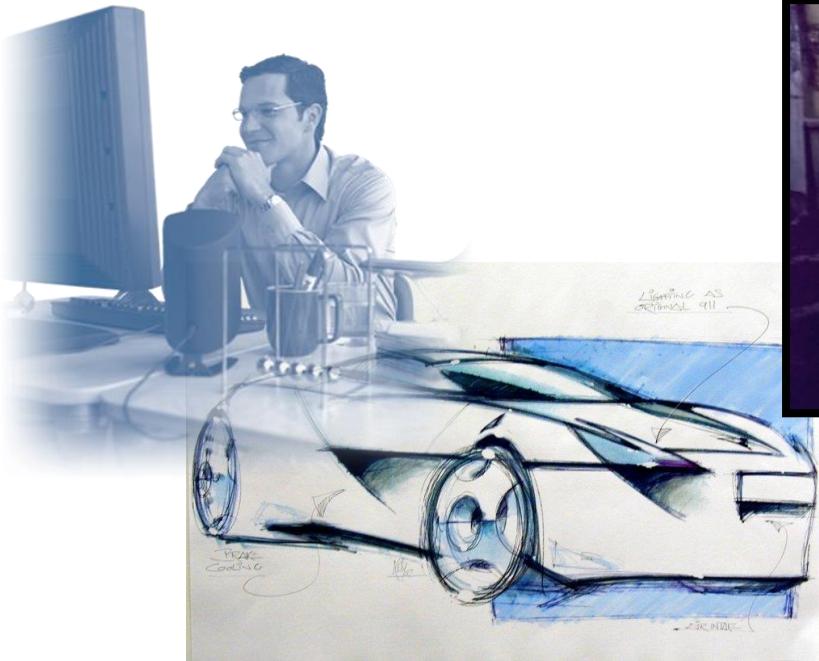
1 birim = $(1/96)$ inch

Tasarım ve Kodlamanın Birbirinden Ayrılması



Hademenin Gördüğü... ☺

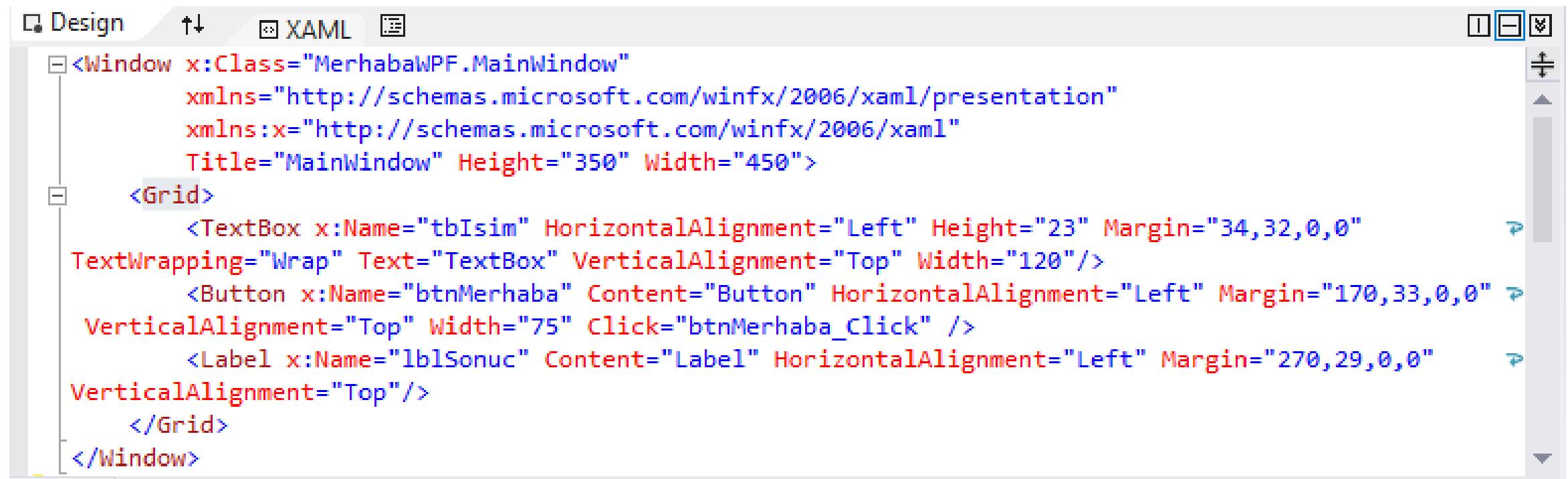
Tasarımcının Gördüğü... ☺



Gerçekte olan (programcının kodladığı)...



XAML Dili



The diagram illustrates the relationship between the XAML code and the visual elements in the application. A red arrow points from the XAML code in the bottom-left towards the Document Outline window in the top-right.

Document Outline:

- [Window]
 - [Window]
 - [Grid]
 - tbIsim
 - btnMerhaba
 - lblSonuc

XAML View:

```
<Window x:Class="MerhabaWPF.MainWindow"
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
        Title="MainWindow" Height="350" Width="450">
    <Grid>
        <TextBox x:Name="tbIsim" HorizontalAlignment="Left" Height="23" Margin="34,32,0,0"
TextWrapping="Wrap" Text="TextBox" VerticalAlignment="Top" Width="120"/>
        <Button x:Name="btnMerhaba" Content="Button" HorizontalAlignment="Left" Margin="170,33,0,0"
VerticalAlignment="Top" Width="75" Click="btnMerhaba_Click" />
        <Label x:Name="lblSonuc" Content="Label" HorizontalAlignment="Left" Margin="270,29,0,0"
VerticalAlignment="Top"/>
    </Grid>
</Window>
```

XAML Dili

XML (eXtensible Markup Language) standart'ları üzerine geliştirilmiş ve eklentileri olan bir işaretleme dilidir. Bu dilin geliştirilme gereğisi; temelde WPF'te tasarlanan görselliğin bir işaretleme diliyle deklâratif olarak ifade edilebilmesidir. Bu açıdan bakılırsa XAML, WPF'teki nesnelerin özel işaretlerle (tag, attribute vb) ifade edilebildiği (object serialization) formatıdır. XAML ile ifade edilen görsel tasarım, WPF'e ilişkin bir parser tarafından çalışma zamanında reflection (yansıma) yoluyla tekrar nesnelere dönüştürülerek kullanılmaktadır.

