Лабораторная работа №3

# Тема:

Изучение режимов отображения и методов пересчета мировых координат в оконные.

# Пересчёт мировых координат в оконные

public static Matrix SpaceToWindow(FloatRect world\_coords, IntRect win\_coords) {

float

dxw = win\_coords.Width,

dyw = win\_coords.Height,

dx = world\_coords.Left,

dy = world\_coords.Top,

kx = dxw / dx,

ky = dyw / dy;

return new Matrix(new float[ ][ ] {

new float[] { kx, 0, win\_coords.Left - kx \* world\_coords.Left },

new float[] { 0, ky, win\_coords.Top - ky \* world\_coords.Top },

new float[] { 0, 0, 1 }

});

}

# Структура для создания пера

class Pen {

public enum LineStyle {

Solid = 0,

Dash\_Dot = 1

}

public LineStyle Style;

public static readonly bool[ ][ ] Lines;

static Pen( ) {

Lines = new bool[ ][ ] {

new bool[] { true },

new bool[] {

true, true, true,

true, true, true,

false, false,

false, false,

true,

true,

false, false,

false, false,

}

};

}

private float \_width;

public float Width {

get { return \_width; }

set {

if (value < 0) {

throw new NegativeValueException( );

}

\_width = value;

}

}

public Color Color;

public Pen(Color color, float width, LineStyle style) {

Color = color;

Width = width;

Style = style;

}

public Pen(Color color, float width = 1) : this(color, width, LineStyle.Solid) { }

}

# Задание свойств отображения графиков

static Pen Pen1 = new Pen(Color.Red);

static Pen Pen2 = new Pen(Color.Green);

static Pen Pen3 = new Pen(Color.Red, 3, Pen.LineStyle.Dash\_Dot);

static Pen Pen4 = new Pen(Color.Red, 2);

static Pen AxisPen124 = new Pen(Color.Blue, 2);

static Pen AxisPen3 = new Pen(new Color(191, 191, 191), 2);

static FloatRect WorldCoords1 = new FloatRect(-Pi3, -Pi3, Pi6, Pi6);

static FloatRect WorldCoords2 = new FloatRect(-5, -5, 10, 10);

static FloatRect WorldCoords3 = new FloatRect(0, -Pi3, Pi6, Pi6);

static FloatRect WorldCoords4 = new FloatRect(-10, -2, 20, 18);

WinCoords = new IntRect(0, 0, (int)Win.Size.X, (int)Win.Size.Y);

int w7 = (int)Win.Size.X / 7;

int h7 = (int)Win.Size.Y / 7;

WinCoords1 = new IntRect(w7, h7, 2 \* w7, 2 \* h7);

WinCoords2 = new IntRect(4 \* w7, h7, 2 \* w7, 2 \* h7);

WinCoords3 = new IntRect(w7, 4 \* h7, 2 \* w7, 2 \* h7);

WinCoords4 = new IntRect(4 \* w7, 4 \* h7, 2 \* w7, 2 \* h7);

# Отображение графиков на экране

switch (State) {

case 0:

break;

case 1:

LabsUtils.DrawAxisses(Win, WorldCoords1, WinCoords, AxisPen124);

LabsUtils.DrawFunction(Win, LabsUtils.F1, WorldCoords1, WinCoords, Pen1);

break;

case 2:

LabsUtils.DrawAxisses(Win, WorldCoords2, WinCoords, AxisPen124);

LabsUtils.DrawFunction(Win, LabsUtils.F2, WorldCoords2, WinCoords, Pen2);

break;

case 3:

LabsUtils.DrawAxisses(Win, WorldCoords3, WinCoords, AxisPen3);

LabsUtils.DrawFunction(Win, LabsUtils.F3, WorldCoords3, WinCoords, Pen3);

break;

case 4:

LabsUtils.DrawAxisses(Win, WorldCoords4, WinCoords, AxisPen124);

LabsUtils.DrawFunction(Win, LabsUtils.F4, WorldCoords4, WinCoords, Pen4);

break;

case 5:

LabsUtils.DrawAxisses(Win, WorldCoords1, WinCoords1, AxisPen124);

LabsUtils.DrawFunction(Win, LabsUtils.F1, WorldCoords1, WinCoords1, Pen1);

LabsUtils.DrawAxisses(Win, WorldCoords1, WinCoords2, AxisPen124);

LabsUtils.DrawFunction(Win, LabsUtils.F2, WorldCoords2, WinCoords2, Pen2);

LabsUtils.DrawAxisses(Win, WorldCoords1, WinCoords3, AxisPen124);

LabsUtils.DrawFunction(Win, LabsUtils.F3, WorldCoords3, WinCoords3, Pen3);

LabsUtils.DrawAxisses(Win, WorldCoords1, WinCoords4, AxisPen124);

LabsUtils.DrawFunction(Win, LabsUtils.F4, WorldCoords4, WinCoords4, Pen4);

break;

}

# Результат работы

 

 

