

# Namespace Medium\_Scale\_Software\_Engineering\_Project

## Classes

### [AppCanvas](#)

Represents a drawable canvas that supports basic drawing operations such as lines, shapes, and text.

### [AppCommandFactory](#)

Implements CommandFactory with support for all BOOSE commands

### [Form1](#)

### [MethodDefinition](#)

Represents a method definition

### [MyCircle](#)

MyCircle command - draws a circle with given radius, optionally filled.

### [MyClear](#)

MyClear command - clears the canvas.

### [MyDrawTo](#)

DrawTo command - draws a line from current position to specified (x,y) coordinates.

### [MyForCommand](#)

MyForCommand class - represents a custom 'for' command.

### [MyIfCommand](#)

Implements the IF command with support for else and nested if statements

### [MyIntCommand](#)

Implements the INT variable declaration and assignment command

### [MyMoveTo](#)

MyMoveTo command - moves the current position to specified (x,y) coordinates without drawing.

### [MyPen](#)

Pen command - sets the drawing pen color using RGB values.

### [MyRect](#)

MyRect command - draws a rectangle with specified width and height, optionally filled.

### [MyReset](#)

MyReset command - resets the canvas and clears stored commands.

### MyTri

MyTri command - draws a triangle with specified width and height.

### MyWhileCommand

Implements the WHILE loop command

### MyWrite

myWrite command - writes text on the canvas at the current pen position.

### Program

### UnknownCommand

Command that does nothing for unknown commands Prevents exceptions during parsing

### VariableStore

Singleton class that replaces BOOSE internal variable handling for Int, Real, Array, and Method types with unlimited capacity.

## Interfaces

### IVariableStore

Abstraction for variable storage and evaluation. Implemented by VariableStore.

# Class AppCanvas

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Represents a drawable canvas that supports basic drawing operations such as lines, shapes, and text.

```
public class AppCanvas : ICanvas
```

## Inheritance

[object](#) ← AppCanvas

## Implements

ICanvas

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#)

# Constructors

## AppCanvas(int, int)

AppCanvas constructor initializes the canvas with specified width and height.

```
public AppCanvas(int width, int height)
```

## Parameters

width [int](#)

height [int](#)

# Properties

## PenColour

Property to get or set the pen colour used for drawing on the canvas.

```
public object PenColour { get; set; }
```

Property Value

[object](#)

## Xpos

Gets or sets the current X position of the pen on the canvas.

```
public int Xpos { get; set; }
```

Property Value

[int](#)

## Ypos

Gets or sets the current Y position of the pen on the canvas.

```
public int Ypos { get; set; }
```

Property Value

[int](#)

# Methods

## Circle(int, bool)

Creates a circle at the current pen position with the specified radius.

```
public void Circle(int radius, bool filled)
```

## Parameters

`radius` [int](#)

`filled` [bool](#)

## Clear()

Clears the canvas by filling it with black color.

```
public void Clear()
```

## DrawCursorDot()

Draws a white dot with black outline at the current pen position. This should be called separately to draw the cursor dot on top of everything.

```
public void DrawCursorDot()
```

## DrawTo(int, int)

Draws a line from the current pen position to the specified (x, y) coordinates.

```
public void DrawTo(int x, int y)
```

## Parameters

`x` [int](#)

`y` [int](#)

## MoveTo(int, int)

Moves the pen to the specified (x, y) coordinates without drawing.

```
public void MoveTo(int x, int y)
```

Parameters

x [int](#)

y [int](#)

## Rect(int, int, bool)

Renders a rectangle at the current pen position with the specified width and height.

```
public void Rect(int width, int height, bool filled)
```

Parameters

width [int](#)

height [int](#)

filled [bool](#)

## Reset()

Resets the canvas to its initial state.

```
public void Reset()
```

## Set(int, int)

Sets the size of the canvas to the specified width and height.

```
public void Set(int width, int height)
```

Parameters

`width` [int](#)

`height` [int](#)

## SetColour(int, int, int)

Sets the current drawing colour using RGB values.

```
public void SetColour(int red, int green, int blue)
```

Parameters

`red` [int](#)

`green` [int](#)

`blue` [int](#)

## Tri(int, int)

Draws a triangle at the current pen position with the specified width and height.

```
public void Tri(int width, int height)
```

Parameters

`width` [int](#)

`height` [int](#)

## WriteText(string)

Writes the specified text at the current pen position. This is called by the "write" command in BOOSE.

```
public void WriteText(string text)
```

Parameters

`text` [string](#)

## getBitmap()

Gets the underlying bitmap of the canvas for rendering.

```
public object getBitmap()
```

Returns

[object](#)

# Class AppCommandFactory

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Implement CommandFactory with support for all BOOSE commands

```
public class AppCommandFactory : CommandFactory, ICommandFactory
```

## Inheritance

[object](#) ← CommandFactory ← AppCommandFactory

## Implements

ICommandFactory

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#)

## Constructors

### AppCommandFactory()

Constructor for AppCommandFactory.

```
public AppCommandFactory()
```

### AppCommandFactory(AppCanvas)

Constructor for AppCommandFactory with AppCanvas parameter.

```
public AppCommandFactory(AppCanvas canvas)
```

## Parameters

canvas [AppCanvas](#)

# Methods

## MakeCommand(string)

Make a command, showing message boxes on errors

```
public override ICommand MakeCommand(string name)
```

Parameters

`name` [string](#)

Returns

`ICommand`

# Class Form1

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

```
public class Form1 : Form, IDropTarget, ISynchronizeInvoke, IWin32Window,  
IBindableComponent, IComponent, IDisposable, IContainerControl
```

## Inheritance

[object](#) ← [MarshalByRefObject](#) ← [Component](#) ← [Control](#) ← [ScrollableControl](#) ←  
[ContainerControl](#) ← [Form](#) ← Form1

## Implements

[IDropTarget](#), [ISynchronizeInvoke](#), [IWin32Window](#), [IBindableComponent](#), [IComponent](#),  
[IDisposable](#), [IContainerControl](#)

