

21 双色球

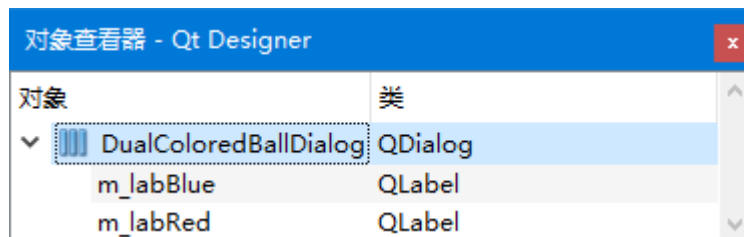
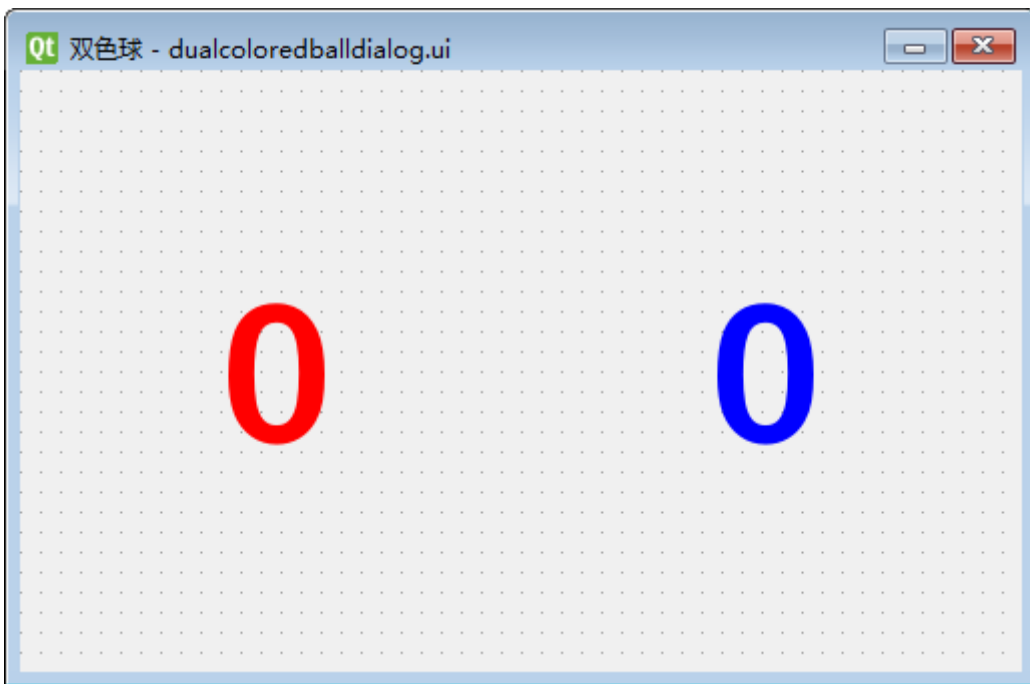
21.1 需求分析

设计并实现一个双色球抽奖对话框。界面中包括红色和蓝色两个标签，分别用于显示红色球和蓝色球的号码。用户按下空格键，启动间隔分别为100毫秒和500毫秒的两个定时器。其中间隔为100毫秒的定时器用于更新红色球的号码，间隔为500毫秒的定时器用于更新蓝色球的号码。红色球和蓝色球的号码分别为1到33和1到16之间的随机数。再次按下空格键，停止定时器，两个标签中最终显示的即为所抽双色球号码。

21.2 创建项目

通过QtCreator，在C:\Users\Minwei\Projects\Qt路径下，创建名为DualColoredBall的项目。

21.3 设计界面



C:\Users\Minwei\Projects\Qt\DualColoredBall\dualcoloredballdialog.ui:

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <ui version="4.0">
3 <class>DualColoredBallDialog</class>
4 <widget class="QDialog" name="DualColoredBallDialog">
5 <property name="geometry">
6 <rect>
7 <x>0</x>
8 <y>0</y>
9 <width>500</width>
10 <height>300</height>
```