XAML Dili – XML Dili Standartları Üzerine Geliştirilmiştir



- Hem insanlar hem de bilgi işlem sistemleri tarafından kolayca okunabilecek dokümanlar oluşturmaya yarayan, W3C tarafından tanımlanmış bir standarttır

XML : Formatı belli olmayan verilerin ifade edilmesinde çok kullanışlıdır

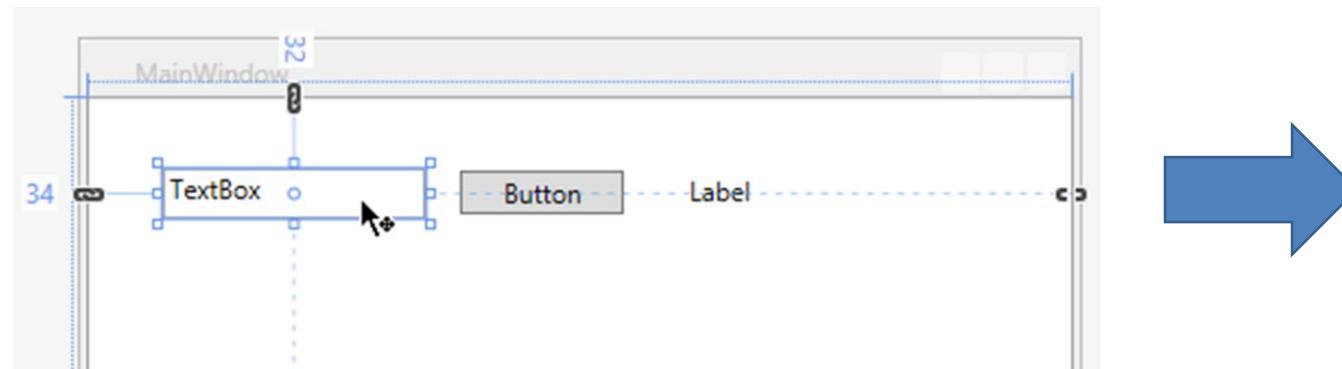
Bize gelen veri: «**175100AliVeli**» olsaydı eğer, Ali'nin numarası «1751» ve sınavdan 00'mı almış yoksa Ali'nin numarası «175» sınavdanda da 100'mü almış...

Tabi ki öncelikle Ali, Ali' mi dir? Yoksa Ali, Veli' mi dir? ☺



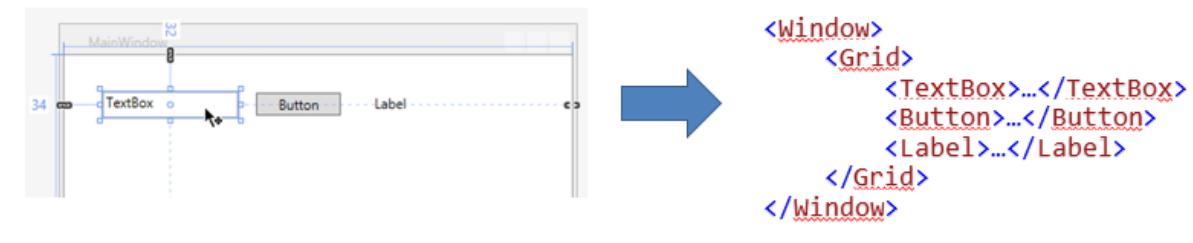
```
<ogrenci>
  <numarasi>175</numarasi>
  <notu>100</notu>
  <adi>Ali</adi>
  <soyadi>Veli</soyadi>
</ogrenci>
```

XAML Dili – Tasarımcılar kolaylıkla bu dili kullanabilir



```
<Window>
  <Grid>
    <TextBox>...</TextBox>
    <Button>...</Button>
    <Label>...</Label>
  </Grid>
</Window>
```

Microsoft Blend



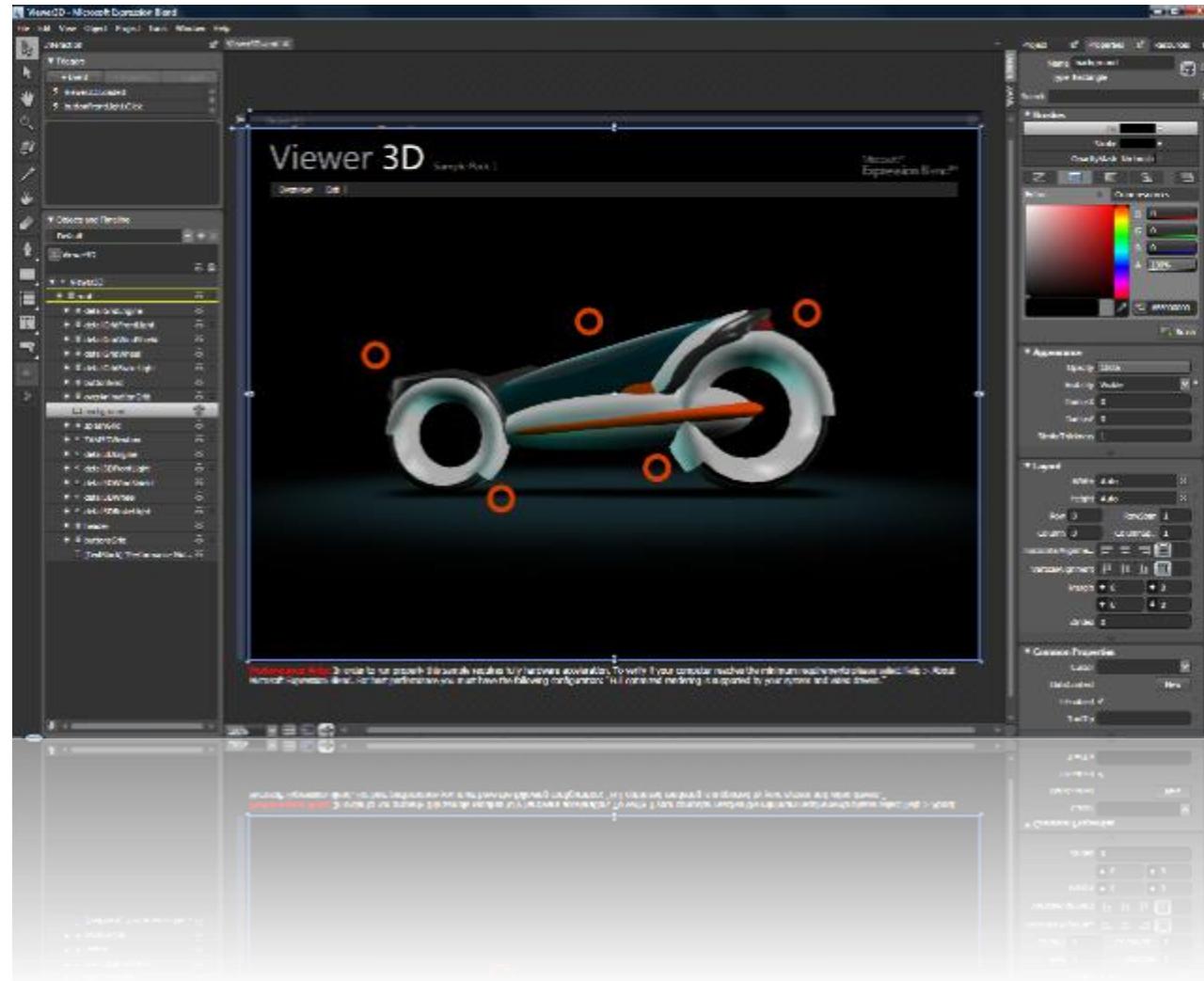
Microsoft'un Gördüğü...

