



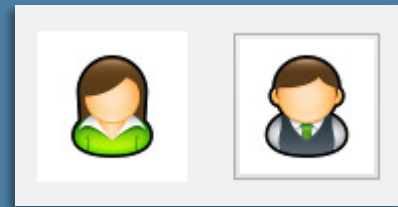
# Programmeren 3

# Programma periode 1.3

01 (wk-05)	classes / constructors / this / static
02 (wk-06)	inheritance / override methods / abstract classes
03 (wk-07)	access modifiers / properties
04 (wk-08)	vakantie
05 (wk-09)	database access / database layer
06 (wk-10)	User Interface / UI + service layer
07 (wk-11)	customizing UI
08 (wk-12)	oefententamen
<hr/>	
09 (wk-13)	<i>tentamens</i>
10 (wk-14)	<i>hertentamens</i>

# UI controls

# Button (with image)



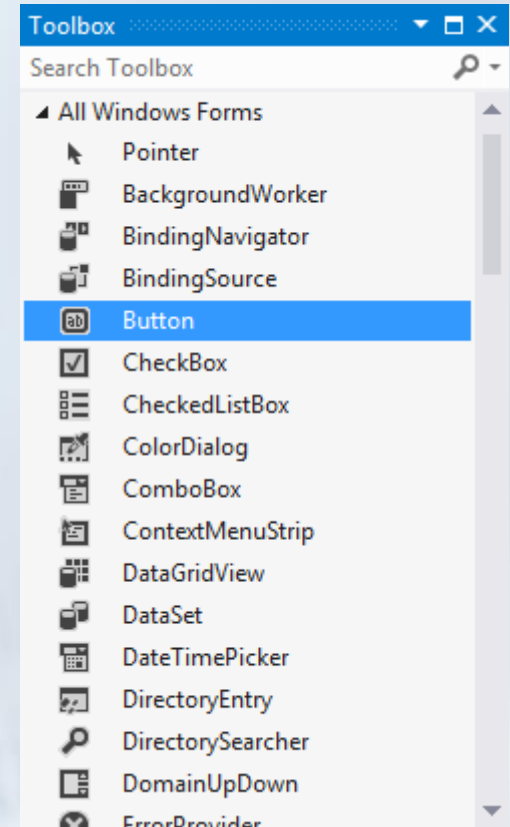
## ■ Properties:

- Image
- ImageAlign (MiddleCenter, ...)
- FlatStyle (Flat, Popup, Standard, System)

## ■ Events:

- Click

```
private void btnMale_Click(object sender, EventArgs e)
{
    MessageBox.Show("Male...");
}
```



# ComboBox

Selecteer boek: The Hobbit, Tolkien

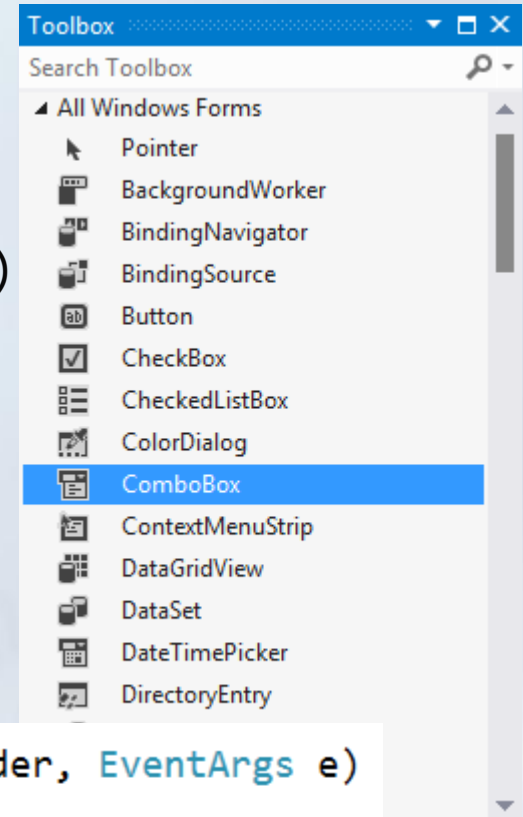
## ■ Properties:

### ■ Items

### ■ DropDownStyle (DropDown, DropDownList) (C#: SelectedIndex, SelectedItem)

## ■ Events:

### ■ SelectedIndexChanged



```
private void cmbBoeken_SelectedIndexChanged(object sender, EventArgs e)
{
    // geef reserveringen van (geselecteerd) boek
    Boek boek = (Boek)cmbBoeken.SelectedItem;

    ToonReserveringen(boek );
}
```

# Listbox

Joe Speedboot, Tommy Wieringa

Harry Potter - De Steen der Wijzen, J.K. Rowling

Harry Potter - De Geheime Kamer, J.K. Rowling

## ■ Properties:

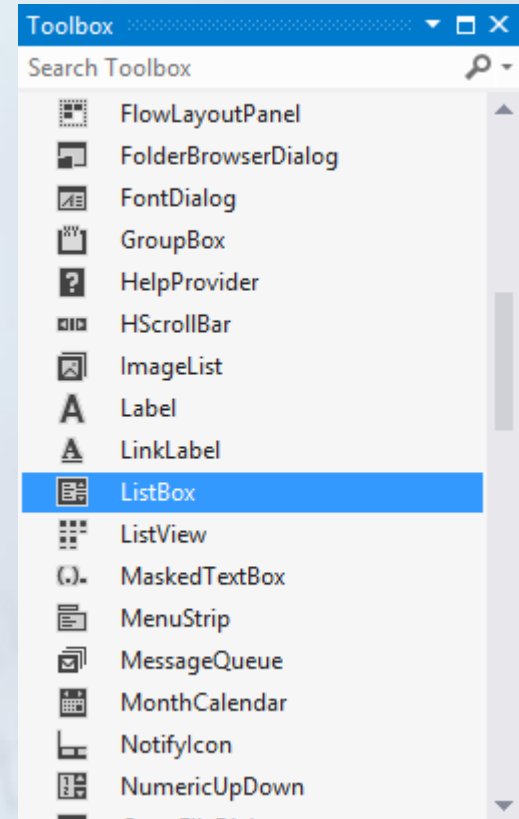
### ■ Items

### ■ SelectionMode (One, MultiSimple, ...)

(C#: *SelectedIndex*, *SelectedItem*, *SelectedItems*)

## ■ Events:

### ■ SelectedIndexChanged



```
private void lstReserveringen_SelectedIndexChanged(object sender, EventArgs e)
{
    MessageBox.Show("Selected reservation " + lstReserveringen.SelectedIndex);
}
```

# ListView

Id	Klant	Boek	Datum/tijd
1	Ronald Steenwijk	Joe Speedboot, Tommy Wieringa	09/05/2015
2	Ronald Steenwijk	Harry Potter - De Steen der Wijzen, J.K. Rowling	09/05/2015
3	Pieter de Groot	Harry Potter - De Vuurbeker, J.K. Rowling	09/05/2015

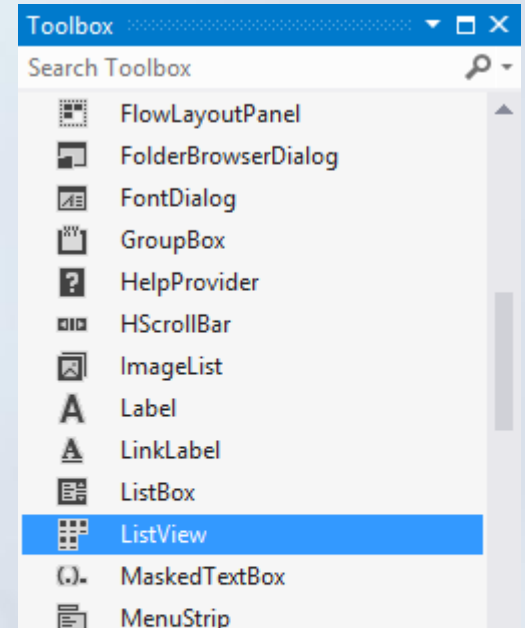
## ■ Properties:

### ■ Items, Columns

### ■ View (Details, LargeIcon, SmallIcon, List, Tile) (C#: *SelectedItem*)

## ■ Events:

### ■ SelectedIndexChanged



```
// plaats elke reservering in de listview
foreach (Reservation reservering in reserveringen)
{
    ListViewItem item = new ListViewItem(reservering.Id);
    item.SubItems.Add(reservering.Klant.VolledigNaam);
    item.SubItems.Add(reservering.Boek);
    item.SubItems.Add(reservering.ReserveerDatumTijd.ToString("dd/MM/yyyy"));
    lstReserveringen.Items.Add(item);
}
```

# Tag-property: object koppelen

```
private void ToonReserveringen()
{
    lstReserveringen.Items.Clear();
    foreach (Reservering reservering in reserveringService.GetAll())
    {
        ListViewItem item =
            new ListViewItem(reservering.Id);
        item.Tag = reservering;
        item.SubItems.Add(reservering.Klant.VolledigNaam);
        ...
        lstReserveringen.Items.Add(item);
    }
}
```



# Tag bevat geselecteerde object

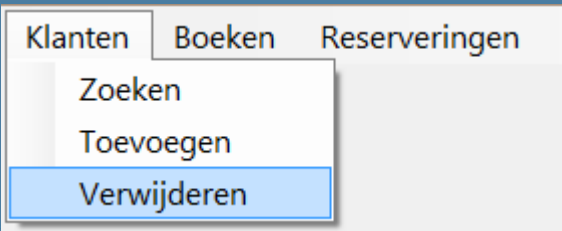
```
private void btnWijzig_Click(object sender, EventArgs e)
{
    if (lstReserveringen.SelectedItems.Count == 0)
        return;

    Reservering reservering =
        (Reservering)lstReserveringen.SelectedItems[0].Tag;

    ReserveringForm frm = new ReserveringForm(reservering);
    frm.ShowDialog();

    ToonReserveringen();
}
```

# MenuStrip



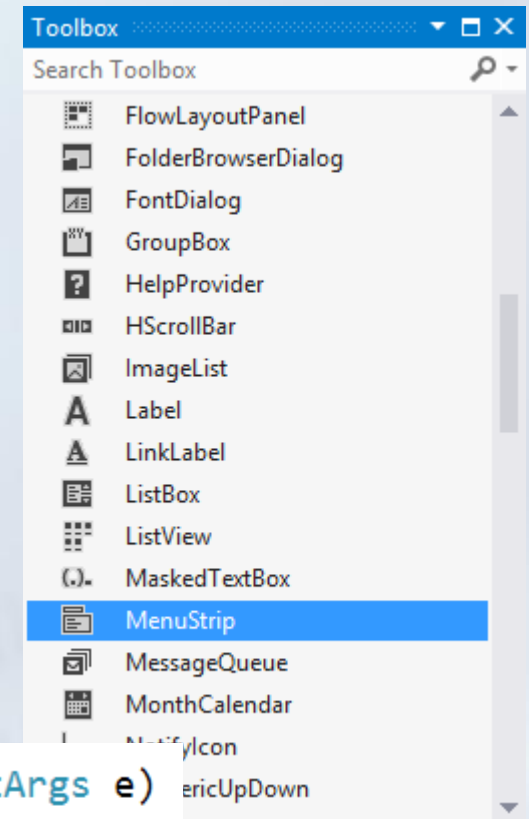
## ■ Properties:

- Items
- LayoutStyle (Horizontal, Vertical, Flow, ...)

## ■ Events: (ToolStripMenuItem)

- Click

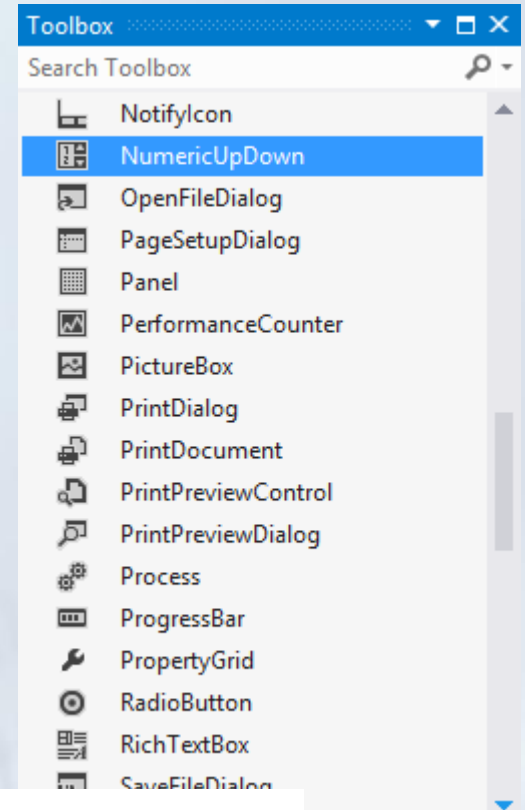
```
private void klantenMenuItem_Click(object sender, EventArgs e)
{
    KlantenForm form = new KlantenForm();
    form.ShowDialog();
}
```



