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| fACULTY OF COMPUTER AND INFORMATION SCIENCES, AIN SHAMS UNIVERSITY |
| Lab 7 |
| Loading MD2 Object |
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# Objectives:

1. **Load MD2 object**

## Load md2 object

First you have to open and read the header of the file which contains the following information.

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| **Parameter** | **Description** |
| **magic** | Commonly used number to identify the file type. Google for file magic number to know each file type associated magic number |
| **version** | MD2 files should have version 8 |
| **skinWidth** | The width of the texture. |
| **skinHeight** | The height of the texture. |
| **frameSize** | The size of each frame. Basically we have one frame at least |
| **numSkins** | Number of textures. We may have zero textures. |
| **numVertices** | Number of vertices. For a cube this number should be 8 as it counts the unique vertices. |
| **numTexCoords** | Number of coordinates for the texture mapping. For a cube this should be 2 Triangles \* 6 Faces \* 3 Points = 36 |
| **numTriangles** | The number of triangles that defines the object |
| **numGlCommands** | Number of OpenGL commands custom for this object. Like enabling certain feature before rendering the object. We ignore these parameters and do not load them. |
| **numFrames** | Number of frames. |
| **offsetSkins** | The address of the start byte that defines the texture values within the file. So you can seek this location to read the texture information directly. |
| **offsetTexCoords** | The address of the start byte that defines the texture coordinates within the file. So you can seek this location to read the texture coordinates directly. |
| **offsetTriangles** | The address of the start byte that defines the faces within the file. So you can seek this location to read the faces directly. |
| **offsetFrames** | The address of the start byte that defines the frames within the file. So you can seek this location to read the frames directly. |
| **offsetGlCommands** | We will ignore it. |
| **offsetEnd** | The address of the last byte within the file <size of the file> |

Once you read the header information you have to allocate enough memory to load the rest of the file. You have to allocate memory for the following objects.

* Textures
* Texture Coordinates
* Faces (Triangles)
* Frames (in case you have frames)

After allocating the required memory you should seek the right position in the file and read the data from the hard disk right into the new allocated memory.

After that you can close the file.

What you get in the memory now cannot be rendered with the OpenGl. You have to put it in suitable format. Which is dividing the Faces into Frames and the same for the Texture Coordinates?

Finally you will have Frames, each frame contains objects each object contains faces.

Only the first frame contains the texture coordinates. It will be redundancy to duplicate them and of course nobody wants to change the texture during the animation.

You can run the sample code now.