

# 现代操作系统应用开发实验报告

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实验名称： homework1

## 一 . 参考资料

C#, VB, and C++ project templates for Store apps :

<https://msdn.microsoft.com/en-us/library/windows/apps/hh768232.aspx>

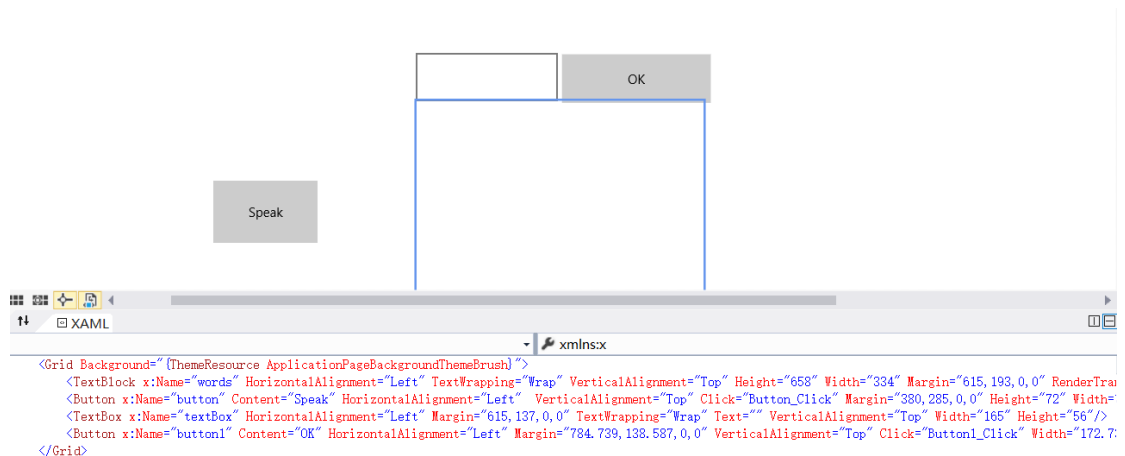
课件、Demo

## 二 . 实验步骤

1. 确定作业应用外观样式，采用 button、textblock 和 textbox 控件

```
<Grid Background="{ThemeResource ApplicationPageBackgroundThemeBrush}">
    <TextBlock x:Name="words" HorizontalAlignment="Left" TextWrapping="Wrap"
VerticalAlignment="Top" Height="658" Width="334" Margin="615, 193, 0, 0"
RenderTransformOrigin="0.499, 0.488"/>
    <Button x:Name="button" Content="Speak" HorizontalAlignment="Left"
VerticalAlignment="Top" Click="Button_Click" Margin="380, 285, 0, 0" Height="72"
Width="121"/>
    <TextBox x:Name="textBox" HorizontalAlignment="Left" Margin="615, 137, 0, 0"
TextWrapping="Wrap" Text="" VerticalAlignment="Top" Width="165" Height="56"/>
    <Button x:Name="button1" Content="OK" HorizontalAlignment="Left"
Margin="784.739, 138.587, 0, 0" VerticalAlignment="Top" Click="Button1_Click"
Width="172.734" RenderTransformOrigin="0.5, 0.5" UseLayoutRounding="False"
d:LayoutRounding="Auto" Height="56.301"/>

</Grid>
```



## 2. 确定 Animal 父类包括 saying 行为：

```
private delegate string AnimalSaying(object sender);
private event AnimalSaying Say;
public MainPage()
{
    this.InitializeComponent();
}
interface Animal
{
    string saying(object sender);
    int A { get; set; }
}
```

## 3. 根据需求确定三个继承于 Animal 的子类 cat、pig、dog：

```
class cat : Animal
{
    TextBlock word;
    private int a;

    public cat(TextBlock w)
    {
        this.word = w;
    }

    public string saying(object sender)
    {
        this.word.Text += "Cat: I am a cat.\n";
        return "";
    }

    public int A
    {
        get { return a; }
        set { this.a = value; }
    }
}
```

```

    }
}

```

4. 采用 random 函数，生成随机数实现随机发言，并用 Button\_Click 绑定在 Speak 按钮上

```

private void Button_Click(object sender, RoutedEventArgs e)
{
    this.words.Text = "";
    Random i = new Random();
    int x = i.Next(3);
    if (x == 0)
    {
        c = new cat(words);
        Say += new AnimalSaying(c.saying);
    }
    else if (x == 1)
    {
        d = new dog(words);
        Say += new AnimalSaying(d.saying);
    }
    else if (x == 2)
    {
        p = new pig(words);
        Say += new AnimalSaying(p.saying);
    }
    Say(this);
}

