

Лабораторная работа № 2	Студент, группа	Чечеткин И. А.
	Дата выполнения	
	Подпись	
	Дата отчёта	
	Оценка	
	Подпись	

Введение в разработку WinPhone-приложений

Цель работы:

1. познакомиться с инструментами разработки WinPhone-приложения,
2. разобрать структуру типичного WinPhone-приложения,
3. научиться запускать приложение на эмуляторе.

Калькулятор

Страница приложения:

```

1  <phone:PhoneApplicationPage
2  x:Class="lab_2.MainPage"
3  xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
4  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
5  xmlns:phone="clr-namespace:Microsoft.Phone.Controls;assembly=Microsoft.Phone"
6  xmlns:shell="clr-namespace:Microsoft.Phone.Shell;assembly=Microsoft.Phone"
7  xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
8  xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
9  mc:Ignorable="d" d:DesignWidth="480" d:DesignHeight="768"
10 FontFamily="{StaticResource PhoneFontFamilyNormal}"
11 FontSize="{StaticResource PhoneFontSizeNormal}"
12 Foreground="{StaticResource PhoneForegroundBrush}"
13 SupportedOrientations="Portrait" Orientation="Portrait"
14 shell:SystemTray.IsVisible="True">
15
16 <Grid x:Name="LayoutRoot" Background="Transparent">
17     <Grid.RowDefinitions>
18         <RowDefinition Height="Auto"/>
19         <RowDefinition Height="*/"/>
20     </Grid.RowDefinitions>
21
22     <Grid x:Name="ContentPanel" Grid.Row="1" Margin="12,0,12,0">
23         <TextBlock Height="50" HorizontalAlignment="Left" Margin="15,30,0,0" Name="tbf" Text="" VerticalAlignment="Top" Width="427"
24             TextAlignment="Right" FontSize="32" />
25         <TextBox Height="80" HorizontalAlignment="Left" Margin="0,80,0,0" Name="tbin" Text="0" VerticalAlignment="Top" Width="460"
26             TextAlignment="Right" FontSize="32" IsReadOnly="True" />
27         <Button Content="MC" Height="100" HorizontalAlignment="Left" Margin="0,150,0,0" Name="bmc" VerticalAlignment="Top" Width="100"
28             FontSize="26" Click="bmc_Click" />
29         <Button Content="MR" Height="100" HorizontalAlignment="Left" Margin="90,150,0,0" Name="bmr" VerticalAlignment="Top" Width="100"
30             FontSize="26" Click="bmr_Click" />
31         <Button Content="MS" Height="100" HorizontalAlignment="Left" Margin="180,150,0,0" Name="bms" VerticalAlignment="Top" Width="100"
32             FontSize="26" Click="bms_Click" />
33         <Button Content="Mn" Height="100" HorizontalAlignment="Left" Margin="270,150,0,0" Name="bmp" VerticalAlignment="Top" Width="100"
34             FontSize="26" Click="bmp_Click" />
35         <Button Content="M-" Height="100" HorizontalAlignment="Left" Margin="360,150,0,0" Name="bmm" VerticalAlignment="Top" Width="100"
36             FontSize="26" Click="bmm_Click" />
37         <Button Content="←" Height="100" HorizontalAlignment="Left" Margin="0,240,0,0" Name="bb" VerticalAlignment="Top" Width="100"
38             FontSize="26" Click="bb_Click" />
39         <Button Content="CE" Height="100" HorizontalAlignment="Left" Margin="90,240,0,0" Name="bce" VerticalAlignment="Top" Width="100"
40             FontSize="26" Click="bce_Click" />
41         <Button Content="C" Height="100" HorizontalAlignment="Left" Margin="180,240,0,0" Name="bc" VerticalAlignment="Top" Width="100"
42             FontSize="26" Click="bc_Click" />
43         <Button Content="±" Height="100" HorizontalAlignment="Left" Margin="270,240,0,0" Name="bpm" VerticalAlignment="Top" Width="100"
44             FontSize="26" Click="bpm_Click" />
45         <Button Content="√" Height="100" HorizontalAlignment="Left" Margin="360,240,0,0" Name="bsqrt" VerticalAlignment="Top" Width="100"
46             FontSize="26" Click="bsqrt_Click" />
47         <Button Content="7" Height="100" HorizontalAlignment="Left" Margin="0,330,0,0" Name="b7" VerticalAlignment="Top" Width="100"
