

# Pens

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# Introduction

- ❖ Pen determines the color and the style of a linear feature such as a line or the edge of a shape we draw.

# The Stroke Property

- ❖ The `Stroke` property determines the color. Specifying the color using this property we can either use one of the 150 available names WPF understands or specify the exact components of the color we want to set.

```
<Ellipse Stroke="Purple" StrokeThickness="8"/>
```

```
<Ellipse Stroke="#ff4436f2" StrokeThickness="8"/>
```

# The StrokeThickness Property

- ❖ The `StrokeThickness` property determines the thickness of the line. The value is specified in pixels.

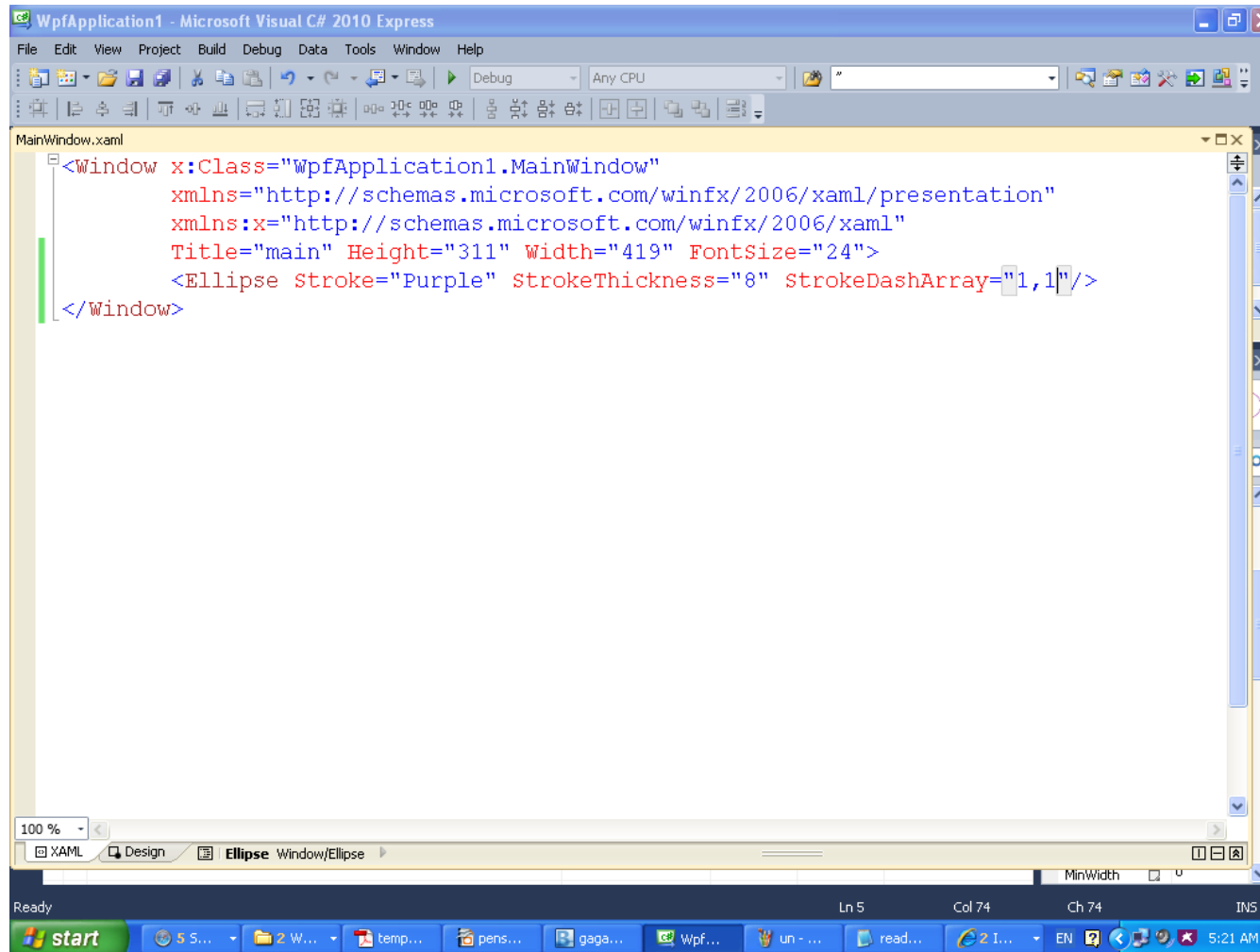
```
<Ellipse Stroke="Purple" StrokeThickness="8"/>
```