## Inherited Members

[Form.SetVisibleCore\(bool\)](#), [Form.Activate\(\)](#), [Form.ActivateMdiChild\(Form\)](#),  
[Form.AddOwnedForm\(Form\)](#), [Form.AdjustFormScrollbars\(bool\)](#), [Form.Close\(\)](#),  
[Form.CreateAccessibilityInstance\(\)](#), [Form.CreateControlsInstance\(\)](#), [Form.CreateHandle\(\)](#),  
[Form.DefWndProc\(ref Message\)](#), [Form.ProcessMnemonic\(char\)](#), [Form.CenterToParent\(\)](#),  
[Form.CenterToScreen\(\)](#), [Form.LayoutMdi\(MdiLayout\)](#), [Form.OnActivated\(EventArgs\)](#),  
[Form.OnBackgroundImageChanged\(EventArgs\)](#),  
[Form.OnBackgroundImageLayoutChanged\(EventArgs\)](#), [Form.OnClosing\(CancelEventArgs\)](#),  
[Form.OnClosed\(EventArgs\)](#), [Form.OnFormClosing\(FormClosingEventArgs\)](#),  
[Form.OnFormClosed\(FormClosedEventArgs\)](#), [Form.OnCreateControl\(\)](#),  
[Form.OnDeactivate\(EventArgs\)](#), [Form.OnEnabledChanged\(EventArgs\)](#), [Form.OnEnter\(EventArgs\)](#),  
[Form.OnFontChanged\(EventArgs\)](#), [Form.OnGotFocus\(EventArgs\)](#),  
[Form.OnHandleCreated\(EventArgs\)](#), [Form.OnHandleDestroyed\(EventArgs\)](#),  
[Form.OnHelpButtonClicked\(CancelEventArgs\)](#), [Form.OnLayout\(LayoutEventArgs\)](#),  
[Form.OnLoad\(EventArgs\)](#), [Form.OnMaximizedBoundsChanged\(EventArgs\)](#),  
[Form.OnMaximumSizeChanged\(EventArgs\)](#), [Form.OnMinimumSizeChanged\(EventArgs\)](#),  
[Form.OnInputLanguageChanged\(InputLanguageChangedEventArgs\)](#),  
[Form.OnInputLanguageChanging\(InputLanguageChangingEventArgs\)](#),  
[Form.OnVisibleChanged\(EventArgs\)](#), [Form.OnMdiChildActivate\(EventArgs\)](#),  
[Form.OnMenuStart\(EventArgs\)](#), [Form.OnMenuComplete\(EventArgs\)](#),  
[Form.OnPaint\(PaintEventArgs\)](#), [Form.OnResize\(EventArgs\)](#),  
[Form.OnDpiChanged\(DpiChangedEventArgs\)](#), [Form.OnGetDpiScaledSize\(int, int, ref Size\)](#),  
[Form.OnRightToLeftLayoutChanged\(EventArgs\)](#), [Form.OnShown\(EventArgs\)](#),

[Form.OnTextChanged\(EventArgs\)](#) , [Form.ProcessCmdKey\(ref Message, Keys\)](#) ,  
[Form.ProcessDialogKey\(Keys\)](#) , [Form.ProcessDialogChar\(char\)](#) ,  
[Form.ProcessKeyPreview\(ref Message\)](#) , [Form.ProcessTabKey\(bool\)](#) ,  
[Form.RemoveOwnedForm\(Form\)](#) , [Form.Select\(bool, bool\)](#) , [Form.ScaleMinAxisSize\(float, float, bool\)](#) ,  
[Form.GetScaledBounds\(Rectangle, SizeF, BoundsSpecified\)](#) ,  
[Form.ScaleControl\(SizeF, BoundsSpecified\)](#) , [Form.SetBoundsCore\(int, int, int, int, BoundsSpecified\)](#) ,  
[Form.SetClientSizeCore\(int, int\)](#) , [Form.SetDesktopBounds\(int, int, int, int\)](#) ,  
[Form.SetDesktopLocation\(int, int\)](#) , [Form.Show\(IWin32Window\)](#) , [Form.ShowDialog\(\)](#) ,  
[Form.ShowDialog\(IWin32Window\)](#) , [Form.ToString\(\)](#) , [Form.UpdateDefaultButton\(\)](#) ,  
[Form.OnResizeBegin\(EventArgs\)](#) , [Form.OnResizeEnd\(EventArgs\)](#) ,  
[Form.OnStyleChanged\(EventArgs\)](#) , [Form.ValidateChildren\(\)](#) ,  
[Form.ValidateChildren\(ValidationConstraints\)](#) , [Form.WndProc\(ref Message\)](#) , [Form.AcceptButton](#) ,  
[Form.ActiveForm](#) , [Form.ActiveMdiChild](#) , [Form.AllowTransparency](#) , [Form.AutoScroll](#) ,  
[Form.AutoSize](#) , [Form.AutoSizeMode](#) , [Form.AutoValidate](#) , [Form.BackColor](#) ,  
[Form.FormBorderStyle](#) , [Form.CancelButton](#) , [Form.ClientSize](#) , [Form.ControlBox](#) ,  
[Form.CreateParams](#) , [Form.DefaultImeMode](#) , [Form.DefaultSize](#) , [Form.DesktopBounds](#) ,  
[Form/DesktopLocation](#) , [Form.DialogResult](#) , [Form.HelpButton](#) , [Form.Icon](#) , [Form.IsMdiChild](#) ,  
[Form.IsMdiContainer](#) , [Form.IsRestrictedWindow](#) , [Form.KeyPreview](#) , [Form.Location](#) ,  
[Form.MaximizedBounds](#) , [Form.MaximumSize](#) , [Form.MainMenuStrip](#) , [Form.MinimumSize](#) ,  
[Form.MaximizeBox](#) , [Form.MdiChildren](#) , [Form.MdiChildrenMinimizedAnchorBottom](#) ,  
[Form.MdiParent](#) , [Form.MinimizeBox](#) , [Form.Modal](#) , [Form.Opacity](#) , [Form.OwnedForms](#) ,  
[Form.Owner](#) , [Form.RestoreBounds](#) , [Form.RightToLeftLayout](#) , [Form.ShowInTaskbar](#) ,  
[Form>ShowIcon](#) , [Form>ShowWithoutActivation](#) , [Form.Size](#) , [Form.SizeGripStyle](#) ,  
[Form.StartPosition](#) , [Form.Text](#) , [Form.TopLevel](#) , [Form.TopMost](#) , [Form.TransparencyKey](#) ,  
[Form.WindowState](#) , [Form.AutoSizeChanged](#) , [Form.AutoValidateChanged](#) ,  
[Form.HelpButtonClicked](#) , [Form.MaximizedBoundsChanged](#) , [Form.MaximumSizeChanged](#) ,  
[Form.MinimumSizeChanged](#) , [Form.Activated](#) , [Form.Deactivate](#) , [Form.FormClosing](#) ,  
[Form.FormClosed](#) , [Form.Load](#) , [Form.MdiChildActivate](#) , [Form.MenuComplete](#) , [Form.MenuStart](#) ,  
[Form.InputLanguageChanged](#) , [Form.InputLanguageChanging](#) , [Form.RightToLeftLayoutChanged](#) ,  
[Form.Shown](#) , [Form.DpiChanged](#) , [Form.ResizeBegin](#) , [Form.ResizeEnd](#) ,  
[ContainerControl.OnAutoValidateChanged\(EventArgs\)](#) , [ContainerControl.OnMove\(EventArgs\)](#) ,  
[ContainerControl.OnParentChanged\(EventArgs\)](#) , [ContainerControl.PerformLayout\(\)](#) ,  
[ContainerControl.RescaleConstantsForDpi\(int, int\)](#) , [ContainerControl.Validate\(\)](#) ,  
[ContainerControl.Validate\(bool\)](#) , [ContainerControl.AutoScaleDimensions](#) ,  
[ContainerControl.AutoScaleFactor](#) , [ContainerControl.AutoScaleMode](#) ,  
[ContainerControl.BindingContext](#) , [ContainerControl.CanEnableIme](#) , [ContainerControl.ActiveControl](#) ,  
[ContainerControl.CurrentAutoSizeDimensions](#) , [ContainerControl.ParentForm](#) ,  
[ScrollableControl.ScrollStateAutoScrolling](#) , [ScrollableControl.ScrollStateHScrollVisible](#) ,  
[ScrollableControl.ScrollStateVScrollVisible](#) , [ScrollableControl.ScrollStateUserHasScrolled](#) ,  
[ScrollableControl.ScrollStateFullDrag](#) , [ScrollableControl.GetScrollState\(int\)](#) ,