48             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="7" />
49         <Button Content="8" Height="100" HorizontalAlignment="Left" Margin="90,330,0,0" Name="b8" VerticalAlignment="Top" Width="100"
50             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="8" />
51         <Button Content="9" Height="100" HorizontalAlignment="Left" Margin="180,330,0,0" Name="b9" VerticalAlignment="Top" Width="100"
52             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="9" />
53         <Button Content="/" Height="100" HorizontalAlignment="Left" Margin="270,330,0,0" Name="bdiv" VerticalAlignment="Top" Width="100"
54             FontSize="26" Click="bcom_Click" Tag="3" />
55         <Button Content="%" Height="100" HorizontalAlignment="Left" Margin="360,330,0,0" Name="bper" VerticalAlignment="Top" Width="100"
56             FontSize="26" Click="bper_Click" />
57         <Button Content="4" Height="100" HorizontalAlignment="Left" Margin="0,420,0,0" Name="b4" VerticalAlignment="Top" Width="100"
58             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="4" />
59         <Button Content="5" Height="100" HorizontalAlignment="Left" Margin="90,420,0,0" Name="b5" VerticalAlignment="Top" Width="100"
60             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="5" />
61         <Button Content="6" Height="100" HorizontalAlignment="Left" Margin="180,420,0,0" Name="b6" VerticalAlignment="Top" Width="100"
62             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="6" />
63         <Button Content="*" Height="100" HorizontalAlignment="Left" Margin="270,420,0,0" Name="bmul" VerticalAlignment="Top" Width="100"
64             FontSize="26" Click="bcom_Click" Tag="4" />

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44         <Button Content="1/x" Height="100" HorizontalAlignment="Left" Margin="360,420,0,0" Name="bx" VerticalAlignment="Top" Width="100"
45             FontSize="26" Click="bx_Click" />
46         <Button Content="1" Height="100" HorizontalAlignment="Left" Margin="0,510,0,0" Name="b1" VerticalAlignment="Top" Width="100"
47             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="1" />
48         <Button Content="2" Height="100" HorizontalAlignment="Left" Margin="90,510,0,0" Name="b2" VerticalAlignment="Top" Width="100"
49             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="2" />
50         <Button Content="3" Height="100" HorizontalAlignment="Left" Margin="180,510,0,0" Name="b3" VerticalAlignment="Top" Width="100"
51             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="3" />
52         <Button Content="=" Height="100" HorizontalAlignment="Left" Margin="270,510,0,0" Name="bm" VerticalAlignment="Top" Width="100"
53             FontSize="26" Click="bcom_Click" Tag="2" />
54         <Button Content="=" Height="190" HorizontalAlignment="Left" Margin="360,0,0,68" Name="beq" VerticalAlignment="Bottom" Width="100"
55             FontSize="26" Click="bcom_Click" Tag="0" />
56         <Button Content="0" Height="100" HorizontalAlignment="Left" Margin="0,600,0,0" Name="b0" VerticalAlignment="Top" Width="190"
57             FontSize="26" Background="#FF2E2E2E" Click="bn_Click" Tag="0" />
58         <Button Content="." Height="100" HorizontalAlignment="Left" Margin="180,600,0,0" Name="bd" VerticalAlignment="Top" Width="100"
59             FontSize="26" Background="#FF2E2E2E" Click="bd_Click" />
60         <Button Content="+" Height="100" HorizontalAlignment="Left" Margin="270,600,0,0" Name="bp" VerticalAlignment="Top" Width="100"
61             FontSize="26" Click="bcom_Click" Tag="1" />
62         <TextBlock Height="50" HorizontalAlignment="Left" Margin="15,700,0,0" Name="tbm" Text="" VerticalAlignment="Top" Width="427"
63             TextAlignment="Right" FontSize="24" DataContext="{Binding}" />
64     </Grid>
65 </Grid>
66 </phone:PhoneApplicationPage>