# The StrokeDashArray Property

- ❖ The `StrokeDashArray` property sets values indicating the number of pen units that should be drawn and skipped when drawing the line.

```
<Ellipse Stroke="Purple" StrokeDashArray="4,4,4"/>
```

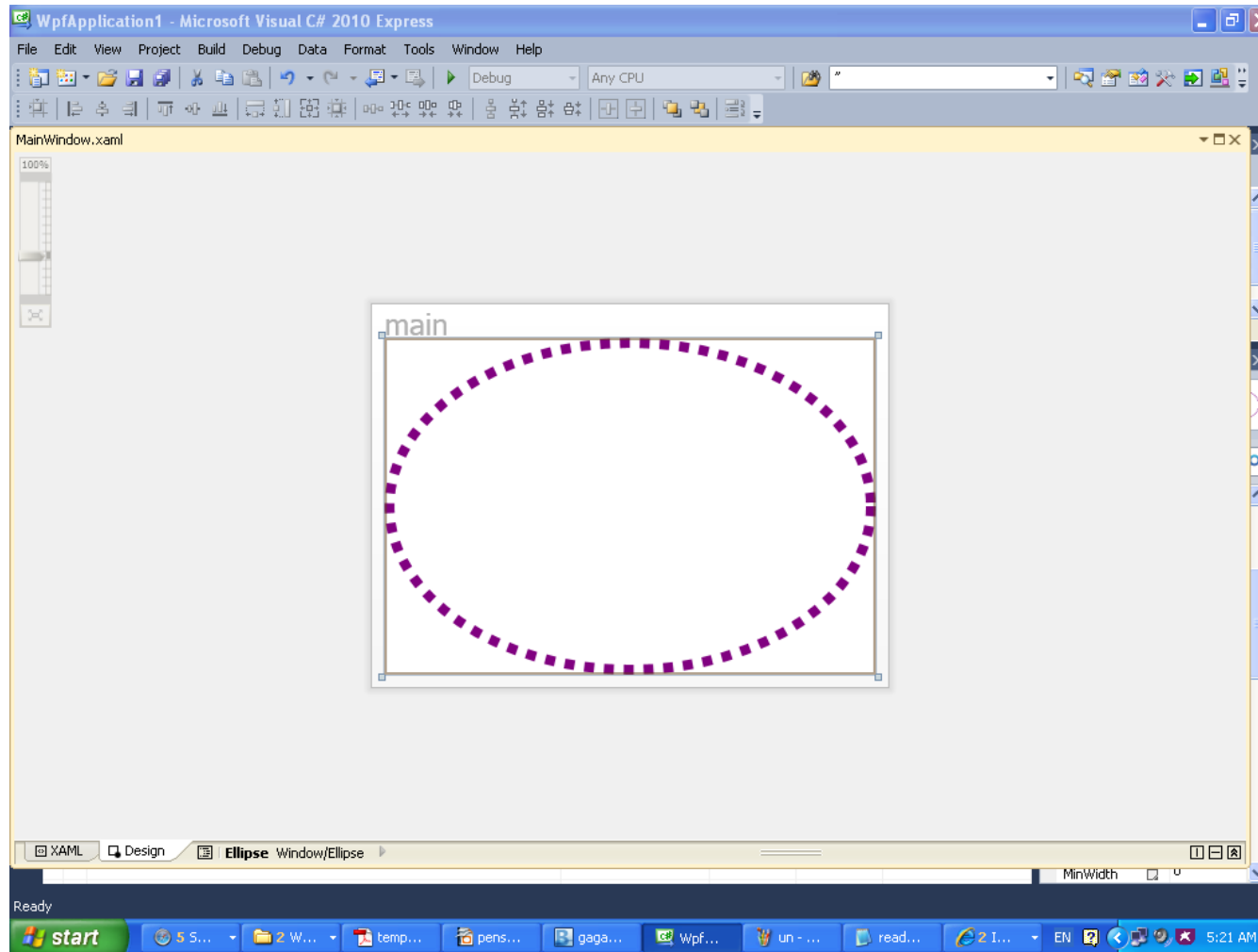
# The StrokeDashArray Property



The screenshot shows the Microsoft Visual C# 2010 Express IDE. The main window displays the XAML code for a WpfApplication1.MainWindow. The code defines an Ellipse with a purple stroke, a stroke thickness of 8, and a stroke dash array of 1,1. The window title is "main", height is 311, and width is 419. The font size is 24. The status bar at the bottom indicates the current position is Ln 5, Col 74, Ch 74, INS.

```
<Window x:Class="WpfApplication1.MainWindow"
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
        Title="main" Height="311" Width="419" FontSize="24">
    <Ellipse Stroke="Purple" StrokeThickness="8" StrokeDashArray="1,1"/>
</Window>
```

