

GLSL 4.1 tips and hints

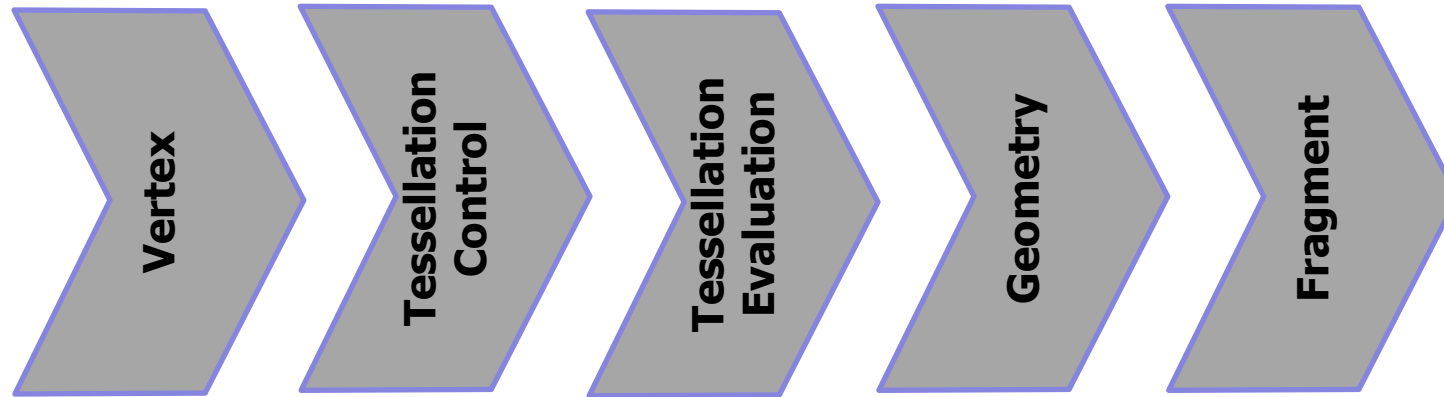
**Bill Licea-Kane
OpenGL Shading Language Chair**

GLSL 4.1 tips and hints

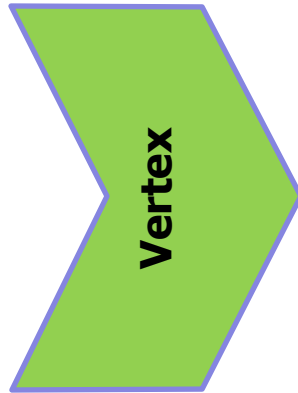
- **GL_ARB_separate_shader_objects**
 - GLSL implications (linker/drawtime)
- **Interfaces**
 - How to
 - Tradeoffs