A screenshot of the Microsoft Blend application interface, specifically the XAML code editor. The window title is "MerhabaWPF.MainWindow". The XAML code defines a window with a grid containing a text box, a button, and a label, matching the visual representation above. The code uses XAML namespaces and properties to define the UI elements and their behavior.

```
<Window x:Class="MerhabaWPF.MainWindow"
    xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
    xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
    Title="MainWindow" Height="350" Width="450">
<Grid>
    <TextBox x:Name="tbIsim" HorizontalAlignment="Left" Height="23" Margin="34,32,0,0"
    TextWrapping="Wrap" Text="TextBox" VerticalAlignment="Top" Width="120"/>
    <Button x:Name="btnMerhaba" Content="Button" HorizontalAlignment="Left" Margin="170,33,0,0" 
    VerticalAlignment="Top" Width="75" Click="btnMerhaba_Click" />
    <Label x:Name="lblSonuc" Content="Label" HorizontalAlignment="Left" Margin="270,29,0,0"
    VerticalAlignment="Top"/>
</Grid>
</Window>
```

Gerçekte olan 😞

Microsoft Blend



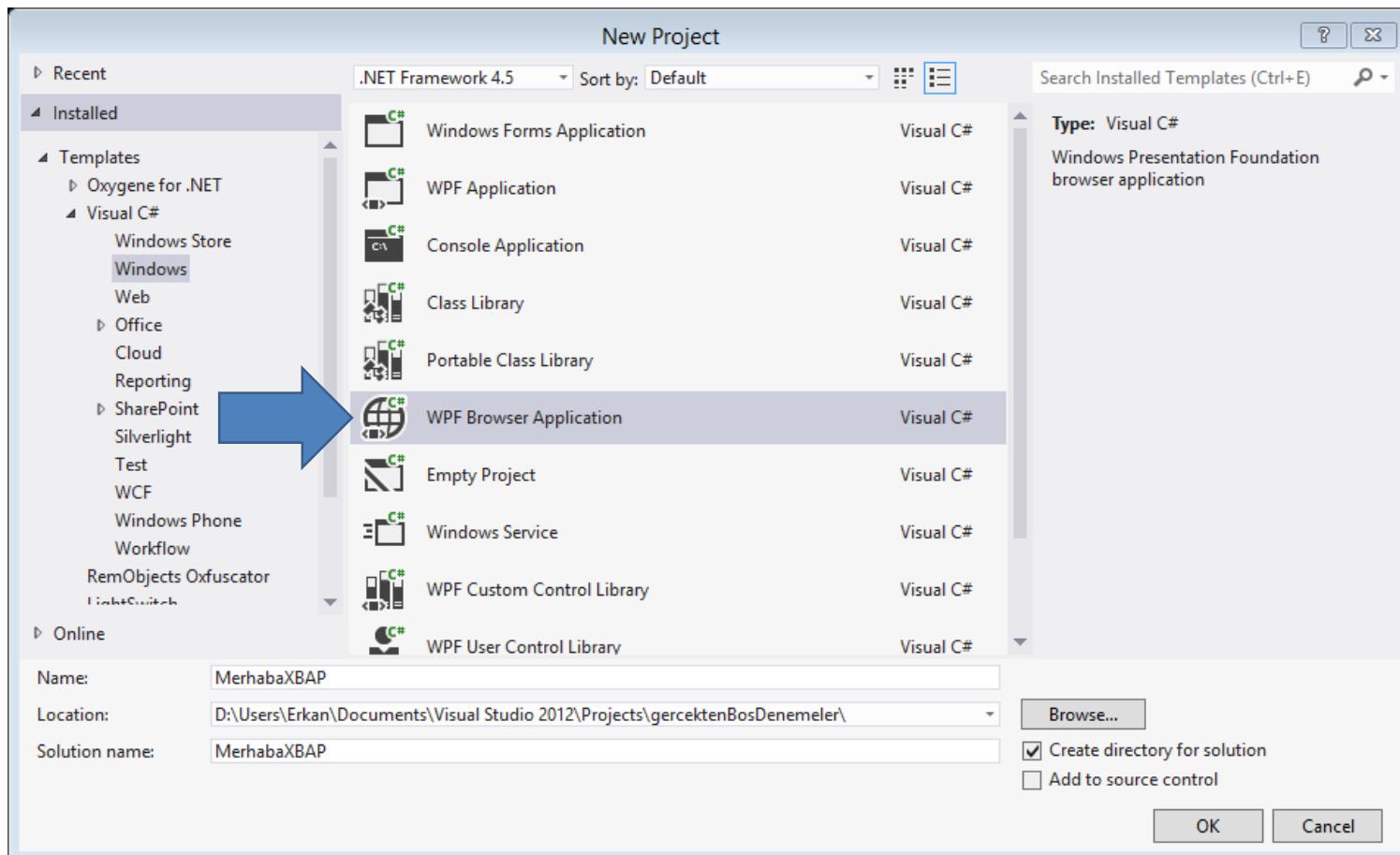
XAML



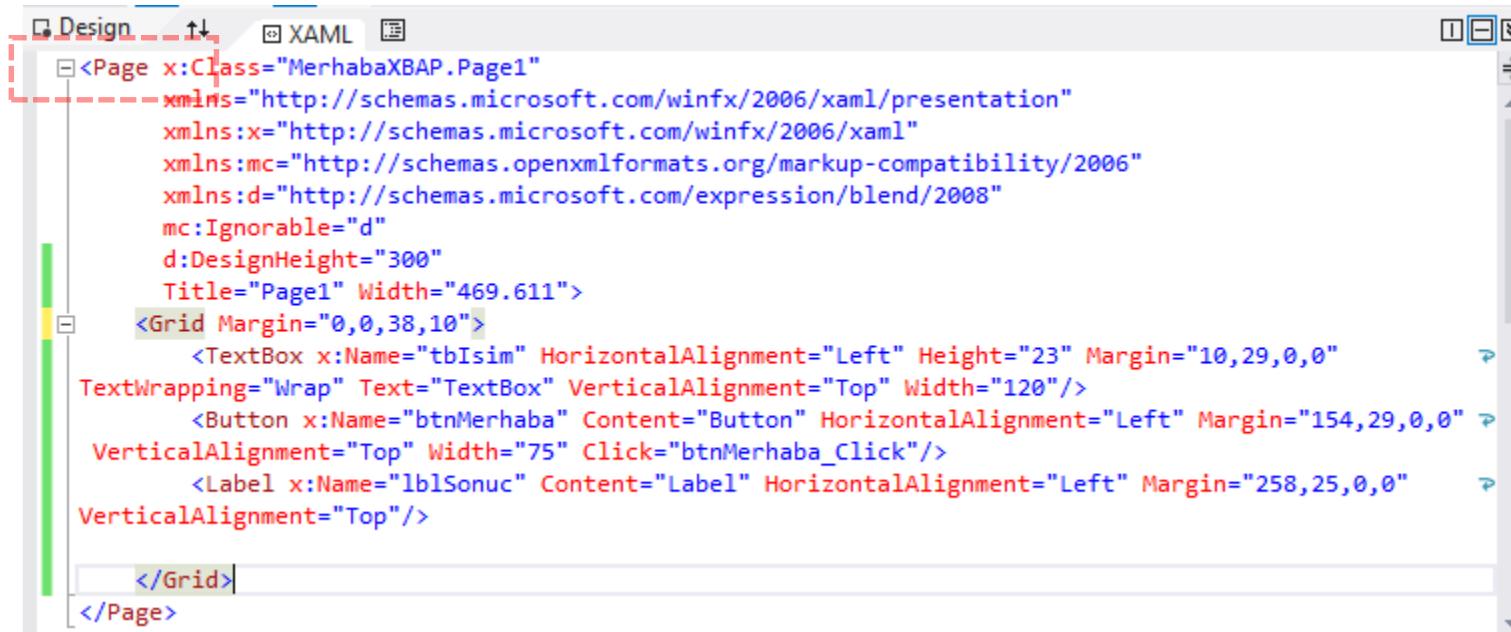
Dreamweaver

HTML

Browser Application (XBAP)



Browser Application (XBAP)

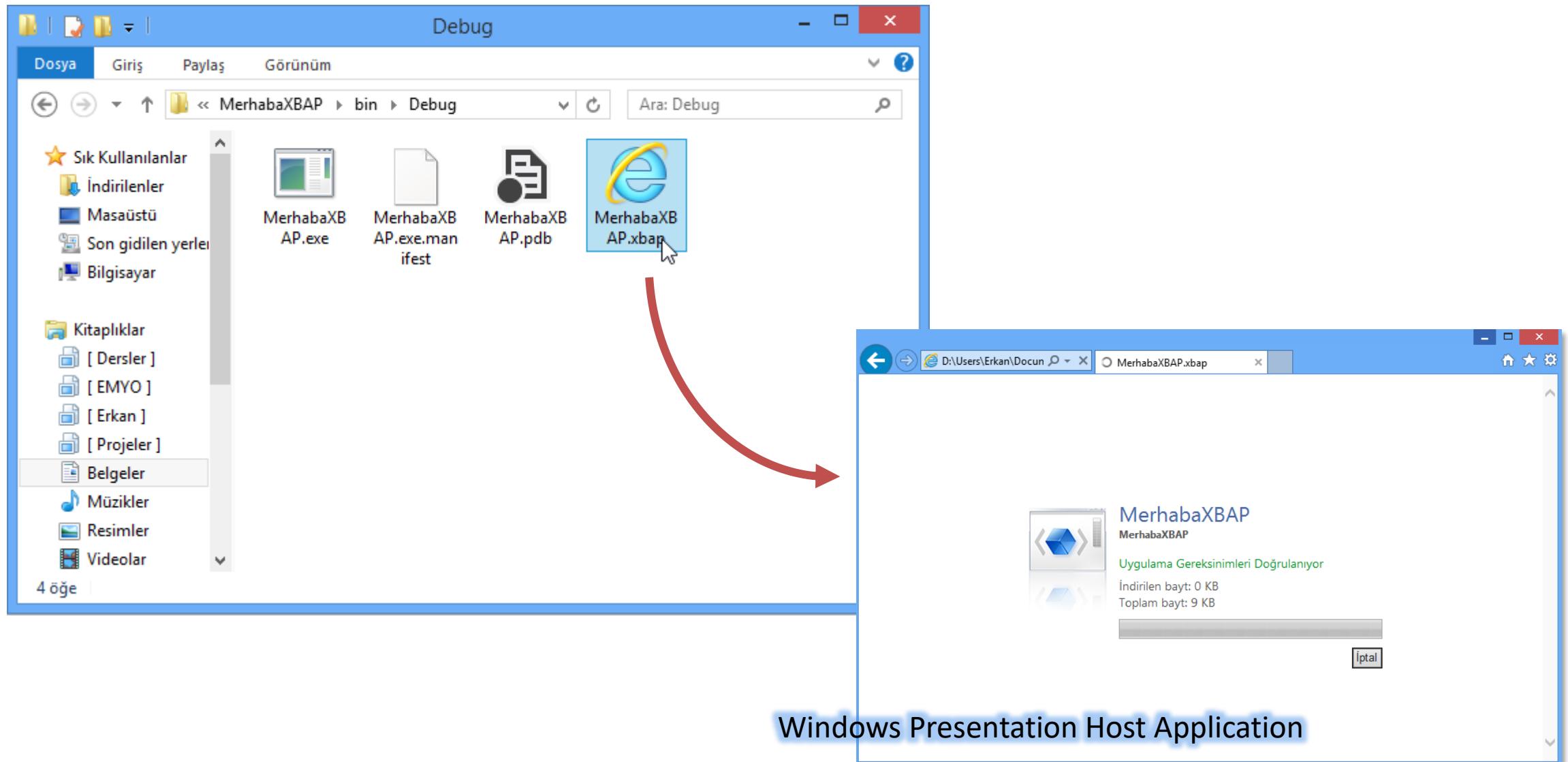


The screenshot shows the Microsoft Expression Blend interface. On the left, the XAML code editor displays the XAML for a Page named "MerhabaXBAP.Page1". The code includes declarations for namespaces, a Grid container with three child controls (a TextBox, a Button, and a Label), and their respective properties like HorizontalAlignment, VerticalAlignment, and Margin. On the right, the visual designer shows a grid layout with three controls: a TextBox, a Button, and a Label, arranged horizontally.

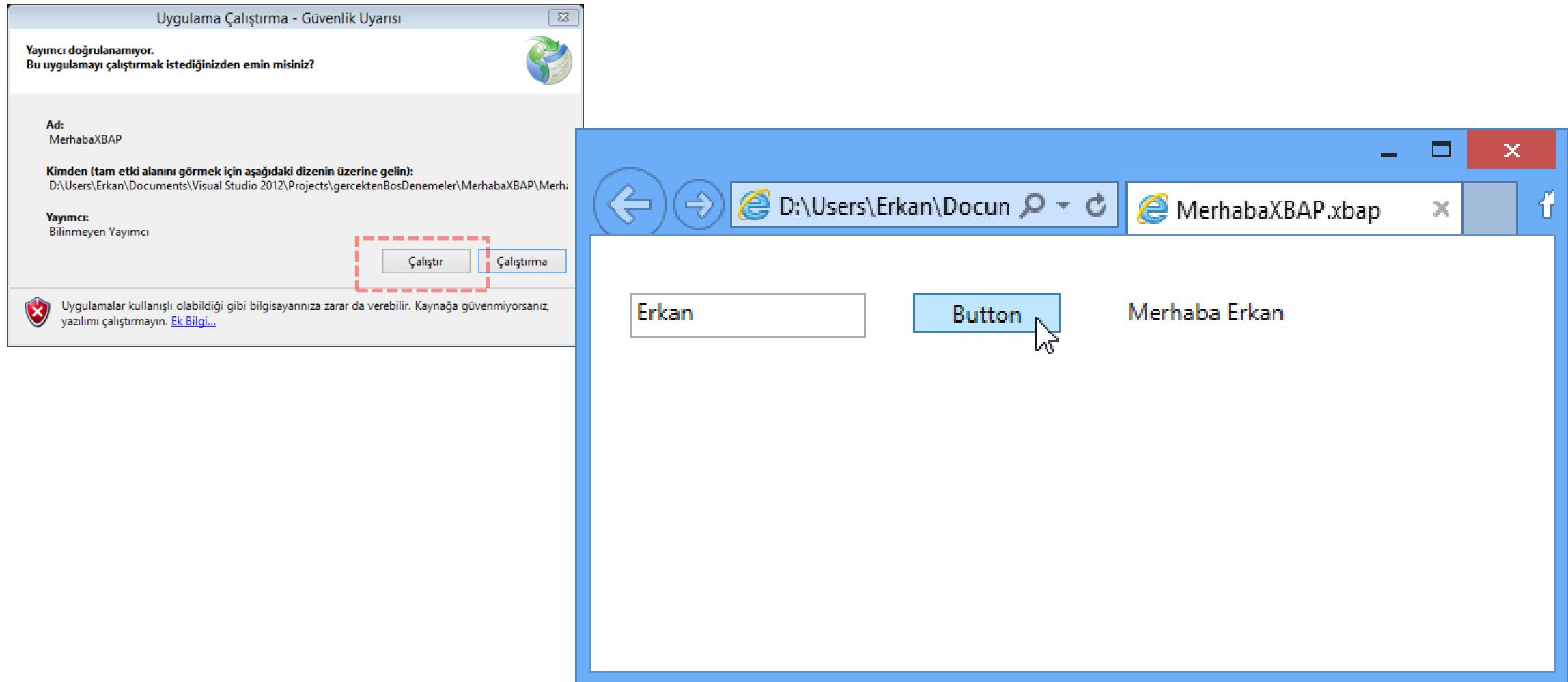
```
<Page x:Class="MerhabaXBAP.Page1"
      xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
      xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
      xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
      xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
      mc:Ignorable="d"
      d:DesignHeight="300"
      Title="Page1" Width="469.611">
    <Grid Margin="0,0,38,10">
      <TextBox x:Name="tbIsim" HorizontalAlignment="Left" Height="23" Margin="10,29,0,0"
TextWrapping="Wrap" Text="TextBox" VerticalAlignment="Top" Width="120"/>
      <Button x:Name="btnMerhaba" Content="Button" HorizontalAlignment="Left" Margin="154,29,0,0"
VerticalAlignment="Top" Width="75" Click="btnMerhaba_Click"/>
      <Label x:Name="lblSonuc" Content="Label" HorizontalAlignment="Left" Margin="258,25,0,0"
VerticalAlignment="Top"/>
    </Grid>
</Page>
```

```
private void btnMerhaba_Click(object sender, RoutedEventArgs e)
{
    lblSonuc.Content = "Merhaba " + tbIsim.Text;
}
```

Browser Application (XBAP)



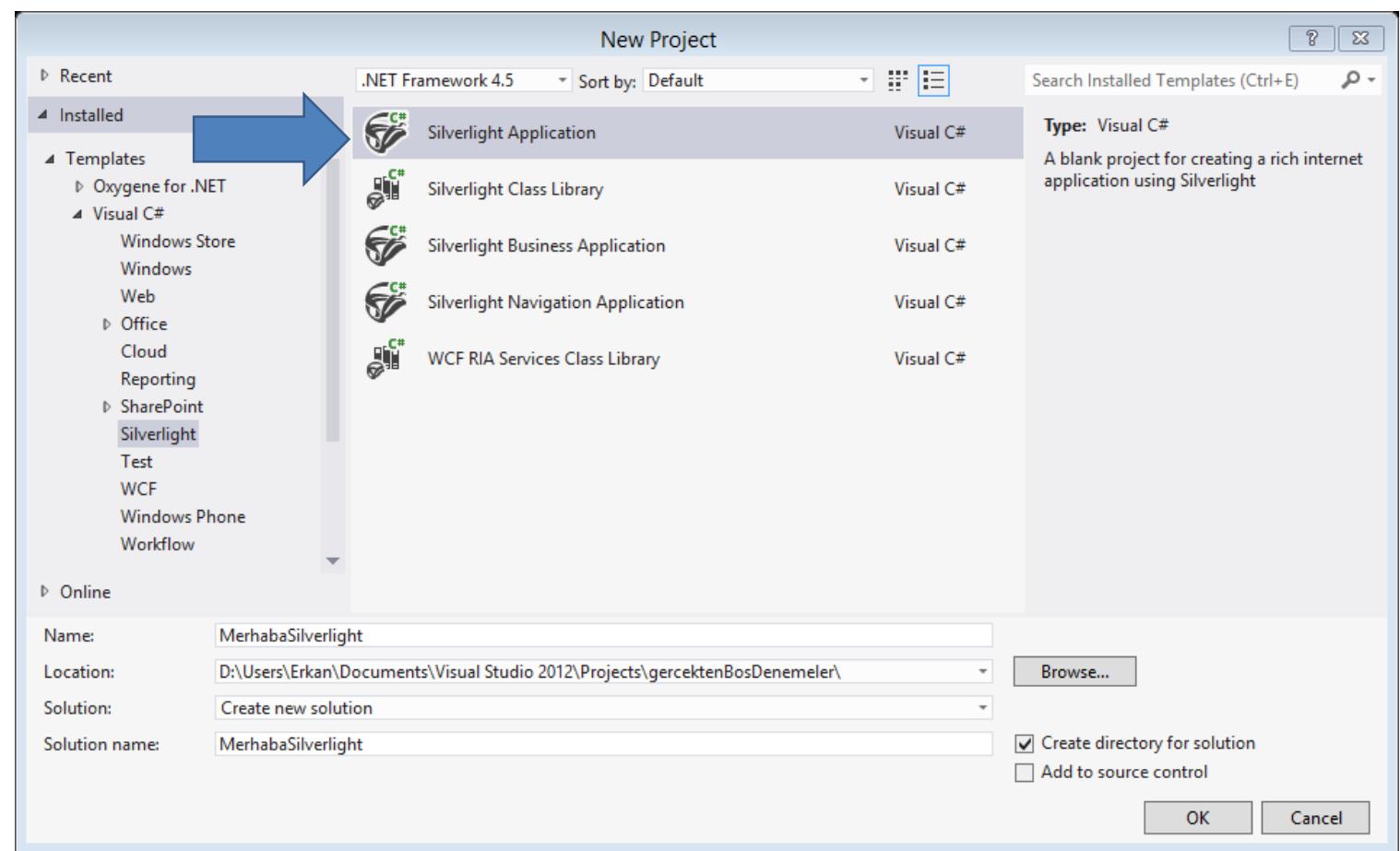
Browser Application (XBAP)



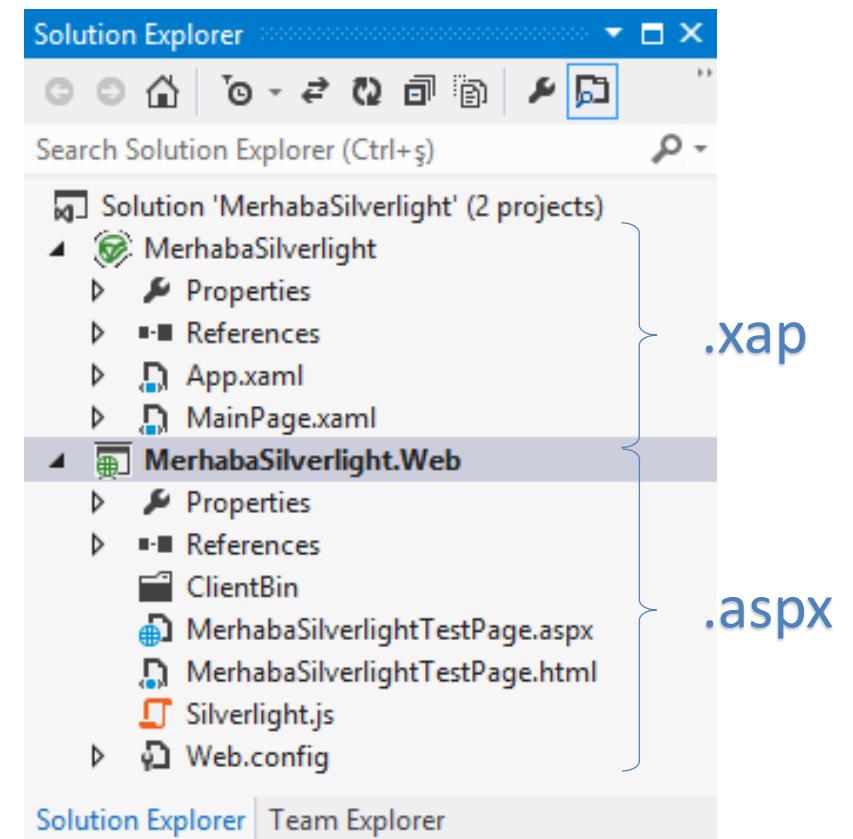
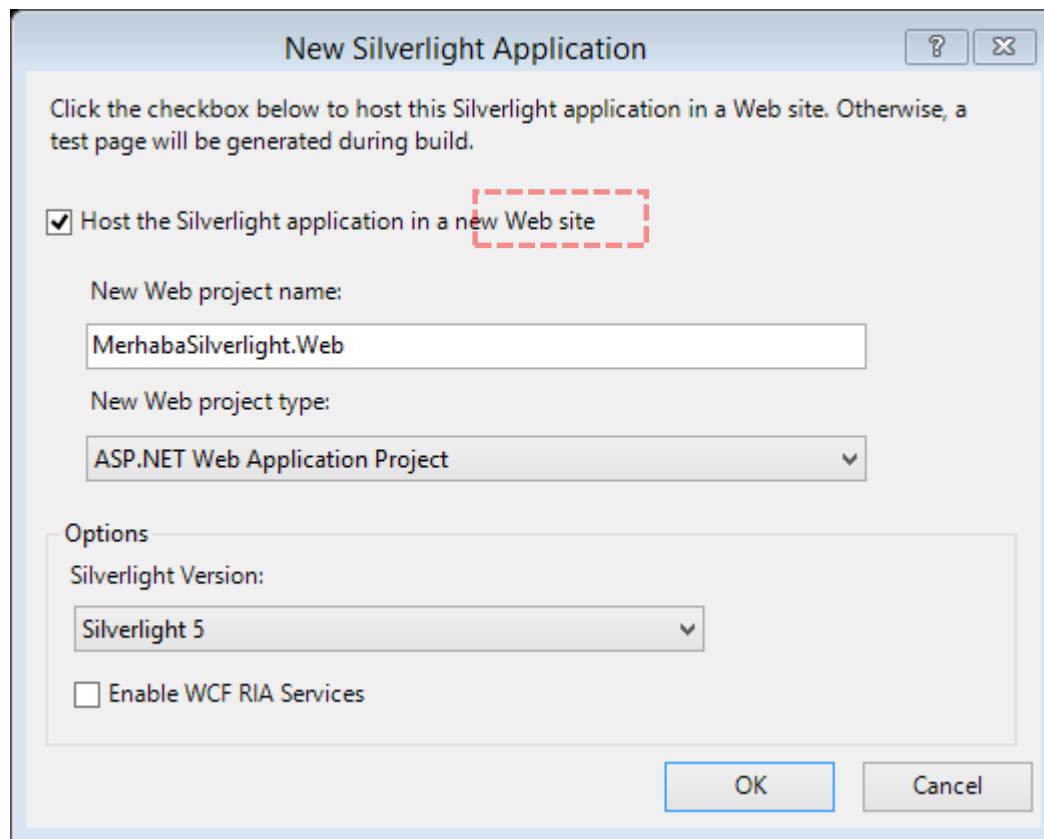
Silverlight Application (XAP)