```

Код приложения:

```

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 Microsoft.Phone.Controls;
13
14 namespace lab_2
15 {
16     public partial class MainPage : PhoneApplicationPage
17     {
18         double memory = 0;
19         double first = 0;
20         bool error = false;
21         bool dot_set = false;
22         bool but_click = false;
23         int last_operation;
24         enum ops {eq, plus, minus, div, mul};
25
26         public MainPage()
27         {
28             InitializeComponent();
29         }
30
31         private void Calc(int op)
32         {
33             if (tb1.Text == "")
34             {
35                 if (op != (int)ops.eq)
36                 {
37                     first = Convert.ToDouble(tb1.Text);
38                     tb1.Text = first.ToString();
39                     last_operation = op;
40                     dot_set = false;
41                     switch (last_operation)
42                     {
43                         case (int)ops.plus:
44                         {
45                             tb1.Text += " +";
46                             break;
47                         }
48                         case (int)ops.minus:
49                         {
50                             tb1.Text += " -";
51                             break;
52                         }
53                         case (int)ops.div:
54                         {
55                             tb1.Text += " /";
56                             break;
57                         }
58                         case (int)ops.mul:
59                         {
60                             tb1.Text += " *";
61                             break;
62                         }
63                     }
64                 }
65             }
66             else
67             {
68                 double second = Convert.ToDouble(tb2.Text);
69                 double temp = first;
70                 dot_set = false;
71                 error = false;
72                 switch (last_operation)
73                 {
74                     case (int)ops.plus:
75

```

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76         temp = first + second;
77         break;
78     }
79     case (int)ops.minus:
80     {
81         temp = first - second;
82         break;
83     }
84     case (int)ops.div:
85     {
86         if (second != 0)
87             temp = first / second;
88         else
89         {
90             tbin.Text = "ERROR";
91             error = true;
92         }
93         break;
94     }
95     case (int)ops.mul:
96     {
97         temp = first * second;
98         break;
99     }
100 }
101 if (!error)
102 {
103     tbin.Text = "0";
104     tbf.Text = temp.ToString();
105     first = temp;
106     switch (op)
107     {
108         case (int)ops.plus:
109         {
110             tbf.Text += " +";
111             break;
112         }
113         case (int)ops.minus:
114         {
115             tbf.Text += " -";
116             break;
117         }
118         case (int)ops.div:
119         {
120             tbf.Text += " /";
121             break;
122         }
123         case (int)ops.mul:
124         {
125             tbf.Text += " *";
126             break;
127         }
128         case (int)ops.eq:
129         {
130             tbf.Text = "";
131             tbin.Text = first.ToString();
132             break;
133         }
134     }
135     last_operation = op;
136 }
137 }
138 but_click = false;
139 }
140
141 private void bn_Click(object sender, RoutedEventArgs e)
142 {
143     Button _button = (Button)sender;
144     int num = Convert.ToInt32(_button.Tag.ToString());
145     if (!error)
146     {
147         if (tbin.Text == "0" || !but_click)
148             tbin.Text = num.ToString();
149         else
150             tbin.Text += num.ToString();
151         but_click = true;
152     }
153 }
154
155 private void bd_Click(object sender, RoutedEventArgs e)
156 {
157     if (!error && !dot_set)
158     {
159         if (!but_click)
160             tbin.Text = "0";
161         tbin.Text += ".";
162         dot_set = true;
163         but_click = true;
164     }
165 }
166
167 private void bc_Click(object sender, RoutedEventArgs e)
168 {
169     tbin.Text = "0";
170     tbf.Text = "";
171     first = 0;
172     last_operation = 0;
173     error = false;
174     dot_set = false;
175     bp.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));
176     bm.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));
177     bdiv.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));
178     bmul.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));

```