[ScrollableControl.OnMouseWheel\(MouseEventArgs\)](#) ,  
[ScrollableControl.OnRightToLeftChanged\(EventArgs\)](#) ,  
[ScrollableControl.OnPaintBackground\(PaintEventArgs\)](#) ,  
[ScrollableControl.OnPaddingChanged\(EventArgs\)](#) , [ScrollableControl.SetDisplayRectLocation\(int, int\)](#) ,  
[ScrollableControl.ScrollControlIntoView\(Control\)](#) , [ScrollableControl.ScrollToControl\(Control\)](#) ,  
[ScrollableControl.OnScroll\(ScrollEventArgs\)](#) , [ScrollableControl.SetAutoScrollMargin\(int, int\)](#) ,  
[ScrollableControl.SetScrollState\(int, bool\)](#) , [ScrollableControl.AutoScrollMargin](#) ,  
[ScrollableControl.AutoScrollPosition](#) , [ScrollableControl.AutoScrollMinSize](#) ,  
[ScrollableControl.DisplayRectangle](#) , [ScrollableControl.HScroll](#) , [ScrollableControl.HorizontalScroll](#) ,  
[ScrollableControl.VScroll](#) , [ScrollableControl.VerticalScroll](#) , [ScrollableControl.Scroll](#) ,  
[Control.GetAccessibilityObjectById\(int\)](#) , [Control.SetAutoSizeMode\(AutoSizeMode\)](#) ,  
[Control.GetAutoSizeMode\(\)](#) , [Control.GetPreferredSize\(Size\)](#) ,  
[Control.AccessibilityNotifyClients\(AccessibleEvents, int\)](#) ,  
[Control.AccessibilityNotifyClients\(AccessibleEvents, int, int\)](#) , [Control.BeginInvoke\(Delegate\)](#) ,  
[Control.BeginInvoke\(Action\)](#) , [Control.BeginInvoke\(Delegate, params object\[\]\)](#) ,  
[Control.BringToFront\(\)](#) , [Control.Contains\(Control\)](#) , [Control.CreateGraphics\(\)](#) ,  
[Control.CreateControl\(\)](#) , [Control.DestroyHandle\(\)](#) , [Control.DoDragDrop\(object, DragDropEffects\)](#) ,  
[Control.DoDragDrop\(object, DragDropEffects, Bitmap, Point, bool\)](#) ,  
[Control.DrawToBitmap\(Bitmap, Rectangle\)](#) , [Control.EndInvoke\(IAsyncResult\)](#) , [Control.FindForm\(\)](#) ,  
[Control.GetTopLevel\(\)](#) , [Control.RaiseKeyEvent\(object, KeyEventArgs\)](#) ,  
[Control.RaiseMouseEvent\(object, MouseEventArgs\)](#) , [Control.Focus\(\)](#) ,  
[Control.FromChildHandle\(nint\)](#) , [Control.FromHandle\(nint\)](#) ,  
[Control.GetChildAtPoint\(Point, GetChildAtPointSkip\)](#) , [Control.GetChildAtPoint\(Point\)](#) ,  
[Control.GetContainerControl\(\)](#) , [Control.GetNextControl\(Control, bool\)](#) ,  
[Control.GetStyle\(ControlStyles\)](#) , [Control.Hide\(\)](#) , [Control.InitLayout\(\)](#) , [Control.Invalidate\(Region\)](#) ,  
[Control.Invalidate\(Region, bool\)](#) , [Control.Invalidate\(\)](#) , [Control.Invalidate\(bool\)](#) ,  
[Control.Invalidate\(Rectangle\)](#) , [Control.Invalidate\(Rectangle, bool\)](#) , [Control.Invoke\(Action\)](#) ,  
[Control.Invoke\(Delegate\)](#) , [Control.Invoke\(Delegate, params object\[\]\)](#) , [Control.Invoke<T>\(Func<T>\)](#) ,  
[Control.InvokePaint\(Control, PaintEventArgs\)](#) ,  
[Control.InvokePaintBackground\(Control, PaintEventArgs\)](#) , [Control.IsKeyLocked\(Keys\)](#) ,  
[Control.IsInputChar\(char\)](#) , [Control.IsInputKey\(Keys\)](#) , [Control.IsMnemonic\(char, string\)](#) ,  
[Control.LogicalToDeviceUnits\(int\)](#) , [Control.LogicalToDeviceUnits\(Size\)](#) ,  
[Control.ScaleBitmapLogicalToDevice\(ref Bitmap\)](#) , [Control.NotifyInvalidate\(Rectangle\)](#) ,  
[Control.InvokeOnClick\(Control, EventArgs\)](#) , [Control.OnAutoSizeChanged\(EventArgs\)](#) ,  
[Control.OnBackColorChanged\(EventArgs\)](#) , [Control.OnBindingContextChanged\(EventArgs\)](#) ,  
[Control.OnCausesValidationChanged\(EventArgs\)](#) , [Control.OnContextMenuStripChanged\(EventArgs\)](#) ,  
[Control.OnCursorChanged\(EventArgs\)](#) , [Control.OnDataContextChanged\(EventArgs\)](#) ,  
[Control.OnDockChanged\(EventArgs\)](#) , [Control.OnForeColorChanged\(EventArgs\)](#) ,  
[Control.OnNotifyMessage\(Message\)](#) , [Control.OnParentBackColorChanged\(EventArgs\)](#) ,  
[Control.OnParentBackgroundImageChanged\(EventArgs\)](#) ,

