Module 5: Portfolio Milestone

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WebGL has many viewing functions that can be used to achieve various perspectives. For example, the mat4.ortho(out, left, right, bottom, top, near, far) function can generate an orthogonal projection matrix. This function takes an argument for an output matrix, as well as 6 bounds of a frustum. A projection can be applied by multiplying a projection matrix by a point to be drawn in 3D space, done in the vertex shader of a program. An option for a general perspective projection matrix in WebGL is the mat4.perspective(out, fovy, aspect, near, far) function which generates a perspective projection matrix. This function takes an argument for an output matrix, a vertical field of view, aspect ratio, and near and far bounds of a frustum. Notably, if given a far bound of null, the function will generate an infinite projection matrix.

You can generate a view frustum using the mat4.frustum(out, left, right, bottom, top, near, far) function. This generates a frustum matrix given numerical bounds which can be used for other functions. Another useful view function is the mat4.lookAt(our, eye, center, up) function which creates a view transform matrix that moves and orients a camera to look at a target point. It takes arguments for an output matrix, viewer position, point the viewer should look at, and up axis.

References

Module: MAT4. JSDoc: Module: mat4. (2020, April 1). https://glmatrix.net/docs/module-mat4.html