Computer Science 102
Lab 4

In this lab you will implement the *find_closest_object()* function. It should live in *object.c.*

Components that are provided for you include: *main.c, ray.h, rayfuns.h, rayhdrs.h, model.c* and a *makefile.* You must provide your own *vector.h,* and *plane.c.* You do not need camera.c or material.c. You MUST NOT supply your own model.c For this lab to work you must a have a functional *plane_hits()* function. If yours is not yet working, see your TA by e-mail or in person *before lab* so that it *will be working* by lab time.

The *find_closest_object()* function

```
object_t *find_closest_object(
list_t   *list,        /* Object list                    */
vec_t    *base,        /* Base of ray (viewpoint)        */
vec_t    *dir,         /* unit direction of ray          */
object_t *last_hit,    /* object last hit (ignore)       */
double   *retdist)     /* return dist to hit point here */
{
   object_t *minobj  = NULL;
   double    mindist = -1.0;
    :
    :
    :

   return(minobj);
}
```

Algorithm:

```
   For each object in the object list
      if the ray hits the object at a smaller distance than any
          previous hit

          remember the object
          remember the distance

   When done, store mindist in *ret_dist and return minobj;
```

Remember the nesting rules!! *A maximum nesting of a single if within a single loop is permitted. The if may have a compound condition though.*

In this lab you will submit a compressed tar file named object.tar.gz containing all the components needed to build your program.

```
sendlab.102.labsection#  lab#  object.tar.gz
```

Since this is lab4 and if you are in section 1 the command you should use is (remember to cd .. because that is where you put your tarfile!)

```
sendlab.102.1 4 object.tar.gz
```