[Control.OnParentBindingContextChanged\(EventArgs\)](#) , [Control.OnParentCursorChanged\(EventArgs\)](#) ,  
[Control.OnParentDataContextChanged\(EventArgs\)](#) , [Control.OnParentEnabledChanged\(EventArgs\)](#) ,  
[Control.OnParentFontChanged\(EventArgs\)](#) , [Control.OnParentForeColorChanged\(EventArgs\)](#) ,  
[Control.OnParentRightToLeftChanged\(EventArgs\)](#) , [Control.OnParentVisibleChanged\(EventArgs\)](#) ,  
[Control.OnPrint\(PaintEventArgs\)](#) , [Control.OnTabIndexChanged\(EventArgs\)](#) ,  
[Control.OnTabStopChanged\(EventArgs\)](#) , [Control.OnClick\(EventArgs\)](#) ,  
[Control.OnClientSizeChanged\(EventArgs\)](#) , [Control.OnControlAdded\(ControlEventArgs\)](#) ,  
[Control.OnControlRemoved\(ControlEventArgs\)](#) , [Control.OnLocationChanged\(EventArgs\)](#) ,  
[Control.OnDoubleClick\(EventArgs\)](#) , [Control.OnDragEnter\(DragEventArgs\)](#) ,  
[Control.OnDragOver\(DragEventArgs\)](#) , [Control.OnDragLeave\(EventArgs\)](#) ,  
[Control.OnDragDrop\(DragEventArgs\)](#) , [Control.OnGiveFeedback\(GiveFeedbackEventArgs\)](#) ,  
[Control.InvokeGotFocus\(Control, EventArgs\)](#) , [Control.OnHelpRequested\(HelpEventArgs\)](#) ,  
[Control.OnInvalidate\(InvalidateEventArgs\)](#) , [Control.OnKeyDown\(KeyEventEventArgs\)](#) ,  
[Control.OnKeyPress\(KeyPressEventArgs\)](#) , [Control.OnKeyUp\(KeyEventEventArgs\)](#) ,  
[Control.OnLeave\(EventArgs\)](#) , [Control.InvokeLostFocus\(Control, EventArgs\)](#) ,  
[Control.OnLostFocus\(EventArgs\)](#) , [Control.OnMarginChanged\(EventArgs\)](#) ,  
[Control.OnMouseDoubleClick\(MouseEventArgs\)](#) , [Control.OnMouseClick\(MouseEventArgs\)](#) ,  
[Control.OnMouseCaptureChanged\(EventArgs\)](#) , [Control.OnMouseDown\(MouseEventArgs\)](#) ,  
[Control.OnMouseEnter\(EventArgs\)](#) , [Control.OnMouseLeave\(EventArgs\)](#) ,  
[Control.OnDpiChangedBeforeParent\(EventArgs\)](#) , [Control.OnDpiChangedAfterParent\(EventArgs\)](#) ,  
[Control.OnMouseHover\(EventArgs\)](#) , [Control.OnMouseMove\(MouseEventArgs\)](#) ,  
[Control.OnMouseUp\(MouseEventArgs\)](#) ,  
[Control.OnQueryContinueDrag\(QueryContinueDragEventArgs\)](#) ,  
[Control.OnRegionChanged\(EventArgs\)](#) , [Control.OnPreviewKeyDown\(PreviewKeyDownEventArgs\)](#) ,  
[Control.OnSizeChanged\(EventArgs\)](#) , [Control.OnChangeUICues\(UICuesEventArgs\)](#) ,  
[Control.OnSystemColorsChanged\(EventArgs\)](#) , [Control.OnValidating\(CancelEventArgs\)](#) ,  
[Control.OnValidated\(EventArgs\)](#) , [Control.PerformLayout\(\)](#) , [Control.PerformLayout\(Control, string\)](#) ,  
[Control.PointToClient\(Point\)](#) , [Control.PointToScreen\(Point\)](#) ,  
[Control.PreProcessMessage\(ref Message\)](#) , [Control.PreProcessControlMessage\(ref Message\)](#) ,  
[Control.ProcessKeyEventArgs\(ref Message\)](#) , [Control.ProcessKeyMessage\(ref Message\)](#) ,  
[Control.RaiseDragEvent\(object, DragEventArgs\)](#) , [Control.RaisePaintEvent\(object, PaintEventArgs\)](#) ,  
[Control.RecreateHandle\(\)](#) , [Control.RectangleToClient\(Rectangle\)](#) ,  
[Control.RectangleToScreen\(Rectangle\)](#) , [Control.ReflectMessage\(nint, ref Message\)](#) ,  
[Control.Refresh\(\)](#) , [Control.ResetMouseEventArgs\(\)](#) , [Control.ResetText\(\)](#) , [Control.ResumeLayout\(\)](#) ,  
[Control.ResumeLayout\(bool\)](#) , [Control.Scale\(SizeF\)](#) , [Control.Select\(\)](#) ,  
[Control.SelectNextControl\(Control, bool, bool, bool, bool\)](#) , [Control.SendToBack\(\)](#) ,  
[Control.SetBounds\(int, int, int, int\)](#) , [Control.SetBounds\(int, int, int, int, BoundsSpecified\)](#) ,  
[Control.SizeFromClientSize\(Size\)](#) , [Control.SetStyle\(ControlStyles, bool\)](#) , [Control.SetTopLevel\(bool\)](#) ,  
[Control.RtlTranslateAlignment\(HorizontalAlignment\)](#) ,  
[Control.RtlTranslateAlignment\(LeftRightAlignment\)](#) ,

