[GP1 – Milestone Specifications]

Rasterizer

This document contains the hand-in guidelines for the Rasterizer milestone (deadline 8 December). The hand-in structure described below is MANDATORY – not following the specifications can affect your grades!

REQUIRED SCENE(S)

Separate builds/exe's (see folder structure information)
Make sure to set the WindowTitle correctly (see main.cpp)

1) ### Rasterizer_REFERENCE
   Recreate the reference scene with the parameters below!

Scene Parameters:
- Camera [Position {0.f, 5.f, -64.f}, FOV angle {45}, Near {.1f}, Far {100.f}]
- Shading
  - Directional Light [Direction {.577f, -.577f, .577f}, Color {1.f, 1.f, 1.f}, Intensity {2.f}]
  - Normal Mapping
    - Normal Texture
  - Diffuse
    - Lambert Diffuse
    - Diffuse Texture (color)
    - KD: 7.f
  - Specular [Shininess {25.f}]
    - Phong Specular
    - Gloss Texture (shininess scale)
    - Specular Texture (color)
  - Ambient [Color { .03 f, .03 f, .03 f}]

2) ### Rasterizer_EXTRA (**optional!**)
   This 'extra' scene is NOT mandatory – but in case you created a nice-looking scene you can add it here as an 'extra' scene. Go nuts!

REQUIRED INPUT (Key/Mouse Bindings)

We will only test the keybinding below, so make sure you implement them correctly!

MOUSE:

- (Camera) Rotate Yaw (RMB + Mouse Move X)
- (Camera) Rotate Pitch (RMB + Mouse Move Y)
- (Camera) Move (local) Forward/Backward (LMB + Mouse Move Y)
- (Camera) Rotate Yaw (LMB + Mouse Move X)
- (Camera) Move (world) Up/Down (LMB + RMB + Mouse Move Y)

KEYBOARD:

- (Camera) Move (local) Forward (Arrow Up) and ('W')
- (Camera) Move (local) Backward (Arrow Down) and ('S')
- (Camera) Move (local) Right (Arrow Right) and ('D')
- (Camera) Move (local) Left (Arrow Left) and ('A')
- (Rendering) Toggle Depth Buffer ('F4')
- (Rendering) Toggle Rotation (Rotate/Idle) ('F5')
- (Rendering) Toggle Normal Mapping (On/Off) ('F6')
- (Rendering) Cycle Shading Mode ('F7')

FOLDER STRUCTURE (hand-in as ZIP/RAR)

Follow the given folder/file structure below, also makes sure to test the different executables and Visual Studio project after moving them to their appropriate folders! Redundant files/folder must be removed to reduce the file size as much as possible (as a reference, the file size of the RAR below is less than 10mb)

Also, note the '_Resources' folder, this folder should contain all the resources used by both the Release & Debug builds.
Tip: an easy way to recreate this setup is to change in your code where resources are loaded from, then build (it will not run from Visual Studio since the resource path is changed). Move the build to your BUILD/DEBUG or BUILD/RELEASE folder and manually copy + paste the _Resource folder as below and you should be able to run your executables now. This way, no configuration changes in VS are needed (such as post-build steps).

```
Utils::ParseOBJ(filename: "../_Resources/vehicle.obj", [&] m_Mesh->vertices, [&] m_Mesh->indices);
m_DiffuseMap = Texture::LoadFromFile(path: "../_Resources/vehicle_diffuse.png");
m_NormalMap = Texture::LoadFromFile(path: "../_Resources/vehicle_normal.png");
m_SpecularMap = Texture::LoadFromFile(path: "../_Resources/vehicle_specular.png");
m_GlossMap = Texture::LoadFromFile(path: "../_Resources/vehicle_gloss.png");
```
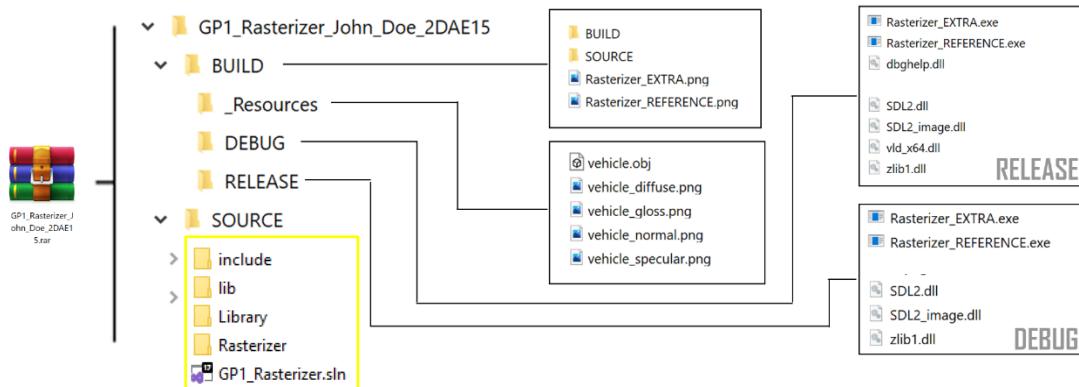

- (folder) **ROOT** > GP1_Rasterizer_[firstname]_[lastname]_[class]
  - o (folder) **BUILD**
    - ▪ (folder) **_Resources** > All required application resources (use the correct relative paths in your builds!)
      The should be NO resources inside the DEBUG/RELEASE folders!

    - ▪ (folder) **DEBUG** > Debug versions of requested scenes **(+ required libs/resources)"**
      VLD should be active in this version (so check for memory leaks)!!
      - • Rasterizer_REFERENCE.exe
      - • Rasterizer_EXTRA.exe (optional)
      - • … (see screenshot)

    - ▪ (folder) **RELEASE** > Release versions of requested scenes **(+ required libs/resources)**
      - • Rasterizer_REFERENCE.exe
      - • Rasterizer_EXTRA.exe (optional)
      - • … (see screenshot)

  - o (folder) **SOURCE** > Source code used to create above builds **(+ remove redundant folders > TempFiles/.vs/bin)**
    Double check if project opens and builds correctly AFTER moving it to your hand-in folder!!
    (We are not going to fix any linking issues to get your project running)
    - ▪ **include** > Include files of external libraries
    - ▪ **lib** > external libraries
    - ▪ **Library and Rasterizer** > your source code (Visual Studio Project)

  - o (file) Rasterizer_REFERENCE.png > Screen capture including WindowTitle
  - o ((Optional) file) Rasterizer_EXTRA.png > Screen capture including WindowTitle

GOOD LUCK!

Questions or Remarks?

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