```
- const std::string mWindowName
         GLFWwindow * mWindow
        + VRE Window(int width,
          int height, std::string name)
        + ~VRE_Window()
        + VRE_Window(const VRE
          _Window &)=delete
        + VRE_Window & operator
         =(const VRE Window &)
         =delete
        + bool ShouldClose()
        + void CreateWindowSurface
          (VkInstance instance, VkSurface
          KHR *surface)
        + VkExtent2D GetExtent()
        + bool HasWindowResized()
        + void ResetWindowResizedFlag()
        + GLFWwindow * GetGLFWwindow
          () const
        - void Init()

    static void FrameBufferResized

          Callback(GLFWwindow *window,
          int width, int height)
                         -mWindow
               VRE::VRE Device
       + const bool mEnableValidation
         Layers
       + VkPhysicalDeviceProperties
         mProperties

    VkInstance mInstance

    VkDebugUtilsMessengerEXT

         mDebugMessenger

    VkPhysicalDevice mPhysical

         Device

    VkCommandPool mCommandPool

    VkDevice mVkDevice

    VkSurfaceKHR mVkSurface

       - VkQueue mGraphicsQueue

    VkQueue mPresentQueue

       const std::vector
         const char * > mValidation
         Layers
       const std::vector
         const char * > mDeviceExtensions
       + VRE_Device(VRE_Window
         &window)
       + ~VRE Device()
       + VRE_Device(const VRE
         _Device &)=delete
       + VRE_Device & operator
         =(const VRE_Device &)
         =delete
       + VRE_Device(VRE_Device
         &&)=delete
       + VRE_Device & operator
         =(VRE_Device &&)=delete
       + VkCommandPool GetCommand
         Pool()
       + VkDevice GetVkDevice()
       + VkPhysicalDevice GetPhysical
         Device()
       + VkSurfaceKHR Surface()
         and 12 more...

    void CreateInstance()

    void SetupDebugMessenger()

    void CreateSurface()

       - void PickPhysicalDevice()

    void CreateLogicalDevice()

    void CreateCommandPool()

       - bool IsDeviceSuitable
         (VkPhysicalDevice device)
       std::vector< const</li>
         char * > GetRequiredExtensions()

    bool CheckValidationLayer

         Support()

    QueueFamilyIndices

         FindQueueFamilies(VkPhysical
         Device device)

    void PopulateDebugMessenger

         CreateInfo(VkDebugUtilsMessenger
         CreateInfoEXT &createInfo)

    void HasGflwRequiredInstance

         Extensions()
       - bool CheckDeviceExtension
         Support(VkPhysicalDevice
         device)

    SwapChainSupportDetails

         QuerySwapChainSupport
         (VkPhysicalDevice device)
                         -mDevice
             VRE::VRE_SwapChain
+ static constexpr int
  MAX_FRAMES_IN_FLIGHT
 VkFormat mSwapChainImage
 VkFormat mSwapChainDepth
  Format
 VkExtent2D mSwapChainExtent
 std::vector< VkFramebuffer
  > mSwapChainFramebuffers

    VkRenderPass mRenderPass

 std::vector< VkImage
  > mDepthImages
std::vector< VkDeviceMemory</li>
  > mDepthImageMemorys
- std::vector< VkImageView
  > mDepthImageViews
 std::vector< VkImage
  > mSwapChainImages
std::vector< VkImageView</li>
  > mSwapChainImageViews
 and 8 more...
+ VRE SwapChain(VRE
```

VRE::VRE_Window

- bool mFrameBufferResized

- int mWidth int mHeight

Device &deviceRef, VkExtent2D extent)

+ ~VRE_SwapChain() + VRE SwapChain(const VRE_SwapChain &)=delete

+ VRE_SwapChain & operator =(const VRE_SwapChain &)

+ VRE_SwapChain(VRE Device &deviceRef, VkExtent2D extent, std ::shared_ptr< VRE_SwapChain

> previous)

=delete

- + void Init() + VkFramebuffer GetFrameBuffer (int index)
- + size_t GetImageCount()

- void CreateSwapChain() void CreateImageViews()

and 9 more...

- void CreateDepthResources() - void CreateRenderPass()
- + VkImageView GetImageView (int index)

+ VkRenderPass GetRenderPass()

- void CreateFramebuffers()

- VkSurfaceFormatKHR

- void CreateSyncObjects()
- ChooseSwapSurfaceFormat (const std::vector< VkSurfaceFormat KHR > &availableFormats)
- VkPresentModeKHR ChooseSwap PresentMode(const std::vector < VkPresentModeKHR > &availablePresentModes)
 - VkExtent2D ChooseSwapExtent (const VkSurfaceCapabilitiesKHR &capabilities)