[Control.RtlTranslateAlignment\(ContentAlignment\)](#) ,  
[Control.RtlTranslateHorizontal\(HorizontalAlignment\)](#) ,  
[Control.RtlTranslateLeftRight\(LeftRightAlignment\)](#) , [Control.RtlTranslateContent\(ContentAlignment\)](#) ,  
[Control.Show\(\)](#) , [Control.SuspendLayout\(\)](#) , [Control.Update\(\)](#) , [Control.UpdateBounds\(\)](#) ,  
[Control.UpdateBounds\(int,int,int,int\)](#) , [Control.UpdateBounds\(int,int,int,int,int,int\)](#) ,  
[Control.UpdateZOrder\(\)](#) , [Control.UpdateStyles\(\)](#) , [Control.OnImeModeChanged\(EventArgs\)](#) ,  
[Control.AccessibilityObject](#) , [Control.AccessibleDefaultActionDescription](#) ,  
[Control.AccessibleDescription](#) , [Control.AccessibleName](#) , [Control.AccessibleRole](#) ,  
[Control.AllowDrop](#) , [Control.Anchor](#) , [Control.AutoScrollOffset](#) , [Control.LayoutEngine](#) ,  
[Control.DataContext](#) , [Control.BackgroundImage](#) , [Control.BackgroundImageLayout](#) ,  
[Control.Bottom](#) , [Control.Bounds](#) , [Control.CanFocus](#) , [Control.CanRaiseEvents](#) ,  
[Control.CanSelect](#) , [Control.Capture](#) , [Control.CausesValidation](#) ,  
[Control.CheckForIllegalCrossThreadCalls](#) , [Control.ClientRectangle](#) , [Control.CompanyName](#) ,  
[Control.ContainsFocus](#) , [Control.ContextMenuStrip](#) , [Control.Controls](#) , [Control.Created](#) ,  
[Control.Cursor](#) , [Control.DataBindings](#) , [Control.DefaultBackColor](#) , [Control.DefaultCursor](#) ,  
[Control.DefaultFont](#) , [Control.DefaultForeColor](#) , [Control.DefaultMargin](#) ,  
[Control.DefaultMaximumSize](#) , [Control.DefaultMinimumSize](#) , [Control.DefaultPadding](#) ,  
[Control.DeviceDpi](#) , [Control.IsDisposed](#) , [Control.Disposing](#) , [Control.Dock](#) ,  
[Control.DoubleBuffered](#) , [Control.Enabled](#) , [Control.Focused](#) , [Control.Font](#) , [Control.FontHeight](#) ,  
[Control.ForeColor](#) , [Control.Handle](#) , [Control.HasChildren](#) , [Control.Height](#) ,  
[Control.IsHandleCreated](#) , [Control.InvokeRequired](#) , [Control.IsAccessible](#) ,  
[Control.IsAncestorSiteInDesignMode](#) , [Control.IsMirrored](#) , [Control.Left](#) , [Control.Margin](#) ,  
[Control.ModifierKeys](#) , [Control.MouseButtons](#) , [Control.mousePosition](#) , [Control.Name](#) ,  
[Control.Parent](#) , [Control.ProductName](#) , [Control.ProductVersion](#) , [Control.RecreatingHandle](#) ,  
[Control.Region](#) , [Control.RenderRightToLeft](#) , [Control.ResizeRedraw](#) , [Control.Right](#) ,  
[Control.RightToLeft](#) , [Control.ScaleChildren](#) , [Control.Site](#) , [Control.TabIndex](#) , [Control.TabStop](#) ,  
[Control.Tag](#) , [Control.Top](#) , [Control.TopLevelControl](#) , [Control.ShowKeyboardCues](#) ,  
[Control.ShowFocusCues](#) , [Control.UseWaitCursor](#) , [Control.Visible](#) , [Control.Width](#) ,  
[Control.PreferredSize](#) , [Control.Padding](#) , [Control.ImeMode](#) , [Control.ImeModeBase](#) ,  
[Control.PropagatingImeMode](#) , [Control.BackColorChanged](#) , [Control.BackgroundImageLayoutChanged](#) ,  
[Control.BackgroundImageLayoutLayoutChanged](#) , [Control.BindingContextChanged](#) ,  
[Control.CausesValidationChanged](#) , [Control.ClientSizeChanged](#) , [Control.ContextMenuStripChanged](#) ,  
[Control.CursorChanged](#) , [Control.DockChanged](#) , [Control.EnabledChanged](#) , [Control.FontChanged](#) ,  
[Control.ForeColorChanged](#) , [Control.LocationChanged](#) , [Control.MarginChanged](#) ,  
[Control.RegionChanged](#) , [Control.RightToLeftChanged](#) , [Control.SizeChanged](#) ,  
[Control.TabIndexChanged](#) , [Control.TabStopChanged](#) , [Control.TextChanged](#) ,  
[Control.VisibleChanged](#) , [Control.Click](#) , [Control.ControlAdded](#) , [Control.ControlRemoved](#) ,  
[Control.DataContextChanged](#) , [Control.DragDrop](#) , [Control.DragEnter](#) , [Control.DragOver](#) ,  
[Control.DragLeave](#) , [Control.GiveFeedback](#) , [Control.HandleCreated](#) , [Control.HandleDestroyed](#) ,  
[Control.HelpRequested](#) , [Control.Invalidated](#) , [Control.PaddingChanged](#) , [Control.Paint](#) ,

[Control.QueryContinueDrag](#) , [Control.QueryAccessibilityHelp](#) , [Control.DoubleClick](#) , [Control.Enter](#) ,  
[Control.GotFocus](#) , [Control.KeyDown](#) , [Control.KeyPress](#) , [Control.KeyUp](#) , [Control.Layout](#) ,  
[Control.Leave](#) , [Control.LostFocus](#) , [Control.MouseClick](#) , [Control.MouseDoubleClick](#) ,  
[Control.MouseCaptureChanged](#) , [Control.MouseDown](#) , [Control.MouseEnter](#) , [Control.MouseLeave](#) ,  
[Control.DpiChangedBeforeParent](#) , [Control.DpiChangedAfterParent](#) , [Control.MouseHover](#) ,  
[Control.MouseMove](#) , [Control.MouseUp](#) , [Control.MouseWheel](#) , [Control.Move](#) ,  
[Control.PreviewKeyDown](#) , [Control.Resize](#) , [Control.ChangeUICues](#) , [Control.StyleChanged](#) ,  
[Control.SystemColorsChanged](#) , [Control.Validating](#) , [Control.Validated](#) , [Control.ParentChanged](#) ,  
[Control.ImeModeChanged](#) , [Component.Dispose\(\)](#) , [Component.GetService\(Type\)](#) ,  
[Component.Container](#) , [Component.DesignMode](#) , [Component.Events](#) , [Component.Disposed](#) ,  
[MarshalByRefObject.GetLifetimeService\(\)](#) , [MarshalByRefObject.InitializeLifetimeService\(\)](#) ,  
[MarshalByRefObject.MemberwiseClone\(bool\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

## Constructors

### Form1()

```
public Form1()
```

## Methods

### Dispose(bool)

Clean up any resources being used.

```
protected override void Dispose(bool disposing)
```

#### Parameters

**disposing** [bool](#)

true if managed resources should be disposed; otherwise, false.

# Interface IVariableStore

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Abstraction for variable storage and evaluation. Implemented by VariableStore.

```
public interface IVariableStore
```

## Properties

### CurrentMethod

Current method name being executed.

```
string CurrentMethod { get; }
```

## Property Value

[string](#) ↗

## Methods

### Clear()

Clears all variables and methods from the store.

```
void Clear()
```

### DefineMethod(string, MethodDefinition)

Defines a new method.

```
void DefineMethod(string name, MethodDefinition definition)
```

## Parameters

`name` [string](#)

`definition` [MethodDefinition](#)

## EnterMethod(string)

Enters a method context for tracking current method.

```
void EnterMethod(string methodName)
```

## Parameters

`methodName` [string](#)

## EvaluateExpression(string)

Evaluates an expression string and returns the result.

```
object EvaluateExpression(string expression)
```

## Parameters

`expression` [string](#)

## Returns

[object](#)

## ExitMethod()

Exits the current method context.

```
void ExitMethod()
```

## GetMethod(string)

Gets a method definition by name.

```
MethodDefinition GetMethod(string name)
```

Parameters

`name` [string](#)

Returns

[MethodDefinition](#)

## GetVariable(string)

Gets a variable by name, searching from the current scope outward.

```
object GetVariable(string name)
```

Parameters

`name` [string](#)

Returns

[object](#)

## MethodExists(string)

Method existence check.

```
bool MethodExists(string name)
```

Parameters

`name` [string](#)

Returns

`bool` ↗

## PopScope()

Pops the current variable scope from the stack.

`void PopScope()`

## PushScope()

Pushes a new variable scope onto the stack.

`void PushScope()`

## SetVariable(string, object, string)

Sets a variable in the current scope.

`void SetVariable(string name, object value, string type = null)`

Parameters

`name` `string` ↗

`value` `object` ↗

`type` `string` ↗

## VariableExists(string)

Verifies if a variable exists in any scope.