```
67     </property>
68   </widget>
69 </item>
70 <item>
71   <widget class="QLabel" name="m_labBlue">
72     <property name="palette">
73       <palette>
74         <active>
75           <colorrole role="WindowText">
76             <brush brushstyle="SolidPattern">
77               <color alpha="255">
78                 <red>0</red>
79                 <green>0</green>
80                 <blue>255</blue>
81               </color>
82             </brush>
83           </colorrole>
84         </active>
85         <inactive>
86           <colorrole role="WindowText">
87             <brush brushstyle="SolidPattern">
88               <color alpha="255">
89                 <red>0</red>
90                 <green>0</green>
91                 <blue>255</blue>
92               </color>
93             </brush>
94           </colorrole>
95         </inactive>
96         <disabled>
97           <colorrole role="WindowText">
98             <brush brushstyle="SolidPattern">
99               <color alpha="255">
100                 <red>120</red>
101                 <green>120</green>
102                 <blue>120</blue>
103               </color>
104             </brush>
105           </colorrole>
106         </disabled>
107       </palette>
108     </property>
109     <property name="font">
110       <font>
111         <family>Arial Rounded MT Bold</family>
112         <pointsize>72</pointsize>
113       </font>
114     </property>
115     <property name="text">
116       <string>0</string>
117     </property>
118     <property name="alignment">
119       <set>Qt::AlignCenter</set>
120     </property>
121   </widget>
122 </item>
```

```

123     </layout>
124 </widget>
125 <resources/>
126 <connections/>
127 </ui>

```

21.4 实现功能

C:\Users\Minwei\Projects\Qt\DualColoredBall\dualcoloredballdialog.h:

```

1  #ifndef DUALCOLOREDBALLDIALOG_H
2  #define DUALCOLOREDBALLDIALOG_H
3
4  #include <QDialog>
5
6  QT_BEGIN_NAMESPACE
7  namespace Ui { class DualColoredBallDialog; }
8  QT_END_NAMESPACE
9
10 class DualColoredBallDialog : public QDialog
11 {
12     Q_OBJECT
13
14 public:
15     DualColoredBallDialog(QWidget *parent = nullptr);
16     ~DualColoredBallDialog();
17
18 protected:
19     void keyPressEvent(QKeyEvent* e);
20     void timerEvent(QTimerEvent* e);
21
22 private:
23     void updateRed(void);
24     void updateBlue(void);
25
26 private:
27     Ui::DualColoredBallDialog *ui;
28     bool m_stop;
29     int m_redTimer;
30     int m_blueTimer;
31 };
32
33 #endif // DUALCOLOREDBALLDIALOG_H

```

C:\Users\Minwei\Projects\Qt\DualColoredBall\dualcoloredballdialog.cpp:

```

1  #include <QTime>
2  #include <QKeyEvent>
3
4  #include "dualcoloredballdialog.h"
5  #include "ui_dualcoloredballdialog.h"
6
7  DualColoredBallDialog::DualColoredBallDialog(QWidget *parent)
8      : QDialog(parent)

```

```

9     , ui(new Ui::DualColoredBallDialog)
10    , m_stop(true)
11    {
12        ui->setupUi(this);
13
14        qsrand(QTime::currentTime().msec());
15
16        updateRed();
17        updateBlue();
18    }
19
20 DualColoredBallDialog::~DualColoredBallDialog()
21 {
22     delete ui;
23 }
24
25 void DualColoredBallDialog::keyPressEvent(QKeyEvent* e)
26 {
27     if (e->key() == Qt::Key_Space)
28     {
29         if (m_stop)
30         {
31             m_redTimer = startTimer(100);
32             m_blueTimer = startTimer(500);
33         }
34         else
35         {
36             killTimer(m_redTimer);
37             killTimer(m_blueTimer);
38         }
39
40         m_stop = !m_stop;
41     }
42 }
43
44 void DualColoredBallDialog::timerEvent(QTimerEvent* e)
45 {
46     if (e->timerId() == m_redTimer)
47         updateRed();
48     else if (e->timerId() == m_blueTimer)
49         updateBlue();
50 }
51
52 void DualColoredBallDialog::updateRed(void)
53 {
54     ui->m_labRed->setText(QString::number(qrand() % 33 + 1));
55 }
56
57 void DualColoredBallDialog::updateBlue(void)
58 {
59     ui->m_labBlue->setText(QString::number(qrand() % 16 + 1));
60 }

```

21.5 测试验证

运行效果如图所示：