# The StrokeDashArray Property

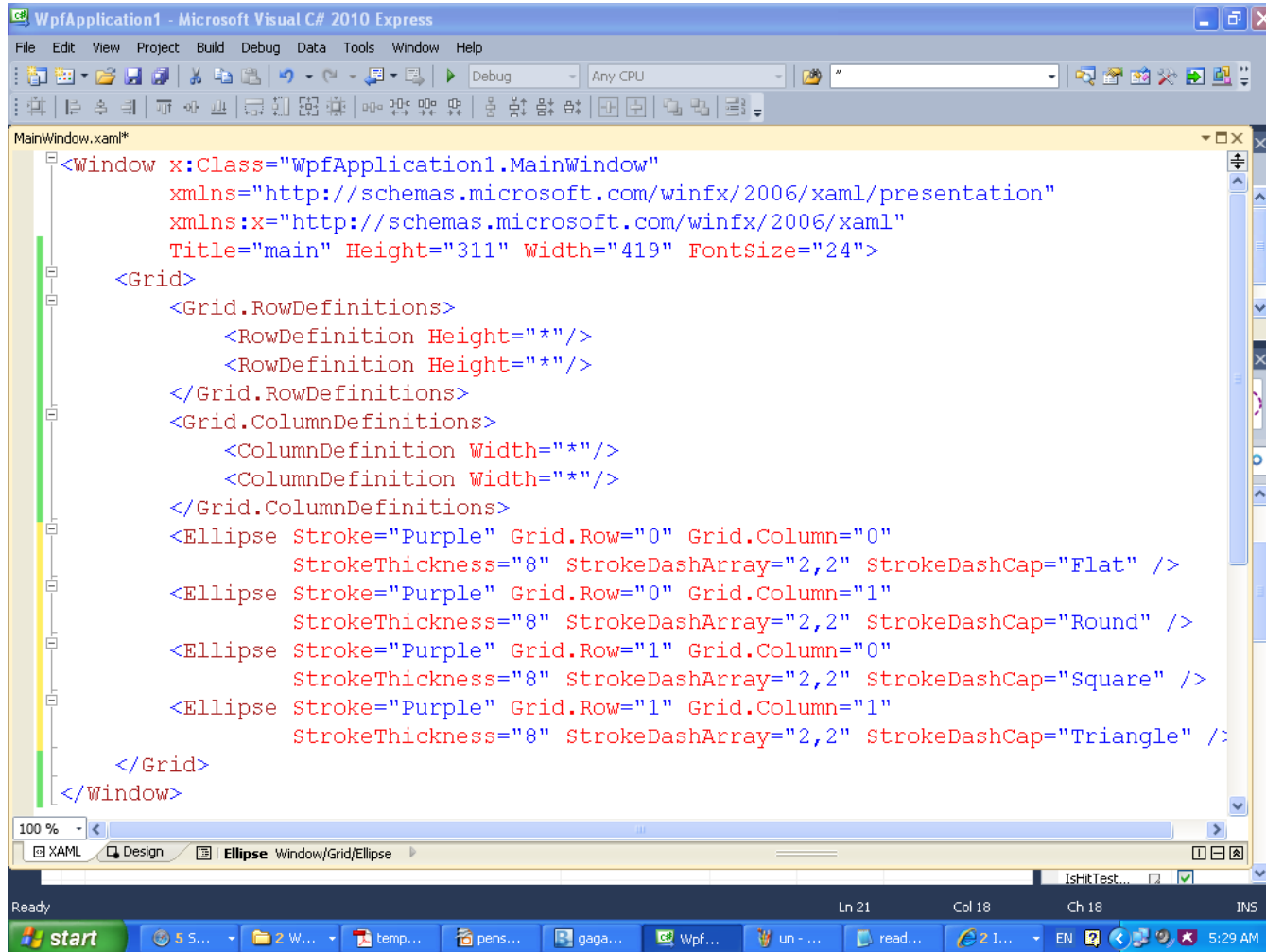


# The StrokeDashCap Property

- ❖ This property determines how the ends of the dashes will be drawn.
- ❖ The possible values are: Flat, Square, Round and Triangle.

