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# Assignment on Virtual Reality and Physically-Based Simulation - Sheet 4

Due Date 6. 01. 2015

## Exercise 1 (Comparison of VR displays, *4 Credits*)

Please compare the following categories of VR displays: fish tank VR display (i.e., stereoscopic monitor, please specify whether you consider autostereo or with glasses), head-mounted display, immersive projection technologies. For each category , list their advantages and their disadvantages.

## Exercise 2 (Progressive Meshes, *5 Credits*)

Write a pseudo-code for an edge-collapsing algorithm that can create a progressive mesh, given a high-resolution mesh as input. You can assume that all neighbourhood information are given/known within a mesh.

## Exercise 3 (LRU strategy, *4 Credits*)

Please assume the following sequence of colour elements passed to a sorting buffer during rendering of a scene graph: **AACDEFGHABGHCCCAGHIJABABCCCAAG** , where **A** to **J** represent different colours.

Apply the LRU strategy for a buffer size of $k = 1, 2, 3, 4$ and discuss the results with respect to number of colour changes. Which value for $k$ is considered to be the optimal solution?

## Exercise 4 (Stereoscopic Image Cloning , *3 Credits*)

Derive the formula of simple image warping mentioned in the lecture slide "**Stereoscopic Image Cloning (Stereo without 2x rendering)**"