Microsoft®
Silverlight™



Silverlight Application (XAP)

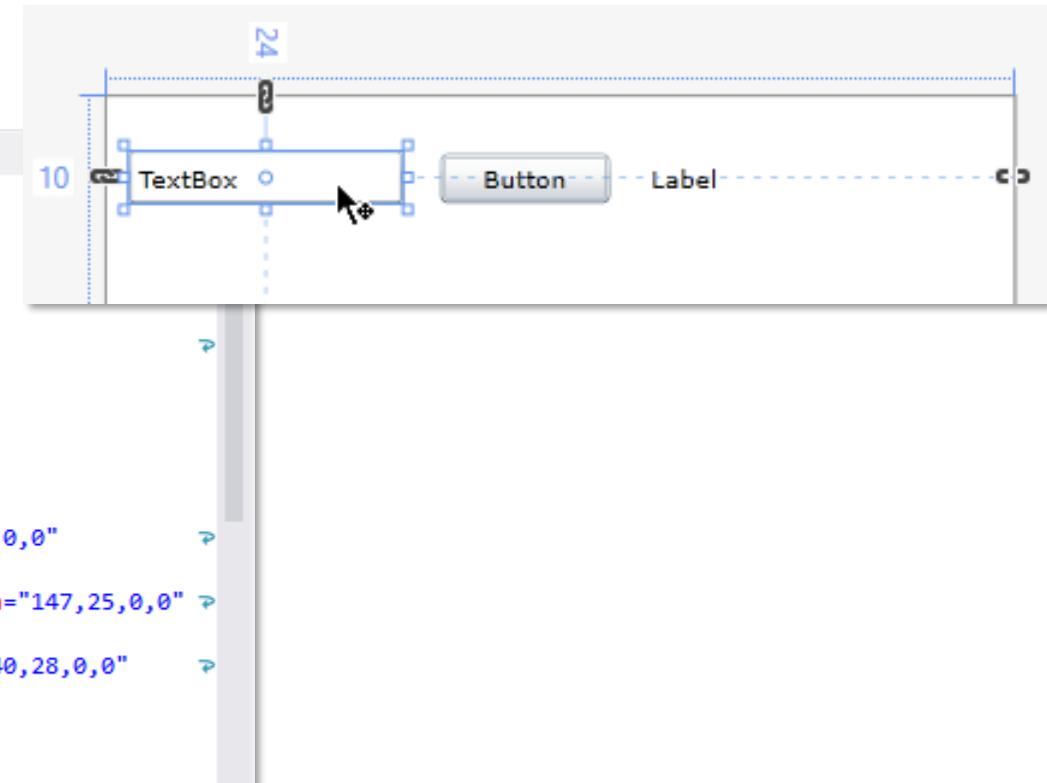


Silverlight Application (XAP)

Design XAML

```
<UserControl
    xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
    xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
    xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
    xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
    xmlns:sdk="http://schemas.microsoft.com/winfx/2006/xaml/presentation/sdk"
    x:Class="MerhabaSilverlight.MainPage"
    mc:Ignorable="d"
    d:DesignHeight="300" d:DesignWidth="400">

    <Grid x:Name="LayoutRoot" Background="White">
        <TextBox x:Name="tbIsim" HorizontalAlignment="Left" Height="23" Margin="10,24,0,0"
            TextWrapping="Wrap" Text="TextBox" VerticalAlignment="Top" Width="120"/>
        <Button x:Name="btnMerhaba" Content="Button" HorizontalAlignment="Left" Margin="147,25,0,0"
            VerticalAlignment="Top" Width="75"/>
        <sdk:Label x:Name="lblSonuc" HorizontalAlignment="Left" Height="28" Margin="240,28,0,0"
            VerticalAlignment="Top" Width="120"/>
    </Grid>
</UserControl>
```



```
private void btnMerhaba_Click(object sender, RoutedEventArgs e)
{
    lblSonuc.Content = "Merhaba " + tbIsim.Text;
}
```

Silverlight Application (XAP)