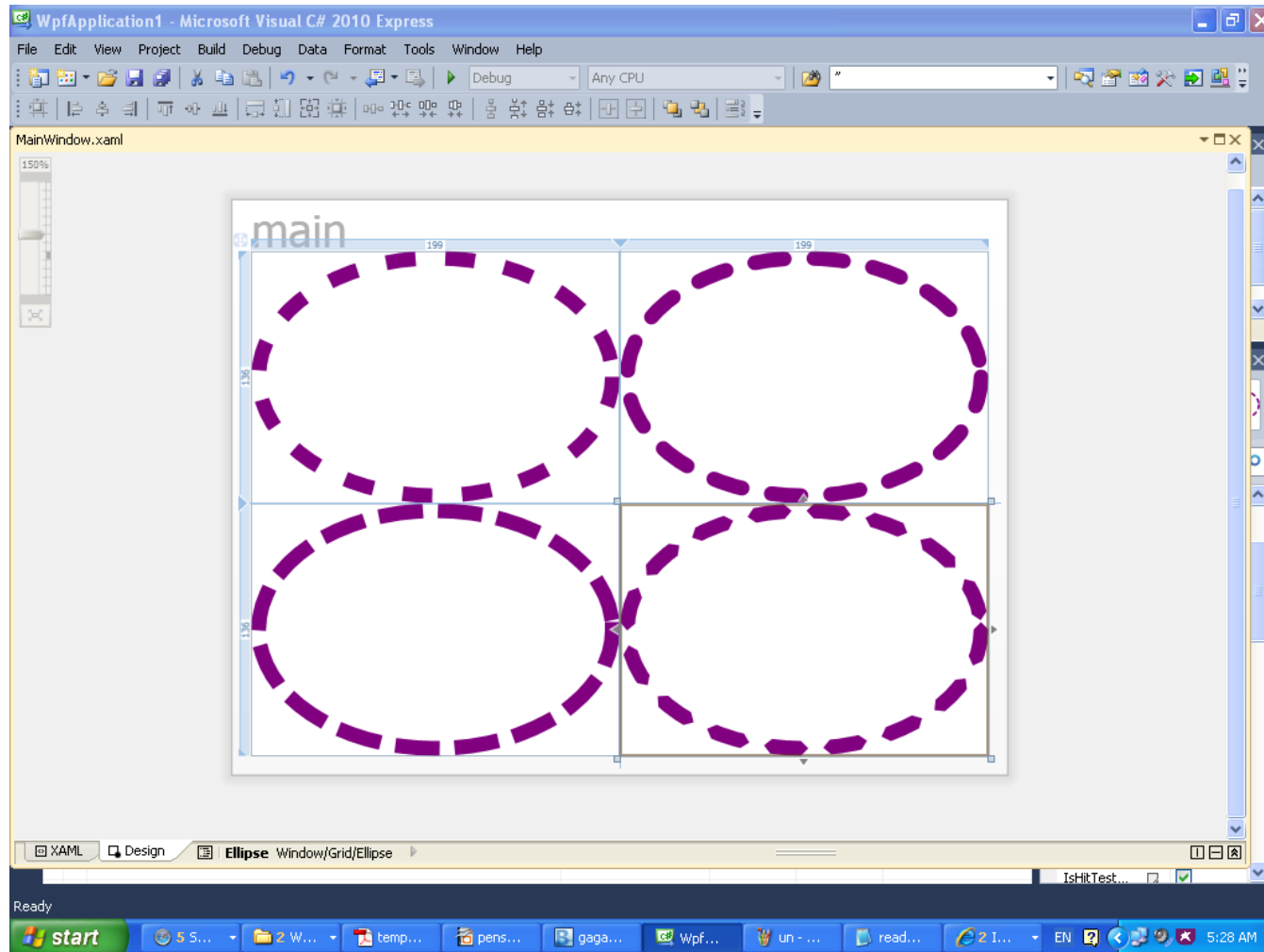


# The StrokeDashCap Property



```
WpfApplication1 - Microsoft Visual C# 2010 Express
File Edit View Project Build Debug Data Tools Window Help
Debug Any CPU
MainWindow.xaml*
<Window x:Class="WpfApplication1.MainWindow"
xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
Title="main" Height="311" Width="419" FontSize="24">
  <Grid>
    <Grid.RowDefinitions>
      <RowDefinition Height="*" />
      <RowDefinition Height="*" />
    </Grid.RowDefinitions>
    <Grid.ColumnDefinitions>
      <ColumnDefinition Width="*" />
      <ColumnDefinition Width="*" />
    </Grid.ColumnDefinitions>
    <Ellipse Stroke="Purple" Grid.Row="0" Grid.Column="0"
      StrokeThickness="8" StrokeDashArray="2,2" StrokeDashCap="Flat" />
    <Ellipse Stroke="Purple" Grid.Row="0" Grid.Column="1"
      StrokeThickness="8" StrokeDashArray="2,2" StrokeDashCap="Round" />
    <Ellipse Stroke="Purple" Grid.Row="1" Grid.Column="0"
      StrokeThickness="8" StrokeDashArray="2,2" StrokeDashCap="Square" />
    <Ellipse Stroke="Purple" Grid.Row="1" Grid.Column="1"
      StrokeThickness="8" StrokeDashArray="2,2" StrokeDashCap="Triangle" />
  </Grid>
</Window>
```

# The StrokeDashCap Property



# The StrokeEndLineCap Property

- ❖ This property determines how the end of each line is drawn.
- ❖ The possible values are: Flat, Square, Round and Triangle.

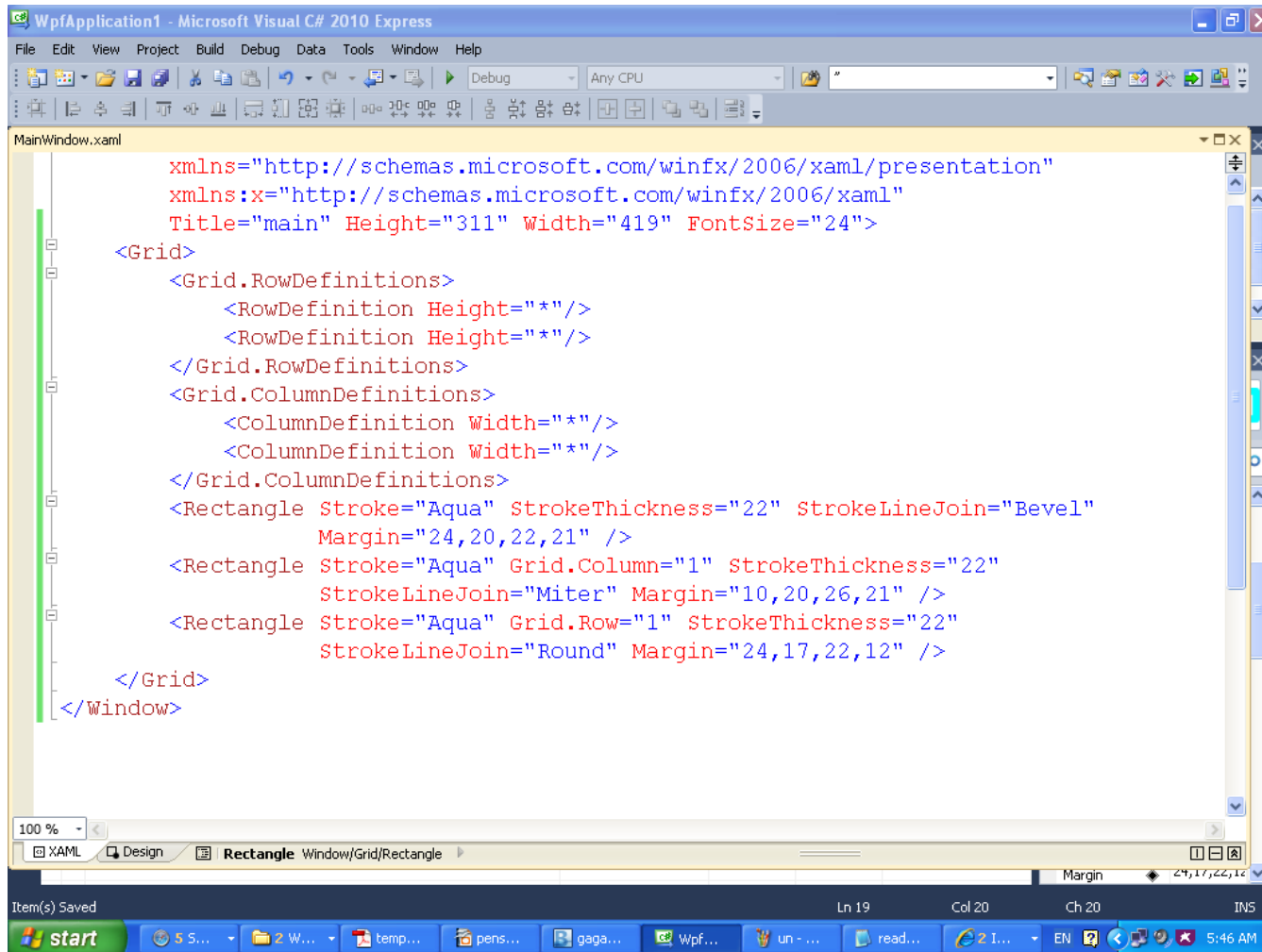
# The `StrokeStartLineCap` Property

- ❖ This property determines how the start of each line is drawn.
- ❖ The possible values are: `Flat`, `Square`, `Round` and `Triangle`.

# The StrokeLineJoin Property

- ❖ This property determines how two lines are connected with each other when forming a shape, such as rectangle, triangle etc.
- ❖ The possible values are: `Bevel`, `Round` and `Meter`.