# NumericUpDown

20 20

- Properties:
  - Minimum, Maximum
  - Value
- Events:
  - ValueChanged



```
private void numericUpDown1_ValueChanged(object sender, EventArgs e)
{
    lblNumberValue.Text = numericUpDown1.Value.ToString();
}
```

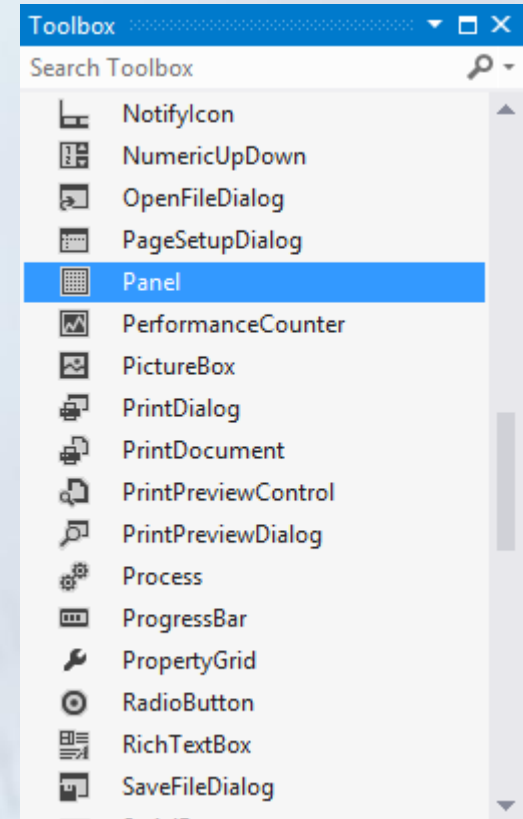
# Panel

Naam:

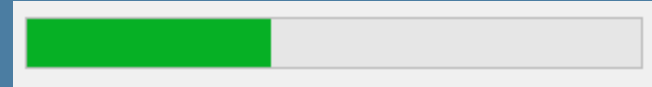
## ■ Properties:

- BackColor
- BackgroundImage
- BorderStyle
- Visible

## ■ Groeperen van controls

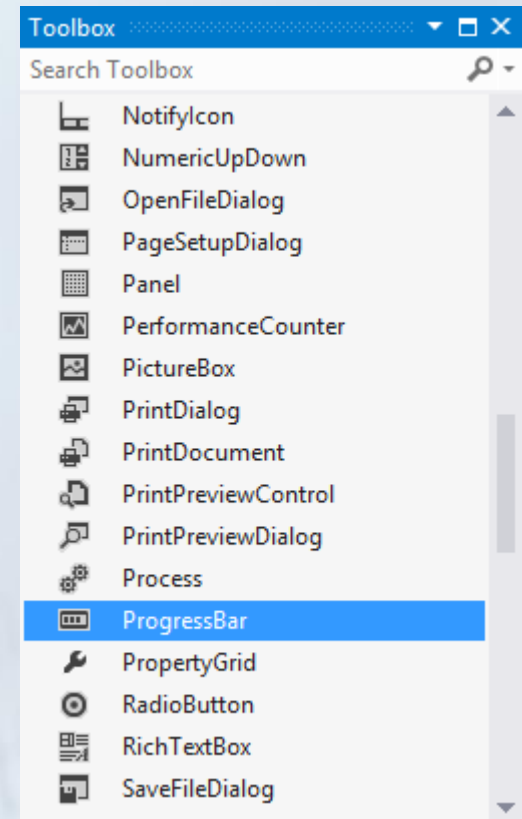


# ProgressBar



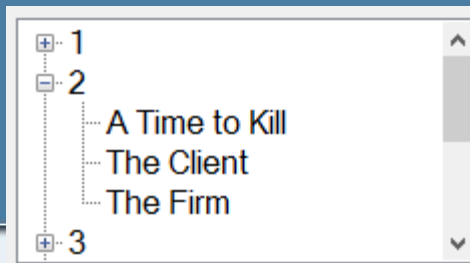
## ■ Properties:

- Minimum, Maximum
- Value
- Style (Blocks, Continuous, Marquee)



- Voortgang van 'langdurige operaties'

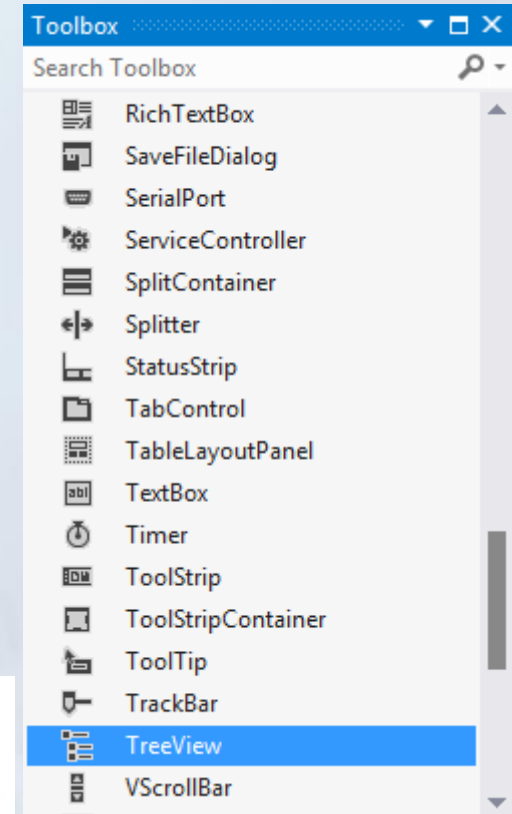
# TreeView



## ■ Properties

- (State)ImageList
- CheckBoxes
- Nodes

```
treeView1.Nodes.Clear();  
foreach (Reservering reservering in reserveringen)  
{  
    TreeNode node = new TreeNode(reservering.Id.ToString());  
    treeView1.Nodes.Add(node);  
}
```



# FlowLayoutPanel

Ronald  
Steenwijk

Hendrik  
Kuipers

Dennis van  
Dok

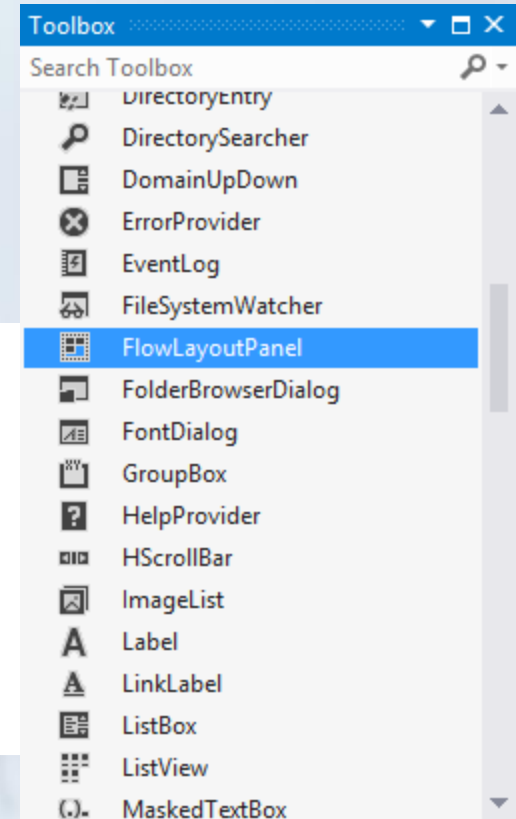
Pieter de  
Groot

Stefanie  
Meerman

Dimitry  
Kooijmans

- Properties:
  - FlowDirection (LeftToRight, TopDown, ...)