`bool VariableExists(string name)`

## Parameters

`name` [string](#) ↗

## Returns

[bool](#) ↗

# Class MethodDefinition

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Represents a method definition

```
public class MethodDefinition
```

Inheritance

[object](#) ← MethodDefinition

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#)

## Constructors

MethodDefinition()

```
public MethodDefinition()
```

## Properties

Body

```
public List<string> Body { get; set; }
```

Property Value

[List](#) <[string](#)>

Name

```
public string Name { get; set; }
```

Property Value

[string](#)

Parameters

```
public List<string> Parameters { get; set; }
```

Property Value

[List](#) <[string](#)>

ReturnType

```
public string ReturnType { get; set; }
```

Property Value

[string](#)

Methods

ParseSignature()

```
public (string ShortName, List<(string Type, string Name)> Parameters) ParseSignature()
```

Returns

([string](#) [ShortName](#), [List](#) <([string](#) [Type](#), [string](#) [Name](#))> [Parameters](#))

# Class MyCircle

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

MyCircle command - draws a circle with given radius, optionally filled.

```
public class MyCircle : CommandOneParameter, ICommand
```

## Inheritance

[object](#) ← Command ← CanvasCommand ← CommandOneParameter ← MyCircle

## Implements

ICommand

## Inherited Members

CommandOneParameter.param1 , CommandOneParameter.param1unprocessed , CanvasCommand.yPos ,  
CanvasCommand.xPos , CanvasCommand.canvas , CanvasCommand.Canvas , Command.IsDouble ,  
Command.program , Command.parameterList , Command.parameters , Command.paramsint ,  
[Command.Set\(StoredProgram, string\)](#) , Command.Compile() , [Command.ProcessParameters\(string\)](#) ,  
Command.ToString() , Command.Program , Command.Name , Command.ParameterList ,  
Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

## Constructors

### MyCircle()

MyCircle constructor

```
public MyCircle()
```

### MyCircle(Canvas, int)

MyCircle constructor with canvas and radius

```
public MyCircle(Canvas c, int radius)
```

## Parameters

c Canvas

radius [int](#)

## Methods

### CheckParameters(string[])

Check parameters for MyCircle command

```
public override void CheckParameters(string[] parameterList)
```

## Parameters

parameterList [string](#)[]

## Exceptions

CommandException

### Execute()

Execute the MyCircle command

```
public override void Execute()
```

## Exceptions

CanvasException

# Class MyClear

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

MyClear command - clears the canvas.

```
public class MyClear : Command, ICommand
```

## Inheritance

[object](#) ← Command ← MyClear

## Implements

ICommand

## Inherited Members

Command.lsDouble , Command.program , Command.parameterList , Command.parameters ,  
Command.paramsint , [Command.Set\(StoredProgram, string\)](#) , Command.Compile() ,  
[Command.ProcessParameters\(string\)](#) , Command.ToString() , Command.Program , Command.Name ,  
Command.ParameterList , Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

# Constructors

## MyClear(AppCanvas)

MyClear constructor

```
public MyClear(AppCanvas canvas)
```

## Parameters

canvas [AppCanvas](#)

# Methods

## CheckParameters(string[])

CheckParameters for MyClear command

```
public override void CheckParameters(string[] parameter)
```

Parameters

parameter [string](#)[]

Exceptions

[NotImplementedException](#)

## Execute()

Execute the MyClear command

```
public override void Execute()
```

# Class MyDrawTo

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

DrawTo command - draws a line from current position to specified (x,y) coordinates.

```
public class MyDrawTo : CommandTwoParameters, ICommand
```

## Inheritance

[object](#) ← Command ← CanvasCommand ← CommandOneParameter ← CommandTwoParameters ← MyDrawTo

## Implements

ICommand

## Inherited Members

CommandTwoParameters.param2 , CommandTwoParameters.param2unprocessed ,  
CommandOneParameter.param1 , CommandOneParameter.param1unprocessed , CanvasCommand.yPos ,  
CanvasCommand.xPos , CanvasCommand.canvas , CanvasCommand.Canvas , Command.IsDouble ,  
Command.program , Command.parameterList , Command.parameters , Command.paramsint ,  
[Command.Set\(StoredProgram, string\)](#) , Command.Compile() , [Command.ProcessParameters\(string\)](#) ,  
Command.ToString() , Command.Program , Command.Name , Command.ParameterList ,  
Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

# Constructors

## MyDrawTo()

MyDrawTo constructor

```
public MyDrawTo()
```

## MyDrawTo(Canvas, int, int)

MyDrawTo constructor with canvas and coordinates

```
public MyDrawTo(Canvas c, int x, int y)
```

Parameters

c Canvas

x [int](#)

y [int](#)

## Methods

CheckParameters(string[])

CheckParameters for MyDrawTo command

```
public override void CheckParameters(string[] parameterList)
```

Parameters

parameterList [string](#)[]

Execute()

Execute the MyDrawTo command

```
public override void Execute()
```

Exceptions

CanvasException

# Class MyForCommand

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

MyForCommand class - represents a custom 'for' command.

```
public class MyForCommand : Command, ICommand
```

## Inheritance

[object](#) ↗ ← Command ← MyForCommand

## Implements

ICommand

## Inherited Members

Command.IsDouble , Command.program , Command.parameterList , Command.parameters ,  
Command.paramsint , [Command.Set\(StoredProgram, string\)](#) ↗ , Command.Compile() ,  
[Command.ProcessParameters\(string\)](#) ↗ , Command.ToString() , Command.Program , Command.Name ,  
Command.ParameterList , Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) ↗ ,  
[object.Equals\(object, object\)](#) ↗ , [object.GetHashCode\(\)](#) ↗ , [object.GetType\(\)](#) ↗ , [object.MemberwiseClone\(\)](#) ↗ ,  
[object.ReferenceEquals\(object, object\)](#) ↗

## Methods

### CheckParameters(string[])

CheckParameters for MyForCommand

```
public override void CheckParameters(string[] parameters)
```

Parameters

parameters [string](#) ↗ []

### Execute()

Execute the MyForCommand

```
public override void Execute()
```

# Class MyIfCommand

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Implements the IF command with support for else and nested if statements

```
public class MyIfCommand : Command, ICommand
```

## Inheritance

[object](#) ← Command ← MyIfCommand

## Implements

ICommand

## Inherited Members

Command.lsDouble , Command.program , Command.parameterList , Command.parameters ,  
Command.paramsint , [Command.Set\(StoredProgram, string\)](#) , Command.Compile() ,  
[Command.ProcessParameters\(string\)](#) , Command.ToString() , Command.Program , Command.Name ,  
Command.ParameterList , Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

## Constructors

### MyIfCommand()

MyIfCommand constructor

```
public MyIfCommand()
```

## Methods

### AddToElseBlock(string)

Add command to the ELSE block

```
public void AddToElseBlock(string command)
```

Parameters

command string

## AddToIfBlock(string)

Add command to the IF block

```
public void AddToIfBlock(string command)
```

Parameters

command string

## CheckParameters(string[])

CheckParameters for MyIfCommand

```
public override void CheckParameters(string[] parameters)
```