GL_ARB_separate_shader_objects

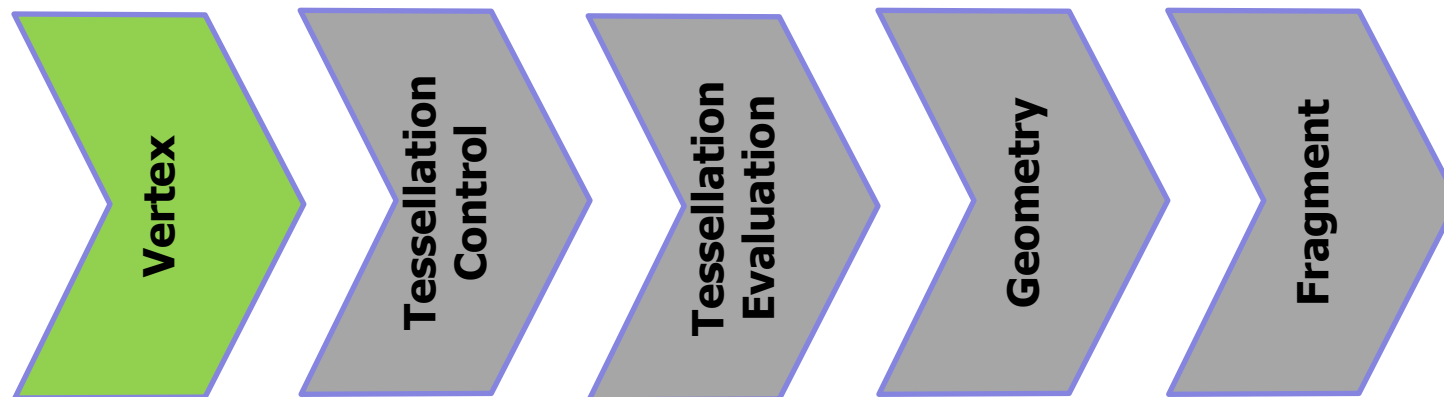
OpenGL 4.x Pipeline



Valid Pipelines - Vertex



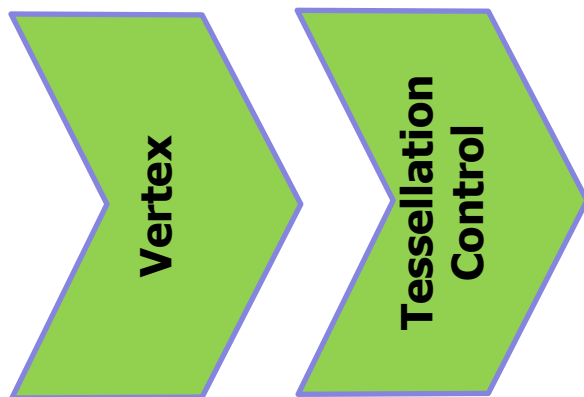
Valid Pipelines - Vertex



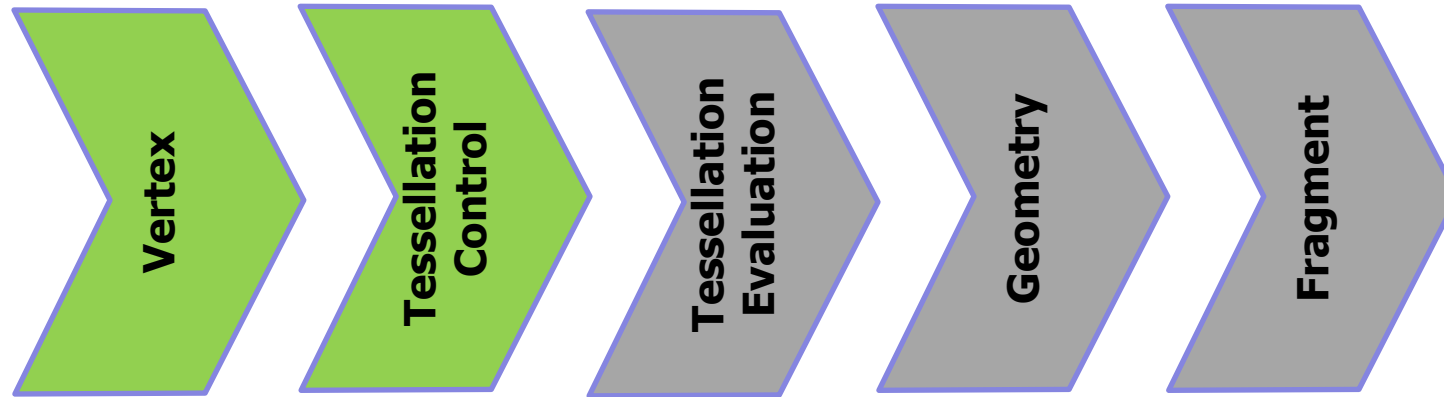
Valid Pipelines – Tessellation Control



Valid Pipelines – Tessellation Control