```

179     }
180
181     private void bce_Click(object sender, RoutedEventArgs e)
182     {
183         tbin.Text = "0";
184         error = false;
185         dot_set = false;
186     }
187
188     private void bb_Click(object sender, RoutedEventArgs e)
189     {
190         if (!error)
191         {
192             if (tbin.Text.Length > 1)
193                 tbin.Text = tbin.Text.Substring(0, tbin.Text.Length - 1);
194             else
195                 tbin.Text = "0";
196             if (!tbin.Text.Contains(','))
197                 dot_set = false;
198         }
199     }
200
201     private void bms_Click(object sender, RoutedEventArgs e)
202     {
203         if (!error)
204             memory = Convert.ToDouble(tbin.Text);
205         tbin.Text = String.Format("memory: {0}", memory);
206     }
207
208     private void bmr_Click(object sender, RoutedEventArgs e)
209     {
210         tbin.Text = memory.ToString();
211         error = false;
212         if (tbin.Text.Contains(','))
213             dot_set = true;
214     }
215
216     private void bmp_Click(object sender, RoutedEventArgs e)
217     {
218         if (!error)
219             memory += Convert.ToDouble(tbin.Text);
220         tbin.Text = String.Format("memory: {0}", memory);
221     }
222
223     private void bmm_Click(object sender, RoutedEventArgs e)
224     {
225         if (!error)
226             memory -= Convert.ToDouble(tbin.Text);
227         tbin.Text = String.Format("memory: {0}", memory);
228     }
229
230     private void bmc_Click(object sender, RoutedEventArgs e)
231     {
232         memory = 0;
233         tbin.Text = "";
234     }
235
236     private void bsqrt_Click(object sender, RoutedEventArgs e)
237     {
238         if (!error)
239         {
240             double temp = Convert.ToDouble(tbin.Text);
241             if (temp >= 0)
242                 tbin.Text = Math.Sqrt(temp).ToString();
243             else
244             {
245                 tbin.Text = "ERROR";
246                 error = true;
247             }
248         }
249     }
250
251     private void bx_Click(object sender, RoutedEventArgs e)
252     {
253         if (!error)
254         {
255             double temp = Convert.ToDouble(tbin.Text);
256             if (temp != 0)
257                 tbin.Text = (1 / temp).ToString();
258             else
259             {
260                 tbin.Text = "ERROR";
261                 error = true;
262             }
263         }
264     }
265
266     private void bper_Click(object sender, RoutedEventArgs e)
267     {
268         if (!error)
269         {
270             double temp = Convert.ToDouble(tbin.Text);
271             temp *= first / 100;
272             tbin.Text = temp.ToString();
273         }
274     }
275
276     private void bpm_Click(object sender, RoutedEventArgs e)
277     {
278         if (!error)
279             tbin.Text = (-Convert.ToDouble(tbin.Text)).ToString();
280     }
281

```

```

282 private void bcom_Click(object sender, RoutedEventArgs e)
283 {
284     Button _button = (Button)sender;
285     if (!error)
286     {
287         int op = Convert.ToInt32(_button.Tag.ToString());
288         Calc(op);
289         light(sender);
290     }
291 }
292
293 private void light(object sender)
294 {
295     bp.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));
296     bm.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));
297     bmul.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));
298     bdiv.Background = new SolidColorBrush(Color.FromArgb(0x00, 0, 0, 0));
299     Button _button = (Button)sender;
300     if (_button != beq)
301         _button.Background = new SolidColorBrush(Color.FromArgb(0xff, 0x2e, 0x2e, 0x2e));
302 }
303
304 }
305 }

```

Скриншот приложения:

