Material list (lab3)

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8:57 AM

- we have a vector library
- we have a list library
- I'd like to use both to read in & store a list of materials — see $\boxed{p.21}$ in notes

example materials:

```
material green
{
    ambient 0 5 0
}
material yellow
{
    diffuse 4 4 0
    ambient 5 4 0
    specular 1 1 1
}
```

- Our material data type (p. 47)

```
typedef struct material_type
{
    int cookie;   // like a magic number — object id
    char name[NAME_LEN];
    drgb_t ambient;
    drgb_t diffuse;     } // from pixel.h
    drgb_t specular;    }    a double[3]
} material_t                 just like vec_t
```

in material.h

```
#ifndef NAME_LEN
#define NAME_LEN 16
#endif

#define MAT_COOKIE 32456123
```

- we also want material functions (methods):

$\texttt{material\_init(FILE *in, }\underbrace{\texttt{list\_t *list,}}_{\text{notes have model\_t *model}}\ \underbrace{\texttt{int attrmax}}_{\text{ignore (p. 48)}}\texttt{)}$

idea is to:

1. malloc() a material_t struct
2. load material attributes (read FILE * in)

```
material_t *mat;
mat = (material_t *) malloc(sizeof(material_t));
[illegible]
```

2. load material attributes
   (read FILE * in)
   material_t *mat;
   mat = (material_t *) malloc(sizeof(material_t));
   assert(mat != NULL);

   (calls material_load_attributes(in, mat);

3. add material mat to list

   list_add(list, (void *)mat);

```
material_load_attributes(FILE *in, material_t *mat)
{
   // parses file eg:
   material name\n
   {\n
        ambient   r g b\n
        diffuse   r g b\n
        specular  r g b\n
   }

   fscanf(in, "%s", mat->name);
   while((c=fgetc(in))!=EOF && c!='\n');
        eating whitespace
   while((c=fgetc(in))!=EOF && c!='{');
   again
   fscanf(in, "%s", attrname);
        char attrname[NAME_LEN]

   put into loop that peeks at next char
   if(!strcmp(attrname, "ambient")) vec_read(in, mat->ambient);
         "            diffuse
         "            specular
}; loops while that char != '}'

   while((c=fgetc(in))!=EOF && c!='}')
   {
        fputc(in, c);
```

---

other stuff:
   material_getbyname
   material_list_print
      objective of lab3:
      read in mat.txt

$\leftarrow$ write it out (copy)

---

get more stuffs

material_get ambient (material_t *mat,
                      drgb_t dest)

$\uparrow$

fill in this double rgb data with ambient rgb

p.51 " get diffuse

" get specular

$$\underbrace{\hspace{20em}}$$

these are known as accessors