# The StrokeLineJoin Property



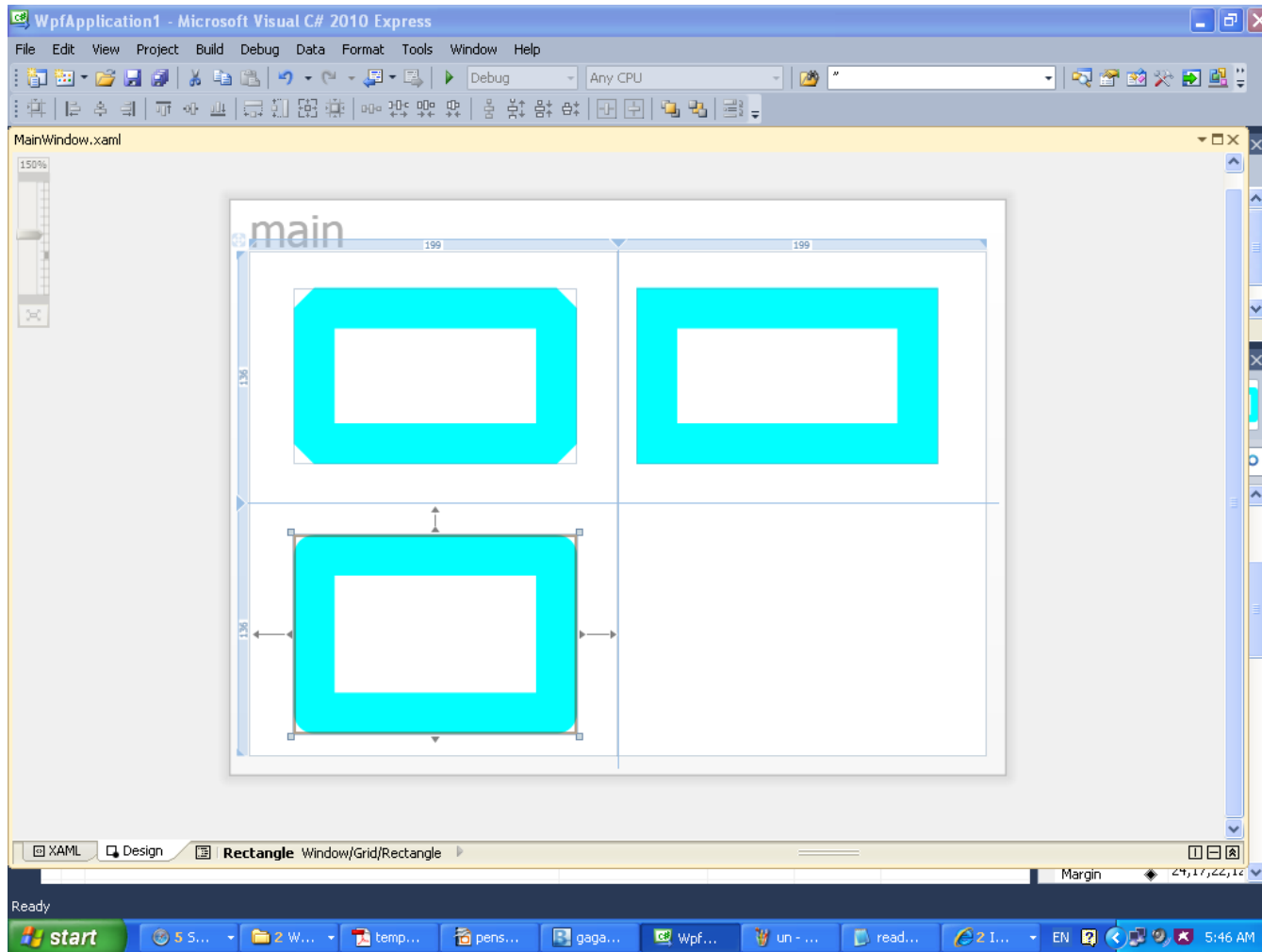
```
WpfApplication1 - Microsoft Visual C# 2010 Express
File Edit View Project Build Debug Data Tools Window Help
Debug Any CPU
MainWindow.xaml
xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
Title="main" Height="311" Width="419" FontSize="24">
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition Height="*" />
    <RowDefinition Height="*" />
  </Grid.RowDefinitions>
  <Grid.ColumnDefinitions>
    <ColumnDefinition Width="*" />
    <ColumnDefinition Width="*" />
  </Grid.ColumnDefinitions>
  <Rectangle Stroke="Aqua" StrokeThickness="22" StrokeLineJoin="Bevel"
    Margin="24,20,22,21" />
  <Rectangle Stroke="Aqua" Grid.Column="1" StrokeThickness="22"
    StrokeLineJoin="Miter" Margin="10,20,26,21" />
  <Rectangle Stroke="Aqua" Grid.Row="1" StrokeThickness="22"
    StrokeLineJoin="Round" Margin="24,17,22,12" />
</Grid>
</Window>
```

100 % XAML Design Rectangle Window/Grid/Rectangle Margin 24,17,22,12

Item(s) Saved Ln 19 Col 20 Ch 20 INS

start 5 S... 2 W... temp... pens... gaga... Wpf... un - ... read... 2 1... EN 5:46 AM

