ING Project Design Specification

# Overview

ING Project is private project to make high level easy 3D/2D visualization.

# Requirements and Design decisions

1. Easy to port various OS platform
   1. Support Windows Win32
   2. Support Windows Store Application
   3. Support Linux
2. Easy to expend to support multiple graphics APIs
   1. Provide Direct 3D 12 implementation
   2. Provide Direct 3D 11 implementation
   3. Provide OpenGL implementation
3. ING Project target binary is Dynamic Load Library (DLL) type
4. Using C++
5. APIs should be simple and easy to use
6. APIs should be light weight to run 60 fps 4K in advanced environment and target 30 fps 1080p
7. Graphics API should provide information of supported graphics adapter
8. Graphics API should provide information of supported display output
9. Export APIs should use plain C++ interfaces
10. Internal implementation should use standard C++ and STL which can be compiled easily by various OS platforms.
11. Graphics API should provide factory classes to create following instance
    1. Graphics main object
    2. Texture resource
    3. Shader resource
    4. Geometry resource
12. Graphics API should have API to load and save text based (JSON or XML) serialized object file
13. Graphics API should have API to load and save text based (JSON or XML) serialized scene file
14. Graphics API should have API to load and save object as binary format
15. Graphics API should have API to load and save scene as binary format
16. Graphics API should have initializing method with following parameters
    1. Underlying graphics API (DX12/DX11/OpenGL/etc.)
    2. Graphics adapter
17. Graphics API should have method to bind window
    1. Window (client area) resolution
    2. Full screen mode
18. Graphics API should have ability to change full screen mode
19. Engine class is the central module to use Graphics API
20. Engine class should provide main loop which handles system events and user events

# High Level Design

# Detailed Design