**Worksheet 5 – Part 4:**

**Explain the effect of the different filtering modes and their influence on texture magnification and minification issues.**

The texture filtering operation also performs the texture magnification of minification. Therefore, the texture is being mapped into a primitive image that is larger or smaller than itself. Magnification of a texture can result in many pixels being mapped to a single texel and the result can have a chunky appearance. Minification of a texture means that one single pixel is mapped to many texels.

Three methods of texture filtering are used: **NEAREST**, **LINEAR**, and **MipMap**. The first two are used both on minification and magnification; MipMap can be used only on minification.

**NEAREST** option implies that each texture coordinate will choose the closest value of the texel, meaning black or white.

**LINEAR** option requires more computation and uses a weighted average of a group of texels, neighbors of the point sample. The object resulting is blurrier than the one obtained by using nearest filtering.

A **MipMap** is a sequence of textures, each of which is a progressively lower resolution representation of the same image. In our case, a more blurred image is produced. Also, mipmapping is known for improving the quality of rendered textures at the expense of using more memory.