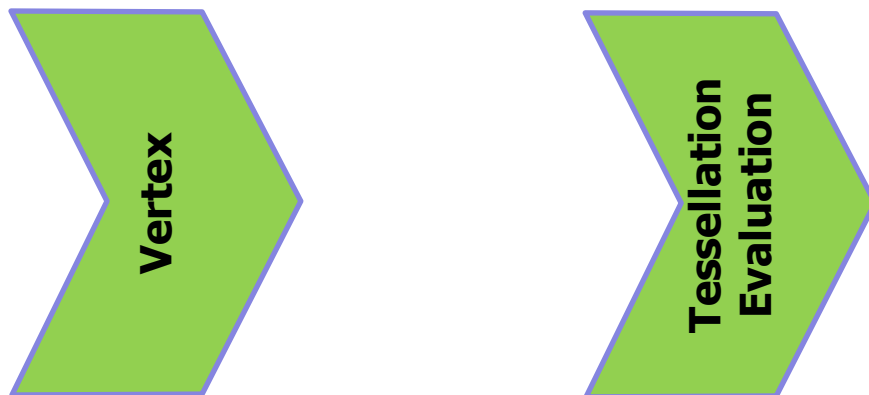
Valid Pipelines – Tessellation Control



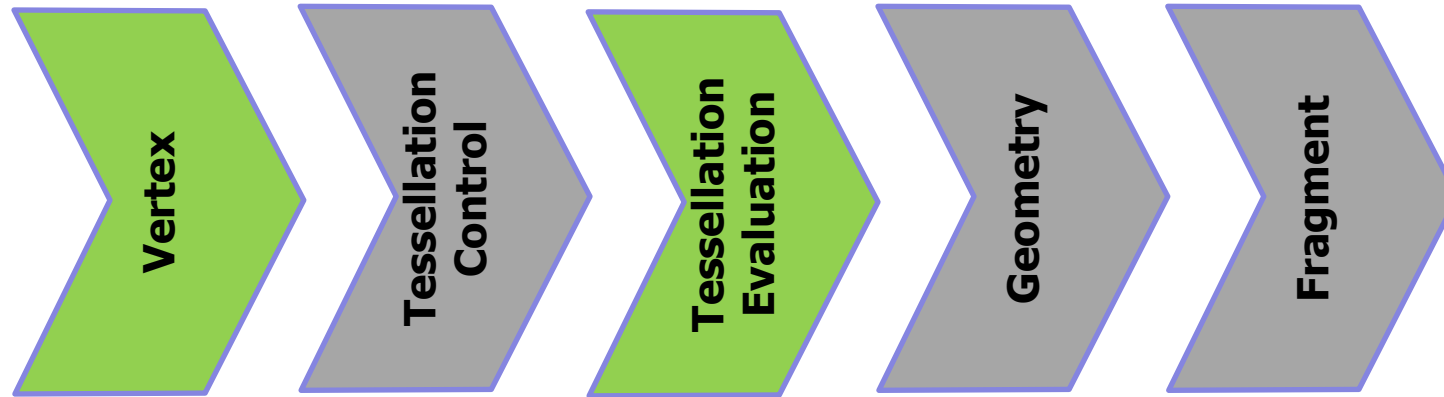
Valid Pipelines – Tessellation Evaluation



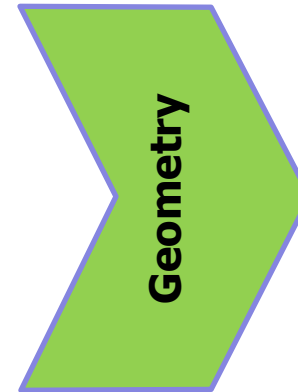
Valid Pipelines – Tessellation Evaluation



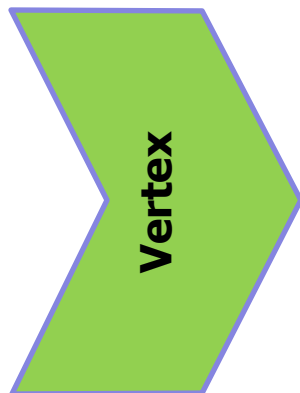
Valid Pipelines – Tessellation Evaluation