Parameters

parameters string[]

Exceptions

CommandException

## Execute()

Execute the MyIfCommand

```
public override void Execute()
```

## SetHasElse(bool)

Set whether the IF command has an ELSE block

```
public void SetHasElse(bool hasElse)
```

Parameters

hasElse [bool](#)

# Class MyIntCommand

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Implements the INT variable declaration and assignment command

```
public class MyIntCommand : Command, ICommand
```

## Inheritance

[object](#) ← Command ← MyIntCommand

## Implements

ICommand

## Inherited Members

Command.IsDouble , Command.program , Command.parameterList , Command.parameters ,  
Command.paramsint , [Command.Set\(StoredProgram, string\)](#) , Command.Compile() ,  
[Command.ProcessParameters\(string\)](#) , Command.ToString() , Command.Program , Command.Name ,  
Command.ParameterList , Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

## Constructors

### MyIntCommand()

MyIntCommand constructor

```
public MyIntCommand()
```

## Methods

### CheckParameters(string[])

CheckParameters for INT command

```
public override void CheckParameters(string[] parameters)
```

Parameters

parameters [string](#)[]

Exceptions

CommandException

## Execute()

Execute the INT command

```
public override void Execute()
```

Exceptions

[Exception](#)

# Class MyMoveTo

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

MyMoveTo command - moves the current position to specified (x,y) coordinates without drawing.

```
public class MyMoveTo : CommandTwoParameters, ICommand
```

## Inheritance

[object](#) ← Command ← CanvasCommand ← CommandOneParameter ← CommandTwoParameters ← MyMoveTo

## Implements

ICommand

## Inherited Members

CommandTwoParameters.param2 , CommandTwoParameters.param2unprocessed ,  
CommandOneParameter.param1 , CommandOneParameter.param1unprocessed , CanvasCommand.yPos ,  
CanvasCommand.xPos , CanvasCommand.canvas , CanvasCommand.Canvas , Command.IsDouble ,  
Command.program , Command.parameterList , Command.parameters , Command.paramsint ,  
[Command.Set\(StoredProgram, string\)](#) , Command.Compile() , [Command.ProcessParameters\(string\)](#) ,  
Command.ToString() , Command.Program , Command.Name , Command.ParameterList ,  
Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

# Constructors

## MyMoveTo()

MyMoveTo constructor

```
public MyMoveTo()
```

## MyMoveTo(Canvas, int, int)

MyMoveTo constructor with canvas and coordinates

```
public MyMoveTo(Canvas c, int x, int y)
```

Parameters

c Canvas

x [int](#)

y [int](#)

## Methods

CheckParameters(string[])

CheckParameters for MyMoveTo command

```
public override void CheckParameters(string[] parameterList)
```

Parameters

parameterList [string](#)[]

Execute()

Execute the MyMoveTo command

```
public override void Execute()
```

Exceptions

CanvasException

# Class MyPen

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Pen command - sets the drawing pen color using RGB values.

```
public class MyPen : CommandThreeParameters, ICommand
```

## Inheritance

[object](#) ← Command ← CanvasCommand ← CommandOneParameter ← CommandTwoParameters ← CommandThreeParameters ← MyPen

## Implements

ICommand

## Inherited Members

CommandThreeParameters.param3 , CommandThreeParameters.param3unprocessed ,  
CommandTwoParameters.param2 , CommandTwoParameters.param2unprocessed ,  
CommandOneParameter.param1 , CommandOneParameter.param1unprocessed , CanvasCommand.yPos ,  
CanvasCommand.xPos , CanvasCommand.canvas , CanvasCommand.Canvas , Command.IsDouble ,  
Command.program , Command.parameterList , Command.parameters , Command.paramsint ,  
[Command.Set\(StoredProgram, string\)](#) , Command.Compile() , [Command.ProcessParameters\(string\)](#) ,  
Command.ToString() , Command.Program , Command.Name , Command.ParameterList ,  
Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

# Constructors

## MyPen()

MyPen constructor

```
public MyPen()
```

## MyPen(Canvas, int, int, int)

MyPen constructor with canvas and RGB values

```
public MyPen(Canvas c, int r, int g, int b)
```

Parameters

c Canvas

r int ↗

g int ↗

b int ↗

## Methods

### CheckParameters(string[])

CheckParameters for MyPen command

```
public override void CheckParameters(string[] parameterList)
```

Parameters

parameterList string ↗ []

Exceptions

CommandException

### Execute()

Execute the MyPen command

```
public override void Execute()
```

## Exceptions

### CanvasException

# Class MyRect

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

MyRect command - draws a rectangle with specified width and height, optionally filled.

```
public class MyRect : CommandTwoParameters, ICommand
```

## Inheritance

[object](#) ← Command ← CanvasCommand ← CommandOneParameter ← CommandTwoParameters ← MyRect

## Implements

ICommand

## Inherited Members

CommandTwoParameters.param2 , CommandTwoParameters.param2unprocessed ,  
CommandOneParameter.param1 , CommandOneParameter.param1unprocessed , CanvasCommand.yPos ,  
CanvasCommand.xPos , CanvasCommand.canvas , CanvasCommand.Canvas , Command.IsDouble ,  
Command.program , Command.parameterList , Command.parameters , Command.paramsint ,  
[Command.Set\(StoredProgram, string\)](#) , Command.Compile() , [Command.ProcessParameters\(string\)](#) ,  
Command.ToString() , Command.Program , Command.Name , Command.ParameterList ,  
Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

# Constructors

## MyRect()

MyRect constructor

```
public MyRect()
```

## MyRect(Canvas, int, int, bool)

MyRect constructor with canvas, width, height, and filled option

```
public MyRect(Canvas c, int width, int height, bool filled)
```

Parameters

c Canvas

width [int](#)

height [int](#)

filled [bool](#)

## Methods

CheckParameters(string[])

CheckParameters for MyRect command

```
public override void CheckParameters(string[] parameterList)
```

Parameters

parameterList [string](#)[]

Exceptions

CommandException

Execute()

Execute the MyRect command

```
public override void Execute()
```

Exceptions

## CanvasException

# Class MyReset

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

MyReset command - resets the canvas and clears stored commands.

```
public class MyReset : Command, ICommand
```

## Inheritance

[object](#) ← Command ← MyReset

## Implements

ICommand

## Inherited Members

Command.IsDouble , Command.program , Command.parameterList , Command.parameters ,  
Command.paramsint , [Command.Set\(StoredProgram, string\)](#) , Command.Compile() ,  
[Command.ProcessParameters\(string\)](#) , Command.ToString() , Command.Program , Command.Name ,  
Command.ParameterList , Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

## Constructors

### MyReset(AppCanvas, StoredProgram)

MyReset constructor

```
public MyReset(AppCanvas canvas, StoredProgram prog)
```

## Parameters

canvas [AppCanvas](#)

prog StoredProgram

# Methods

## CheckParameters(string[])

CheckParameters for MyReset command

```
public override void CheckParameters(string[] parameter)
```

