Figures
This is a class diagram of the simple package providing a way for creating and manipulation of
geometrical figures. User can adds its own figures conforming the "Figure" interface. The manipulation
of figures is realized in a batch form using the class "Batch". Batch runs commands implementing
"Command" interface. User can add its own command conforming "Command" interface.
Batch implements the methods "Execute" and "Validate" for applying commands and checking if after
manipulations figures don't overlap.

Canvas

- m_x_size:int
- m_y_size:int
- m_canvas:vector<vector<int>>

+ GetColor(int x, int y):int
+ SetColor(int x, int y, int color;
+ GetSize(int& x_size, int& y_size)
+ DrawCanvas()
+ Clone():unique_ptr<Canvas>

Rectangle

- m_ulx:int
- m_uly:int
- m_lrx:int
- m_lry:int
- m_color:int

+ IsNotOverlaped():bool
+ Clear()
+ Draw(int offset_x, int offset_y)
+ ReDraw(int color)

- RectangleDraw(int color,
  int offset_x,
  int offset_y)

Circle

- m_x:int
- m_y:int
- m_radius:int
- m_color:int

+ IsNotOverlaped():bool
+ Clear()
+ Draw(int offset_x, int offset_y)
+ ReDraw(int color)

- CircleDraw(int color,
  int offset_x,
  int offset_y)

CanvasManager

- m_next_id:unsigned int
- m_canvas:Canvas
- m_x_size:size_t
- m_y_size:size_t
- m_figures:
  map<unsigned int, unique_ptr<Figure>>

+ AddRectangle(int ulx, int uly, int lrx, int lry, int
+ AddCircle(int x, int y, int radius, int color):int
+ AddTriangle(int x, int y, int h, int color):int
+ DrawFigure(int id)
+ RemoveFigure(int id)
+ MoveFigure(int id, int offset_x, int offset_y)
+ ColorFigure(int id, int color)
+ Validate(int id):bool
+ howCanvas()
+ CloneCanvas():std::unique_ptr<Canvas>

<<Interface>>
Figure

- m_owner_ref:Canvas&

+ IsNotOverlaped():bool
+ Clear()
+ Draw(int offset_x, int offset_y)
+ ReDraw(int color)

Triangle

- m_x:int
- m_y:int
- m_h:int
- m_color:int

+ IsNotOverlaped():bool
+ Clear()
+ Draw(int offset_x, int offset_y)
+ ReDraw(int)

- TriangleDraw(int color,
  int offset_x,
  int offset_y)

RemoveFigureCmd

- m_id:int

+ Execute()
+ Validate(int& id):bool

AddFigureCmd

- m_id:int

+ Execute()
+ Validate(int& id):bool
+ GetId() const:int

Batch

- m_cm:CanvasManager&
- m_batch:vector<unique_ptr<Command>>

+ AddRectangle(int ulx, int uly, int lrx, int lry, int color):int
+ AddCircle(int x, int y, int radius, int color):int
+ AddTriangle(int x, int y, int h, int color):int
+ DrawFigure(int id)
+ RemoveFigure(int id)
+ MoveFigure(int id, int offset_x, int offset_y)
+ ColorFigure(int id, int color)
+ Validate(int id):bool
+ howCanvas()
+ CloneCanvas():unique_ptr<Canvas>

<<Interface>>
Command

- CanvasManager& m_cm

+ Execute()
+ Validate(int& id):bool

ColorFigureCmd

- m_id:int
- m_color:int

+ Execute()
+ Validate(int& id):bool

MoveFigureCmd

- m_id:int
- m_offset_x:int
- m_offset_y:int

+ Execute()
+ Validate(int& id):bool