Valid Pipelines – Geometry



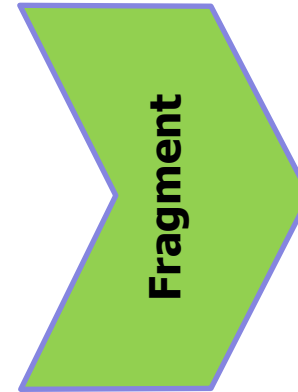
Valid Pipelines – Geometry



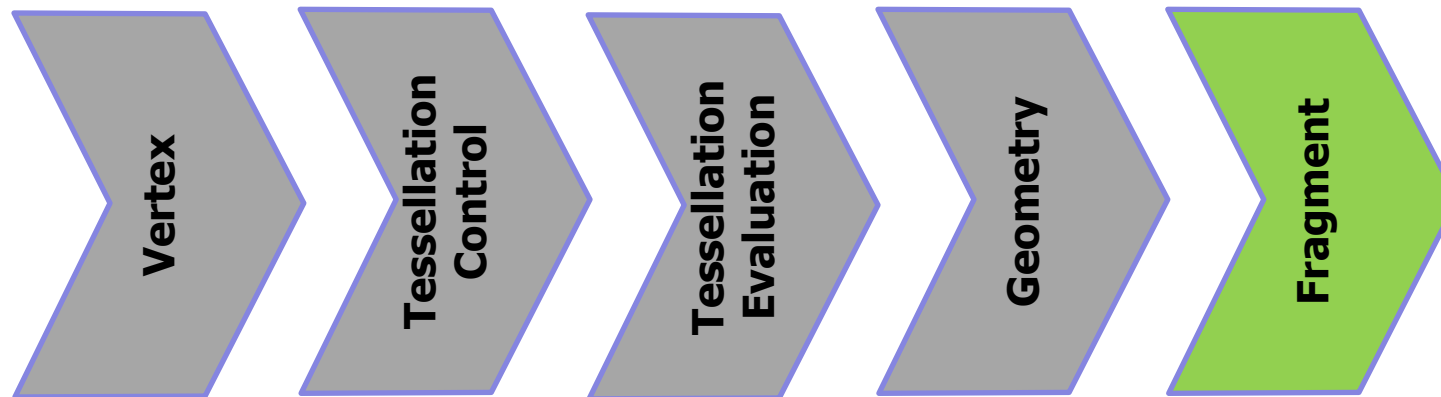
Valid Pipelines – Geometry



Valid Pipelines - Fragment



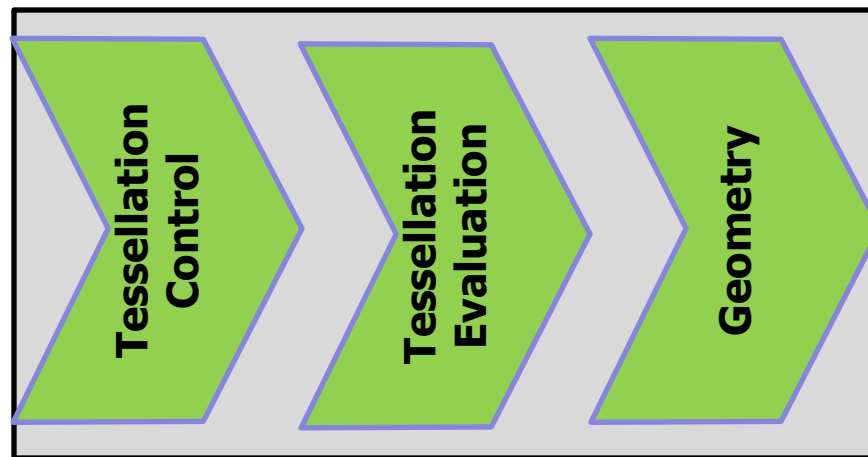