Parameters

parameter [string](#)[]

Exceptions

CommandException

## Execute()

Execute the MyReset command

```
public override void Execute()
```

# Class MyTri

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

MyTri command - draws a triangle with specified width and height.

```
public class MyTri : CommandTwoParameters, ICommand
```

## Inheritance

[object](#) ← Command ← CanvasCommand ← CommandOneParameter ← CommandTwoParameters ← MyTri

## Implements

ICommand

## Inherited Members

CommandTwoParameters.param2 , CommandTwoParameters.param2unprocessed ,  
CommandOneParameter.param1 , CommandOneParameter.param1unprocessed , CanvasCommand.yPos ,  
CanvasCommand.xPos , CanvasCommand.canvas , CanvasCommand.Canvas , Command.IsDouble ,  
Command.program , Command.parameterList , Command.parameters , Command.paramsint ,  
[Command.Set\(StoredProgram, string\)](#) , Command.Compile() , [Command.ProcessParameters\(string\)](#) ,  
Command.ToString() , Command.Program , Command.Name , Command.ParameterList ,  
Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

# Constructors

## MyTri()

MyTri constructor

```
public MyTri()
```

# Methods

## CheckParameters(string[])

CheckParameters for MyTri command

```
public override void CheckParameters(string[] parameterList)
```

Parameters

parameterList [string](#)[]

## Execute()

Execute the MyTri command

```
public override void Execute()
```

Exceptions

CanvasException

# Class MyWhileCommand

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Implements the WHILE loop command

```
public class MyWhileCommand : Command, ICommand
```

## Inheritance

[object](#) ← Command ← MyWhileCommand

## Implements

ICommand

## Inherited Members

Command.lsDouble , Command.program , Command.parameterList , Command.parameters ,  
Command.paramsint , [Command.Set\(StoredProgram, string\)](#) , Command.Compile() ,  
[Command.ProcessParameters\(string\)](#) , Command.ToString() , Command.Program , Command.Name ,  
Command.ParameterList , Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

## Constructors

### MyWhileCommand()

MyWhileCommand constructor

```
public MyWhileCommand()
```

## Methods

### AddToLoopBlock(string)

Add a command to the loop block

```
public void AddToLoopBlock(string command)
```

Parameters

command string

## CheckParameters(string[])

CheckParameters for WHILE command

```
public override void CheckParameters(string[] parameters)
```

Parameters

parameters string[]

Exceptions

CommandException

## Execute()

Execute the WHILE command

```
public override void Execute()
```

# Class MyWrite

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

myWrite command - writes text on the canvas at the current pen position.

```
public class MyWrite : Command, ICommand
```

## Inheritance

[object](#) ← Command ← MyWrite

## Implements

ICommand

## Inherited Members

Command.lsDouble , Command.program , Command.parameterList , Command.parameters ,  
Command.paramsint , [Command.Set\(StoredProgram, string\)](#) , Command.Compile() ,  
[Command.ProcessParameters\(string\)](#) , Command.ToString() , Command.Program , Command.Name ,  
Command.ParameterList , Command.Parameters , Command.Paramsint , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#)

## Constructors

### MyWrite(ICanvas)

MyWrite constructor

```
public MyWrite(ICanvas canvas)
```

## Parameters

[canvas](#) ICanvas

## Methods

## CheckParameters(string[])

CheckParameters for Write command

```
public override void CheckParameters(string[] parameters)
```

Parameters

parameters [string](#)[]

Exceptions

CommandException

## Execute()

Execute the Write command

```
public override void Execute()
```

Exceptions

[Exception](#)

# Class Program

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

```
public static class Program
```

## Inheritance

[object](#) ← Program

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#)

# Class UnknownCommand

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Command that does nothing for unknown commands Prevents exceptions during parsing

```
public class UnknownCommand : ICommand
```

Inheritance

[object](#) ← UnknownCommand

Implements

ICommand

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#)

## Properties

### Canvas

Canvas property required by ICommand interface.

```
public Canvas Canvas { get; set; }
```

Property Value

Canvas

## Methods

### CheckParameters(string[])

CheckParameters method required by ICommand interface.

```
public void CheckParameters(string[] parameters)
```

Parameters

parameters [string](#)[]

## Compile()

Compile method required by ICommand interface.

```
public void Compile()
```

Exceptions

[NotImplementedException](#)

## Execute()

Execute method that does nothing.

```
public void Execute()
```

## Set(StoredProgram, string)

Set method required by ICommand interface.

```
public void Set(StoredProgram Program, string Params)
```

Parameters

Program StoredProgram

Params [string](#)[]

Exceptions

[NotImplementedException](#)

# Class VariableStore

Namespace: [Medium Scale Software Engineering Project](#)

Assembly: Medium Scale Software Engineering Project.dll

Singleton class that replaces BOOSE internal variable handling for Int, Real, Array, and Method types with unlimited capacity.

```
public sealed class VariableStore : IVariableStore
```

Inheritance

[object](#) ← VariableStore

Implements

[IVariableStore](#)

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#)

## Properties

### CurrentMethod

Current method name being executed.

```
public string CurrentMethod { get; }
```

Property Value

[string](#)

### Instance

Get the singleton instance.

```
public static VariableStore Instance { get; }
```

## Property Value

[VariableStore](#)

## Methods

### Clear()

Clears all variables and methods from the store.

```
public void Clear()
```

### DefineMethod(string, MethodDefinition)

Defines a new method.

```
public void DefineMethod(string name, MethodDefinition definition)
```

#### Parameters

**name** [string](#)

**definition** [MethodDefinition](#)

### EnterMethod(string)

Enters a method context for tracking current method.

```
public void EnterMethod(string methodName)
```

#### Parameters

**methodName** [string](#)

### EvaluateExpression(string)

Evaluates an expression string and returns the result.

```
public object EvaluateExpression(string expression)
```

Parameters

`expression` [string](#)

Returns

[object](#)

## ExitMethod()

Exits the current method context.

```
public void ExitMethod()
```

## GetMethod(string)

Gets a method definition by name.

```
public MethodDefinition GetMethod(string name)
```

Parameters

`name` [string](#)

Returns

[MethodDefinition](#)

## GetVariable(string)

Gets a variable by name, searching from the current scope outward.

```
public object GetVariable(string name)
```

Parameters

`name` [string](#)

Returns

[object](#)

## MethodExists(string)

Method existence check.

```
public bool MethodExists(string name)
```

Parameters

`name` [string](#)

Returns

[bool](#)

## PopScope()

Pops the current variable scope from the stack.

```
public void PopScope()
```

## PushScope()

Pushes a new variable scope onto the stack.

```
public void PushScope()
```

## SetVariable(string, object, string)

Sets a variable in the current scope.

```
public void SetVariable(string name, object value, string type = null)
```

Parameters

`name` [string](#)

`value` [object](#)

`type` [string](#)

## VariableExists(string)

Verifies if a variable exists in any scope.

```
public bool VariableExists(string name)
```

Parameters

`name` [string](#)

Returns

[bool](#)