Chapter 12: `Pipeline` 🛠

0. `VkGraphicsPipelineCreateInfo` 𝐢

- https://vkdoc.net/man/VkGraphicsPipelineCreateInfo
  - ◦ `.sType` ▨ `VK_STRUCTURE_TYPE_GRAPHICS_PIPELINE_CREATE_INFO`
  - ◦ `.pNext` ✐ `nullptr`
  - ◦ `.flags` ☐ *ChapterZZZ*
    - ▪ ✐ *https://vkdoc.net/man/VkPipelineCreateFlagBits* | *ivirtex-github*

  - ◦ `.stageCount` 🏷 `uint32_t`
  - ◦ `.pStages` 🎨 *Shaders* 🏷 `VkPipelineShaderStageCreateInfo`

  - ◦ 🔀 *Pipeline States / Stages*
    - ▪ `.pVertexInputState` 😵
    - ▪ `.pInputAssemblyState`
    - ▪ `.pTessellationState`
    - ▪ `.pViewportState`
    - ▪ `.pRasterizationState`
    - ▪ `.pMultisampleState`
    - ▪ `.pDepthStencilState`
    - ▪ `.pColorBlendState`
    - ▪ `.pDynamicState`

  - ◦ `.layout` 🔗 *SubChapter 2*
  - ◦ `.renderPass` ⊗
  - ◦ `.subpass` ▨ `0`
  - ◦ `.basePipelineHandle` ▨ `VK_NULL_HANDLE`
  - ◦ `.basePipelineIndex` ▨ `INT32_MIN`

1. `amVK` **wrap** ✐

TBA

2. `VkPipelineLayout`

1. `VkPipelineLayoutCreateInfo`
   - *https://vkdoc.net/man/VkPipelineLayoutCreateInfo*
     - `.sType` ▨ `VK_STRUCTURE_TYPE_PIPELINE_LAYOUT_CREATE_INFO`
     - `.pNext` ▨ `nullptr`
     - `.flags` ☐ `0`
       - ▨ *https://vkdoc.net/man/VkPipelineLayoutCreateFlagBits* | *ivirtex-github*

     - `.pSetLayouts` ▨ `nullptr` ⬦ `VkDescriptorSetLayout` ▨ *ChapterZZZ*
     - `.pPushConstantRanges` ▨ `nullptr` ⬦ `VkPushConstantRange` ▨ *ChapterZZZ*
2. `vkCreatePipelineLayout()`
   - *https://vkdoc.net/man/vkCreatePipelineLayout*

3. `Pipeline Objects`

1. `amVK_Vertex.hh` ⮘ `GITHUB_WIP`
2. `amVK_GeoMetry.hh` ⮘ `GITHUB_WIP`
3. `amVK_PipelineGRAPHICS.cpp` ⮘ `GITHUB_WIP`

4. Validation Errors

1.