Valid Pipelines - Fragment



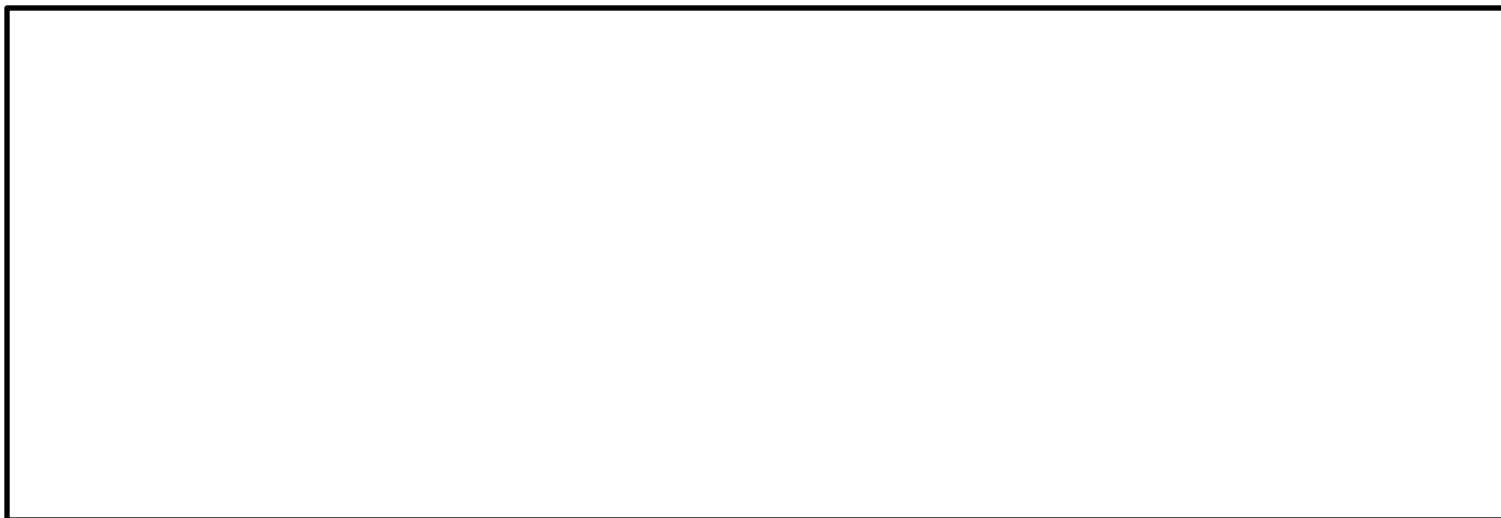
Program Object (Separable)



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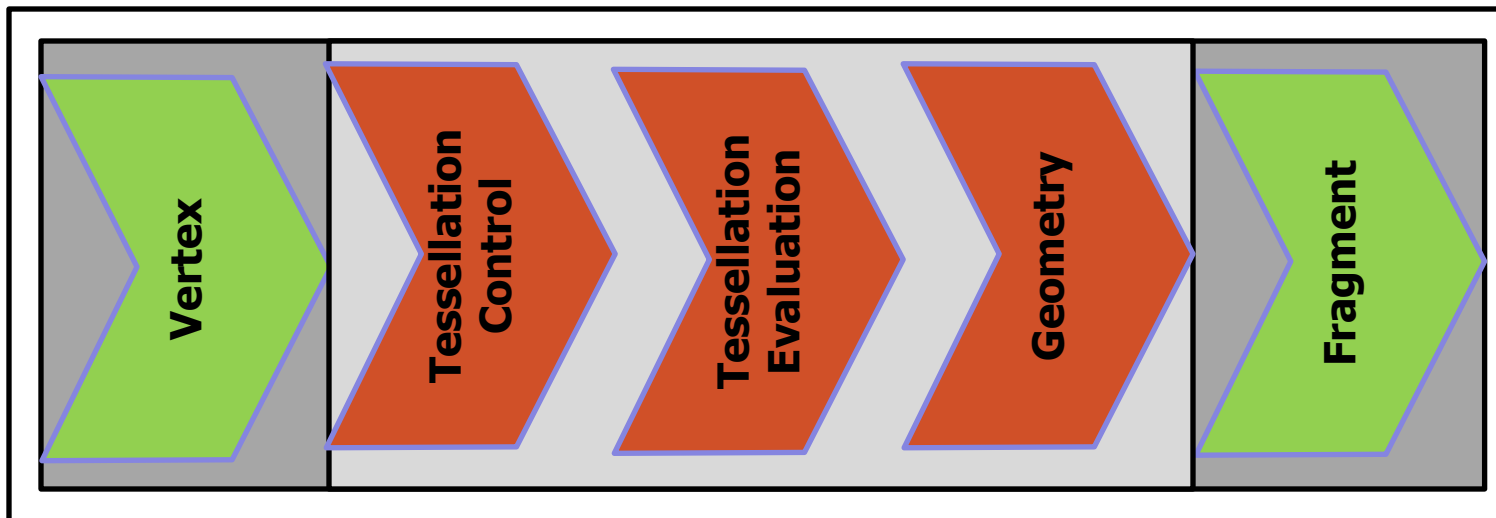
Pipeline Object



