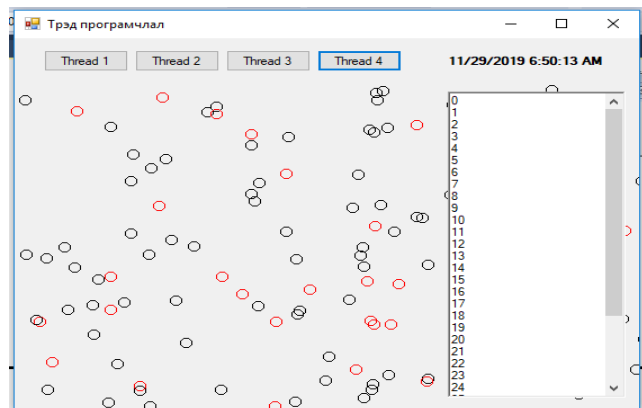


## Лабораторийн ажил 12-13

**Зорилго.** Thread ашиглан олон урсгалт програм бичиж сурах.

**Жишээ.**

- Thread 1 – улаан бөмбөлөг зурах,
- Thread 2 – хар бөмбөлөг зурах,
- Thread 3 – richTextBox1 рүү текст бичих,
- Thread 4 – огноо хэвлэх



```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace lecture12
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();

            Random rd;
            Thread thread1;

            private void btnThread1_Click(object sender, EventArgs e)
            {
                thread1 = new Thread(t => {
                    for (int i = 0; i < 100; i++)
                    {
                        int width = rd.Next(0, this.Width);
                        int height = rd.Next(50, this.Height);
                        this.CreateGraphics().DrawEllipse(new Pen(Brushes.Red, 1), new
                        Rectangle(width, height, 10, 10));
                        Thread.Sleep(1000);
                    }
                }) { IsBackground = true };
                thread1.Start();
            }

            private void Form1_Load(object sender, EventArgs e)
            {
                rd = new Random();
            }
        }
    }
}
```

```

    }

    private void btnThread2_Click(object sender, EventArgs e)
    {
        Thread thread = new Thread(t => {
            for (int i = 0; i < 100; i++)
            {
                int width = rd.Next(0, this.Width);
                int height = rd.Next(50, this.Height);
                this.CreateGraphics().DrawEllipse(new Pen(Brushes.Black, 1), new
Rectangle(width, height, 10, 10));
                Thread.Sleep(100);
                // Console.WriteLine(thread.ThreadState + " thread 2.");
            }
        })
        { IsBackground = true };
        thread.Start();
    }

    private void btnThread3_Click(object sender, EventArgs e)
    {
        Thread thread3 = new Thread(t => {
            for (int i = 0; i < 100; i++){
richTextBox1.BeginInvoke((System.Windows.Forms.MethodInvoker)delegate ()
{ richTextBox1.Text += i + "\n"; });
                Thread.Sleep(1000);
            }
        })
        { IsBackground = true };
        thread3.Start();
    }

    private void btnThread4_Click_1(object sender, EventArgs e)
    {
        Thread thread4 = new Thread(t => {
            while(true)
            {
                label1.BeginInvoke((System.Windows.Forms.MethodInvoker)delegate
() { label1.Text = Convert.ToString(DateTime.Now); });
                Thread.Sleep(1000);
                // Console.WriteLine(thread.ThreadState + " thread 1.");
            }
        })
        { IsBackground = true };
        thread4.Start();
    }
}

```

### Гэрийн даалгавар.

- 1-р нь: Цаг:Минут:Секундыг RichTextBox-руу хэвлэнэ.
- 2-р нь: Товч дарагдахад дэлгэцийн доод хэсэгт дүрс зүүнээс баруун руу тасралтгүйгээр шилжиж хөдөлдөг байна.

