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Лабораторная работа № 10	Дата выполнения	
	Подпись	
	Дата отчёта	
Анимация в Silverlight	Оценка	
	Подпись	

Цель работы: получение общих сведений о технологии Silverlight, получение практических навыков создания анимированных web-приложений, использующих Silverlight.

Задачи:

1. Создать Silverlight-форму с объектами, подлежащими анимированию
2. Создать анимационные эффекты
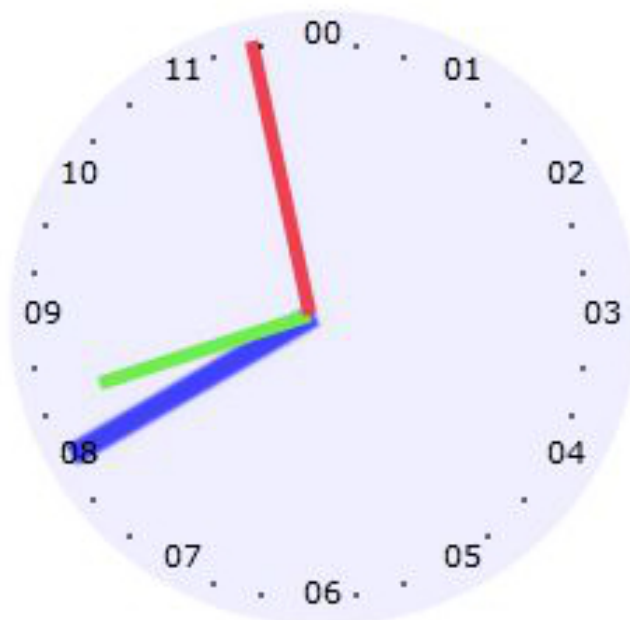3. Проверить их работоспособность

Задание: создать часы.
Скриншоты:

Рисунок 1 — Главная страница с Silverlight-формой

Исходный код:

Главная страница

```
1   using System;
2   using System.Collections.Generic;
3   using System.Linq;
4   using System.Net;
5   using System.Windows;
6   using System.Windows.Controls;
7   using System.Windows.Documents;
8   using System.Windows.Input;
9   using System.Windows.Media;
10  using System.Windows.Media.Animation;
11  using System.Windows.Shapes;
12  using System.Windows.Threading;
13
14  namespace Lab10
15  {
16      public partial class MainPage : UserControl
17      {
18          private DispatcherTimer timerVideoTime = new DispatcherTimer();
19          private RotateTransform hour_rotate = new RotateTransform();
20          private RotateTransform minute_rotate = new RotateTransform();
21          private RotateTransform second_rotate = new RotateTransform();
22
23          public void AddText(Canvas canvas, String text, int X, int Y) {
24              TextBlock tmp = new TextBlock();
25              tmp.Text = text;
26              tmp.RenderTransform = new TranslateTransform {
27                  X = X,
28                  Y = Y,
29              };
30              canvas.Children.Add(tmp);
31          }
32          public MainPage()
33          {
34              InitializeComponent();
35              timerVideoTime.Interval = TimeSpan.FromMilliseconds(500);
36              timerVideoTime.Tick += new EventHandler( timer_Tick );
37              Ellipse clock = new Ellipse();
38              SolidColorBrush brush = new SolidColorBrush();
39              brush.Color = Color.FromArgb(80, 204, 204, 255);
40              clock.RenderTransform = new TranslateTransform
41              {
42                  X = 95,
43                  Y = 25
44              };
45              clock.Width = 225;
46              clock.Height = 220;
47              clock.Fill = brush;
48              canvas.Children.Add(clock);
49              const double angle = 0.017453292519943295769236907684899;
50              for (int i = 0; i < 360; i++)
51              {
52                  int x = Convert.ToInt32((Math.Cos((double)i * angle - Math.PI / 2.0f) + 2) * 100);
53                  int y = Convert.ToInt32((Math.Sin((double)i * angle - Math.PI / 2.0f) + 1.25) * 100);
54                  if (i % 30 == 0)
55                  {
56                      AddText(canvas, Convert.ToString(i/30).PadLeft(2, '0'), x, y);
57                  }
58                  else if ( i % 10 == 0)
59                  {
60                      AddText(canvas, ".", x, y);
61                  }
62              }
63              hour.SetValue(Canvas.LeftProperty, (double)200);
64              minute.SetValue(Canvas.LeftProperty, (double)200);
65              second.SetValue(Canvas.LeftProperty, (double)200);
66              hour_rotate.CenterX = hour.Width / 2;
67              hour_rotate.CenterY = hour.Height;
68              minute_rotate.CenterX = minute.Width / 2;
69              minute_rotate.CenterY = minute.Height;
70              second_rotate.CenterX = second.Width / 2;
71              second_rotate.CenterY = second.Height;
```

```
72                    hour.RenderTransform = hour_rotate;
73                    minute.RenderTransform = minute_rotate;
74                    second.RenderTransform = second_rotate;
75                    timerVideoTime.Start();
76                }
77
78            private void timer_Tick(object sender, EventArgs e)
79            {
80                    double hour = (double) DateTime.Now.TimeOfDay.Hours;
81                    double minute = (double)DateTime.Now.TimeOfDay.Minutes;
82                    double seconds = (double) DateTime.Now.TimeOfDay.Seconds;
83
84                    hour_rotate.Angle = hour * 30;
85                    minute_rotate.Angle = minute * 6;
86                    second_rotate.Angle = seconds * 6;
87            }
88        }
89  }
```

Разметка главной страницы

```
1   <UserControl x:Class="Lab10.MainPage"
2       xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
3       xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
4       xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
5       xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
6       mc:Ignorable="d"
7       d:DesignHeight="300" d:DesignWidth="400">
8
9       <Grid x:Name="LayoutRoot" Background="White">
10          <Canvas x:Name="canvas" HorizontalAlignment="Left" Height="280" VerticalAlignment="Top" Width="380
        " Margin="10,10,0,0">
11              <Rectangle x:Name="hour" Fill="#FF0404FD" HorizontalAlignment="Left" Height="100" Stroke="
        Black" VerticalAlignment="Top" Width="8" Canvas.Left="117" Canvas.Top="34" StrokeThickness="0">
12                  <Rectangle.Effect>
13                      <BlurEffect Radius="2"/>
14                  </Rectangle.Effect>
15              </Rectangle>
16              <Rectangle x:Name="minute" Fill="#FF48FD04" HorizontalAlignment="Left" Height="79" Stroke="
        Black" VerticalAlignment="Top" Width="5" Canvas.Left="140" Canvas.Top="55" StrokeThickness="0">
17                  <Rectangle.Effect>
18                      <BlurEffect Radius="2"/>
19                  </Rectangle.Effect>
20              </Rectangle>
21              <Rectangle x:Name="second" Fill="#FFFD0404" HorizontalAlignment="Left" Height="100" Stroke="
        Black" VerticalAlignment="Top" Width="5" Canvas.Left="130" Canvas.Top="34" StrokeThickness="0">
22                  <Rectangle.Effect>
23                      <BlurEffect Radius="2"/>
24                  </Rectangle.Effect>
25              </Rectangle>
26          </Canvas>
27      </Grid>
28  </UserControl>
```