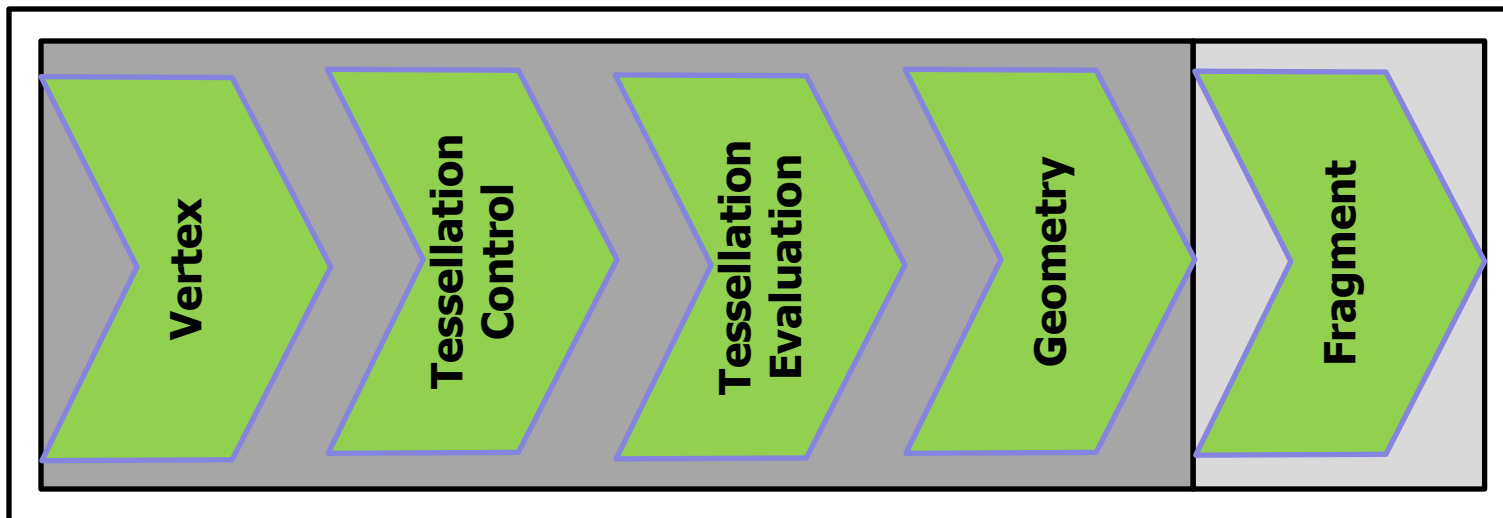
Valid Pipeline Object



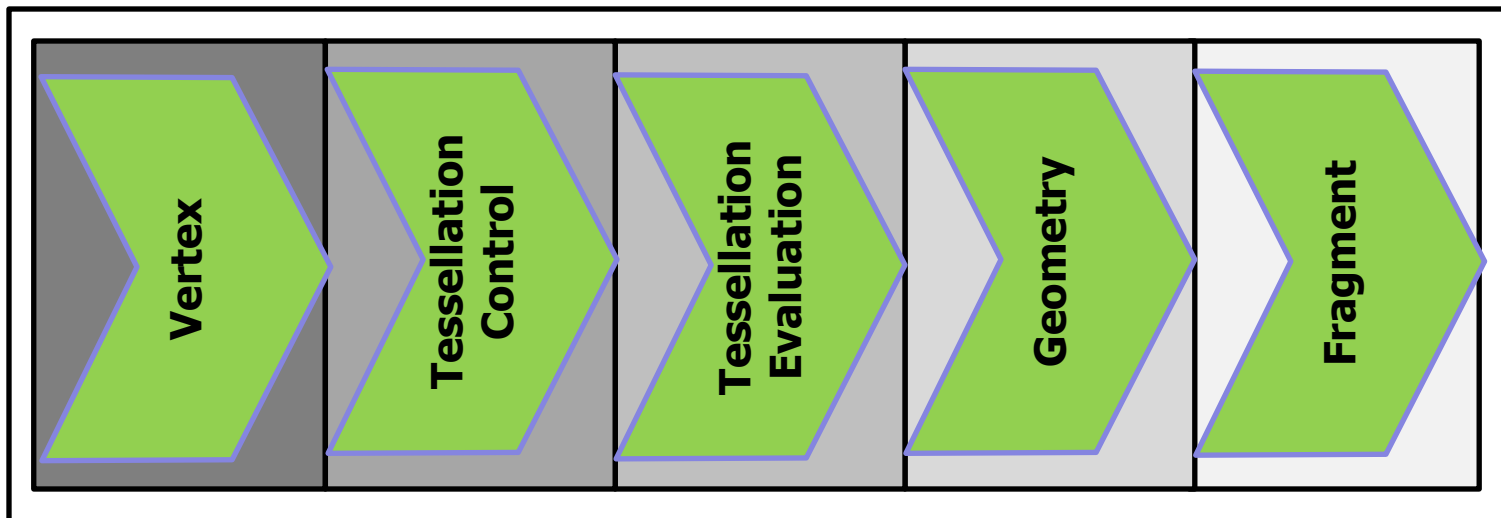
Invalid Pipeline Object



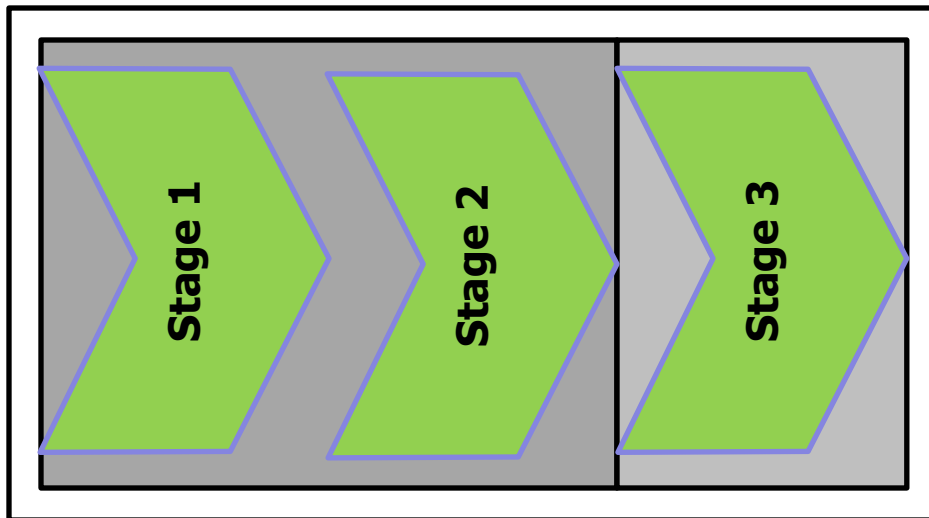
Valid Pipeline Object



Valid Pipeline Object



Interfaces



Interfaces – How to

- Generalized explicit attrib location

```
// stage 1
```

```
layout ( location = 0 ) out vec4 baseColor;
```

```
layout ( location = 1 ) out vec2 texCoord;
```

```
// stage 2
```

```
layout ( location = 0 ) in  vec4 baseColor;
```

```
layout ( location = 1 ) in  vec2 texCoord;
```

Interfaces – How to

- **Interface blocks**

```
// stage 1
out colorTexCoord {
    vec4 color;
    vec2 texCoord;
};

// stage 2
in colorTexCoord {
    vec4 color;
    vec2 texCoord;
};
```