# The StrokeLineJoin Property

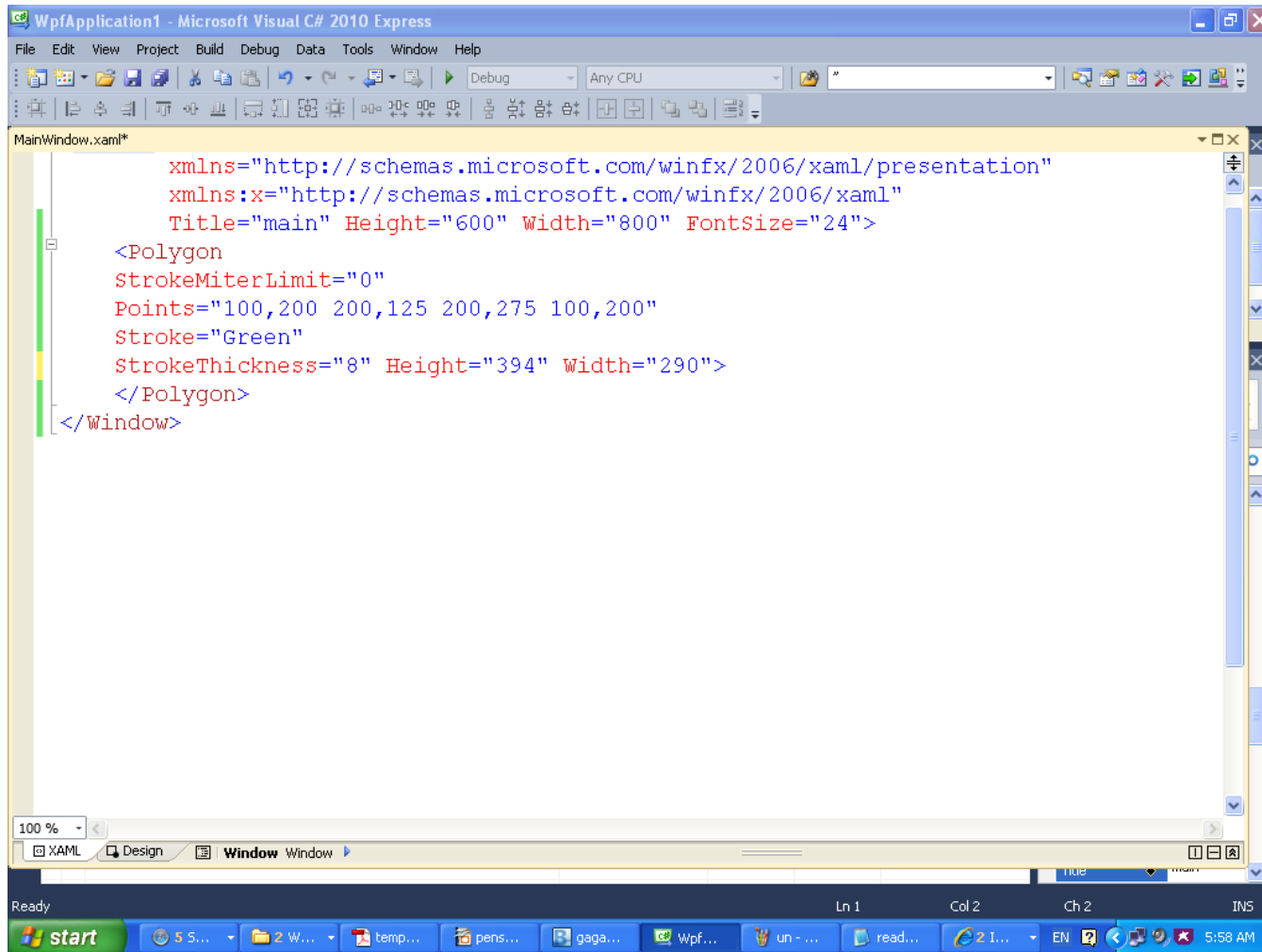


# The StrokeMiterLimit Property

- ❖ This property determines how long the sharp point on a mitered corner will be.



# The StrokeMiterLimit Property



# The StrokeMiterLimit Property