MerhabaSilverlightTestPage.aspx X MainPage.xaml.cs* MainPage.xaml*

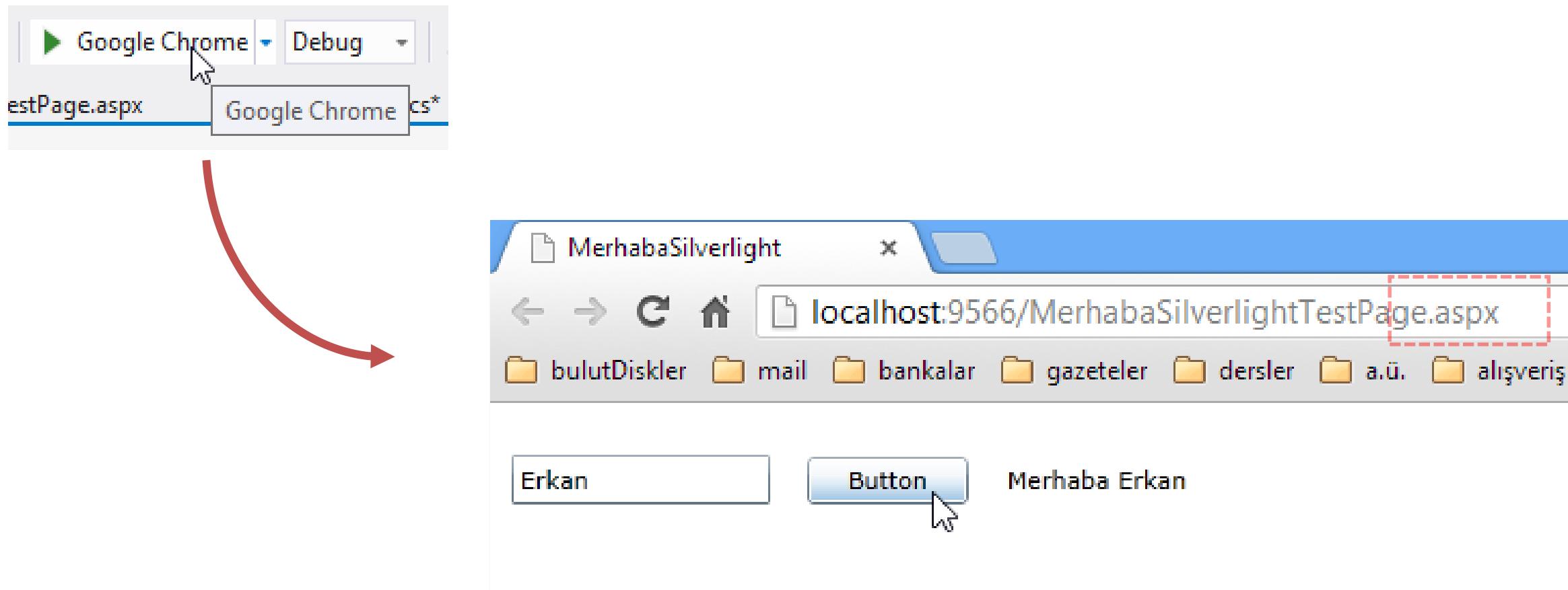
Server Objects & Events (No Events)

```
<%@ Page Language="C#" AutoEventWireup="true" %>

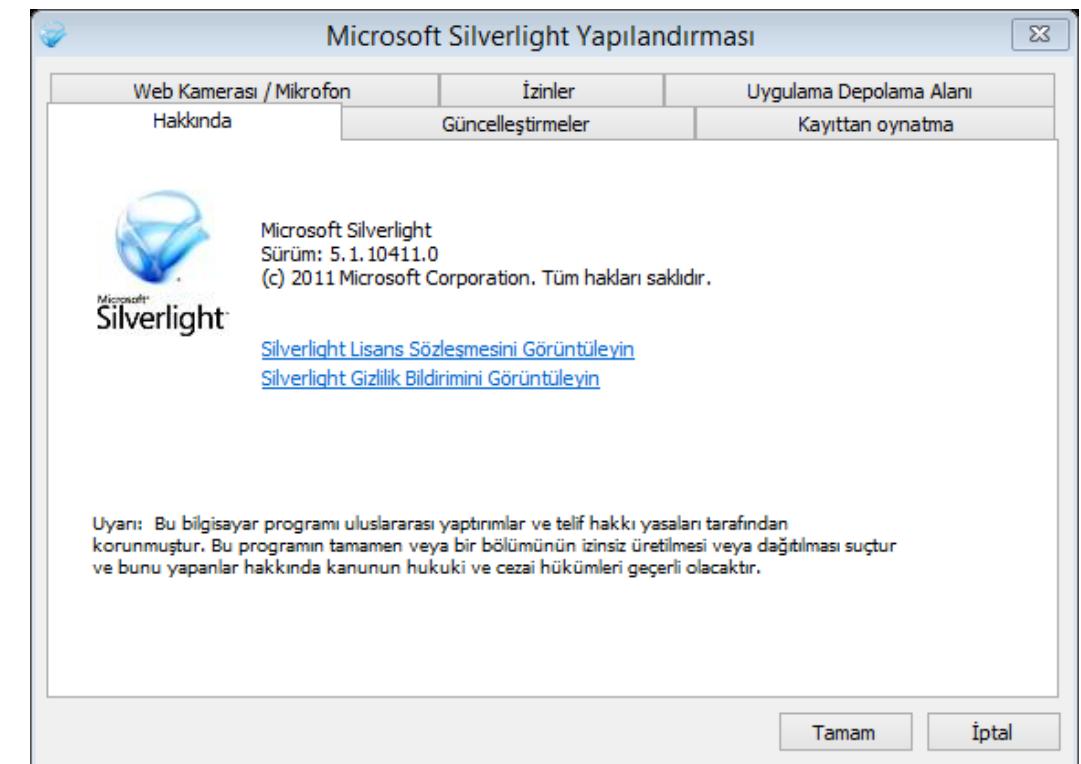
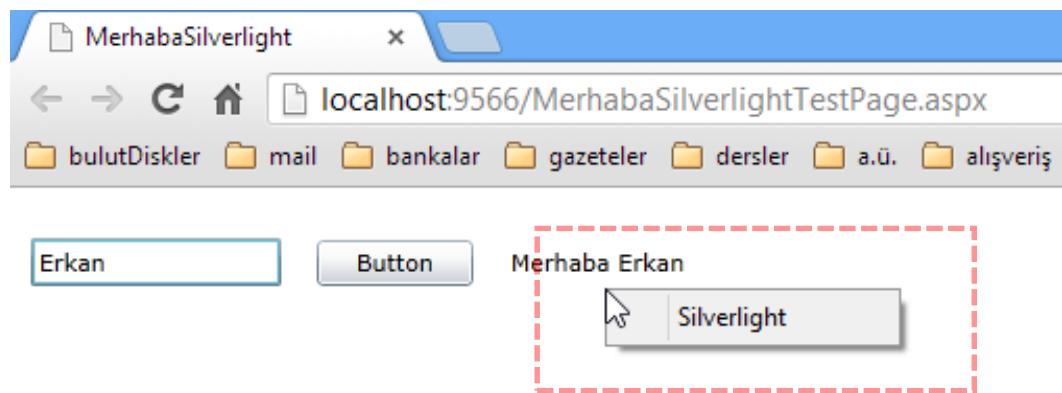
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" >
<head>...</head>
<body>
    <form id="form1" runat="server" style="height:100%">
        <div id="silverlightControlHost">
            <object data="data:application/x-silverlight-2," type="application/x-silverlight-2" width="100%" height="100%">
                <param name="source" value="ClientBin/MerhabaSilverlight.xap"/>
                <param name="onError" value="onSilverlightError" />
                <param name="background" value="white" />
                <param name="minRuntimeVersion" value="5.0.61118.0" />
                <param name="autoUpgrade" value="true" />
                <a href="http://go.microsoft.com/fwlink/?LinkID=149156&v=5.0.61118.0" style="text-decoration:none">
                    
                </a>
            </object><iframe id="_sl_historyFrame" style="visibility:hidden;height:0px;width:0px;border:0px"></iframe></div>
        </form>
    </body>
</html>
```



Silverlight Application (XAP)



Silverlight Application (XAP)



Bazılıları dağıtık sever, fakat biz yine de toparlayalım😊

WPF Application (Root Elementi ➡ Window)

Kendi Penceresinde Çalışır

Çalışması İçin Framework'e İhtiyaç Vardır

GDI+ Yerine DirectX ve OpenGL Kütüphanelerini Kullanır

XAML Dili Deklaratif Bir Şekilde Oluşturulabilir

Pixel Tabanlı Değil, Vektörelidir

Browser Application (Root Elementi ➡ Page)

Browserda Çalışır

Çalışması İçin İstemci Bilgisayarda Framework'e İhtiyaç Vardır

Silverlight App. (Root Elementi ➡ UserControl)

Herhangi Bir Web Sayfasına Gömülü Olarak Browserda Çalışır

Çalışması İçin Framework'e İhtiyaç Yoktur

İstemci Bilgisayarda Silverlight Plugin'in Yükülu Olması Yeterlidir

ASP.NET ?