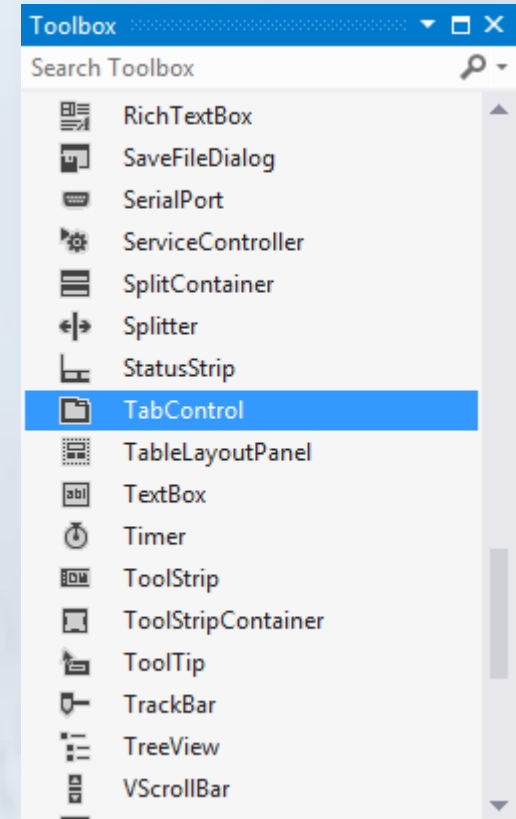
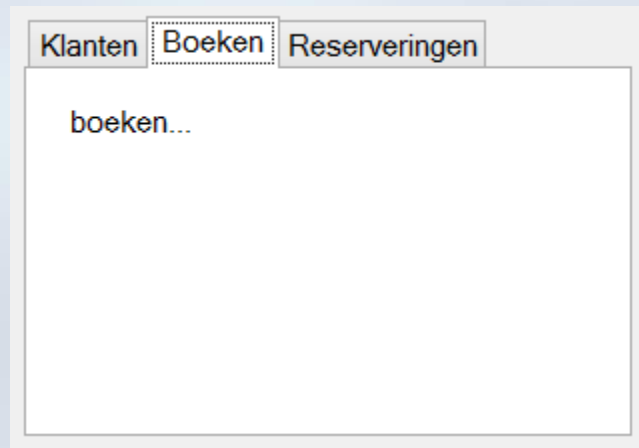
```
foreach (Klant klant in klantService.getAll())  
{  
    Button btn = new Button();  
    btn.Text = klant.VolledigNaam;  
    btn.Size = new Size(100, 50);  
    btn.Click += btn_Click;  
    flowLayoutPanel1.Controls.Add(btn);  
}
```



- Automatische indeling van controls

# TabControl

- Properties:
  - TabPages



- Tonen/verbergen van groepen controls



# Windows Forms

# Voorbeeld: StartForm (UI)

```
public partial class StartForm : Form
{
    public StartForm()
    {
        InitializeComponent();
    }

    private void klantenMenuItem_Click(object sender, EventArgs e)
    {
        KlantenForm form = new KlantenForm();
        form.ShowDialog();
    }
}
```

# Voorbeeld: KlantenForm (UI)

```
public partial class KlantenForm : Form
{
    private KlantService klantService = new KlantService();
    private ReserveringService reserveringService = new ReserveringService();

    public KlantenForm()
    {
        InitializeComponent();
        ToonKlanten();
    }

    private void ToonKlanten()
    {
        cmbKlanten.Items.Clear();
        foreach (Klant klant in klantService.GetAll())
        {
            cmbKlanten.Items.Add(klant);
        }
        cmbKlanten.SelectedIndex = 0; // selecteer eerste klant
    }
}
```

# Voorbeeld: KlantService (Logica)

```
public class KlantService
{
    private KlantDAO klantDAO = new KlantDAO();

    public List<Klant> GetAll()
    {
        return klantDAO.GetAll();
    }
}
```

# Form – ShowDialog en Show

## Modal Dialog:

- ShowDialog()
- Parent niet klikbaar tot Form afgesloten

## Non modal Form:

- Show()
- Parent wel klikbaar

# Form – Hide en Close

## Hide()

- Object blijft in het geheugen
- heropenen: Show() / ShowDialog()

## Close()

- Object bestaat niet meer
- Nieuw Form-object maken

# Huiswerk voor volgende week

- Week 5 opdrachten (*deel 2 van 'reservation system'*)  
(zie Moodle)