```

5. 实现当 textBox 中输入为 pig、dog 或 cat 时，控制输出为相应内容，并用 Button1\_Click 绑定在 OK 按钮上

```

private void Button1_Click(object sender, RoutedEventArgs e)
{
    this.words.Text = "";
    if (this.textBox.Text == "cat" || this.textBox.Text == "Cat")
    {
        c = new cat(words);
        Say += new AnimalSaying(c.saying);
    }
    else if (this.textBox.Text == "dog" || this.textBox.Text == "Dog")
    {
        d = new dog(words);
        Say += new AnimalSaying(d.saying);
    }
}

```

```

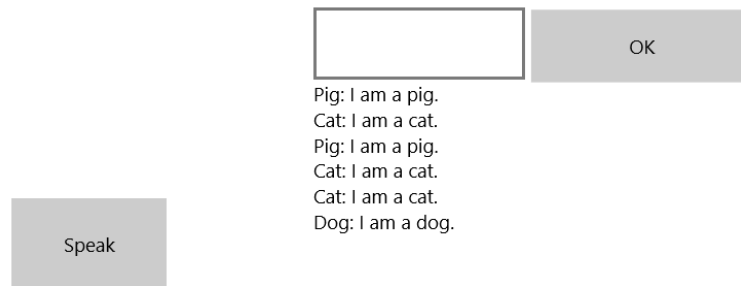
    }
    else if (this.textBox.Text == "pig" || this.textBox.Text == "Pig")
    {
        p = new pig(words);
        Say += new AnimalSaying(p.saying);
    }
    Say(this);
    this.textBox.Text = "";
}

```

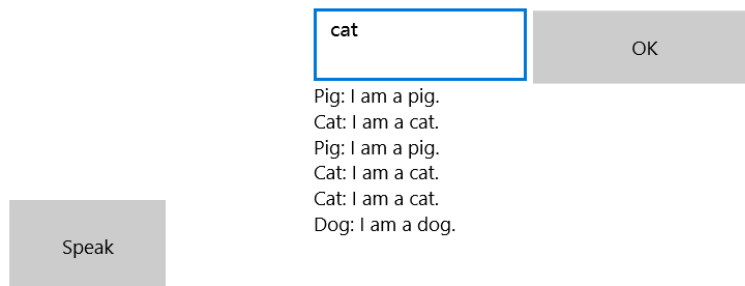
## 6. 调试项目

### 三 . 实验结果截图

#### 1. 点击 Speak 随机发言



#### 2. TextBox 中输入 cat



点击 OK 输出对应语句并清空 TextBox

Speak

OK

Pig: I am a pig.  
Cat: I am a cat.  
Pig: I am a pig.  
Cat: I am a cat.  
Cat: I am a cat.  
Dog: I am a dog.  
Cat: I am a cat.

支持首字母大小写

Speak

Dog

OK

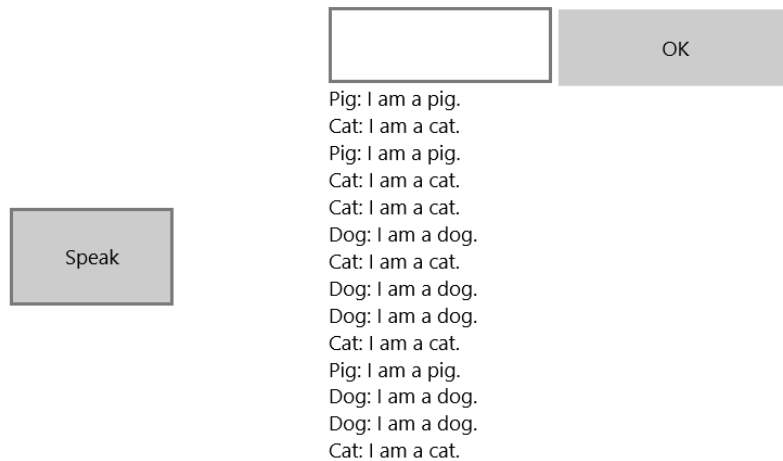
Pig: I am a pig.  
Cat: I am a cat.  
Pig: I am a pig.  
Cat: I am a cat.  
Cat: I am a cat.  
Dog: I am a dog.  
Cat: I am a cat.

Speak

OK

Pig: I am a pig.  
Cat: I am a cat.  
Pig: I am a pig.  
Cat: I am a cat.  
Cat: I am a cat.  
Dog: I am a dog.  
Cat: I am a cat.  
Dog: I am a dog.

3. 点击 Speak 继续随机发言



#### 四 . 实验过程遇到的问题

1. Win10 及 VS2015 安装，等待很长很长时间.....
2. 按钮点击事件函数需要传入 RoutedEventArgs 逻辑参数，demo 中计数有用到，但作业项目没有用到且不传会报错，造成一点困惑。

#### 五 . 思考与总结

C#这门语言与 C++有相似的地方，比如这次作业中的用到的类继承多态等思想，但它们在目前接触到的应用特性上存在较大差异，如委托等，应该着手从 C#与 C++不同的角度来学习。