How to start HW2 hints

20

KOlegA (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/753764)
3 days ago

If you have troubles with starting homework 2 welcome to this topic.

Step 0. Blue screen. Compile framework, run, you should see window with blue background. It's normal.

Step 1. Where is my teapot? I prefer to add functionality little by little, make sure it works and than move to the next. So Lets show something on screen. Select file `hw1.txt` as command line argument. Since we can't see blue teapot on blue screen we need to change background color (first line in display() function) or objects color (finalcolor variable from file `light.frag.glsl`). For example change object colors to red (I'm sure you know how to do this). Comment line `glLoadMatrixf(&transf[0][0])` from display() function, run it, press 'g' to switch to `glm::LookAt` and `glm::Perspective` functions. Now you should see red teapot on blue background.

Stet 2. Copy-paste HW1. Copy transform functions from your hw1. Even if you complete hw1 perfectly I strongly recommend to look at prof. solution (https://www.edx.org/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/CS184_1x_2012_Fall_HW1/threads/50b21bc078ed722300000019). Run, press 'g', check if everything works like in hw1.

Step 3. I want bigger teapot. Implement scale and translate matrixes, uncomment `glLoadMatrixf(&transf[0][0])` and think how to combine current modelview transposed matrix, scale and translation. Result matrix should be also transposed. Review lection about composing transformations (https://www.edx.org/courses/BerkeleyX/CS184.1x/2012_Fall/courseware/Unit_1/L3/) if you have troubles with this step. Don't upset it you can't make it work from the first try. Run, press 'g', make sure you can change size and position.

Step 4. Perspective teapot. Review lection gluperspective

(https://www.edx.org/courses/BerkeleyX/CS184.1x/2012_Fall/coursewar e/Unit_1/L5/) there is enough information to implement perspective matrix. Compare it with `glm::Perspective`.

Step 5. Turn on the ligth. Fill the arrays lightposn and lightcolor in readfile.cpp. Use for-loop, memcpy or std::copy. Pass them to the light.frag.glsl using `glUniform4fv`. Dont't forget to transform lightposn first, use array lightransf, function transformvec and hw0 and hw1 as example. Implement shader (file light.frag.glsl) like in hw0 but with for-loop. There are point ligth and directional ligth, directional light has zero in last element 'w' of the vector. Compare picture with picture from hw0.

Step 6. Almost done. Camera and transformations left. Every object has matrix `transform` change it in readfile.cpp (almost everything done by skeleton code), combine it with transf matrix and set glLoadMatrixf for every object in display.cpp.

I don't have any previous experience with OpenGL, so this homework was challenging. Despite I complete hw2 I still don't know where I had to use `matransform` function from readfile.cpp, feel like I missed something. So if you know please give me a hint.

Enjoy the course. You have enough time to complete homework.

ostepan2012
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/744030)
3 days ago

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Hi, KOlegA, help me please! The teapot looks slightly different (see my forum topic "HW2 problem: the teapot looks slightly different").

Add a comment...

msmithnova
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/445603)
3 days ago

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Step 3: All seems fine until step 3 ... before uncommenting the glLoadMatrixf line, I have a blue screen, press g and get a red teapot on blue screen that rotates properly. After uncommenting I get this http://www.use.com/ae2865cd0ef227484ba6 (http://www.use.com/ae2865cd0ef227484ba6) and if I press g I get a

completely red screen. In step 3 from my understanding I simply make the scale & translate matrices in transform, then in display, where it says "You need to use scale, translate ...", I combine those matrices with the modelview matrix, then where it says "Set up the object transformations", I have no idea what I'm suppose to do. Am I right so far and what am I suppose to do? Like, am I suppose to be changing the modelview matrix in the last part or the objects matrix or something else?

You sould assign new modelview matrix to transf, before call glLoadMatrixf, using mv, sc, tr. glm::transpose can help. Check your formula, try something different..

–posted 2 days ago by KOlegA (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/753764)

Thanks, I think scale works right now, translate distorts the teapot so I'm not sure if that is right or not. I got perspective working too (looks the same when I press g). Been working on lighting most of the day and now have a black teapot. Getting extremely frustrated. I'm pretty sure the readfile part is right, and I think the display part is right, I copied the code from the HW0/HW1 shader and modified it slightly to accommodate the the new variable names (ie lightposn). I'm guessing this isn't working ... Does lightposn[0].xyz give me a vec3 for the first light? and if so would I get the second one using lightposn[4].xyz? I assume not as that and the color array are the only things changed from HW1 so I would assume the rest should work.

–posted a day ago by msmithnova (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/445603)

Never mind, I had problems in both the readfile and frag shader. I'm sure I'll have more issues before I'm done.

–posted a day ago by msmithnova (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/445603)

In shader you have numused lights (you should pass numused variable) for each light you should determine if it's position or directional light and process it appropriately. lightposn[0] - frist, lightposn[1] - second.

–posted a day ago by KOlegA (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/753764)

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knifter (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/104992)

0

2 days ago

I've removed everything I had so far and unpacked a new hw2-linuxos.zip file. Done step 0: works, blue screen But at step 1 I get to see the inside of the teapot with small red parts on the top left and right corners. Im fairly sure im inside the teapot. But after i press 'g' it switches to the glm implementations and everything is completely blue again.

So is being inside what you are referring to by 'seeing' the teapot? And

should I see that before or after turning ON glm implementations of lookAt and perspective?

I'm trying to take this step-by-step as i find it difficult to know what to do exactly. I'm very helped by your step-by-step hints, so thank you for that! But I get confused when I get to see different things without actually doing anything myself yet.

Oh, I do see a small teapot when I do the step 2 comment. Even when pressing 'g' (first small, then bigger). Seems right to me so far.

–posted 2 days ago by knifter (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/104992)

You should comment line `glLoadMatrixf(&transf[0][0])` from display() function on first step, not second. I fixed post.

–posted 2 days ago by KOlegA (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/753764)

Thnx!

–posted 2 days ago by knifter (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/104992)

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_Ke (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/782634)

0

2 days ago

Hi, Can you help me a little bit?

When passing light position to light.frag.glsl using glUniform4fv, let's say for the first light, the parameters for glUniform4fv are first light's position(4 float numbers), 1, then 4 float numbers of lightransf, right?

If those parameters are right, then I am confused because lightposn array is defined in variables.h, and the elements are not GLuint type, which are different from hw0. So when I use lightposn as the first parameter of glUniform4fv, I didn't pass the light position to glsl file?

First parameter for glUniform4fv is location of variable in shader, it's already obtained in main::init(), second (when you pass position) number of lights, last - pointer to array. Look also at this topic (https://www.edx.org/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/CS184_1x_2012_Fall_HW2/threads/50b395ff7ebf301f00000026)

–posted a day ago by KOlegA (/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/753764)

Add a comment...

msmithnova

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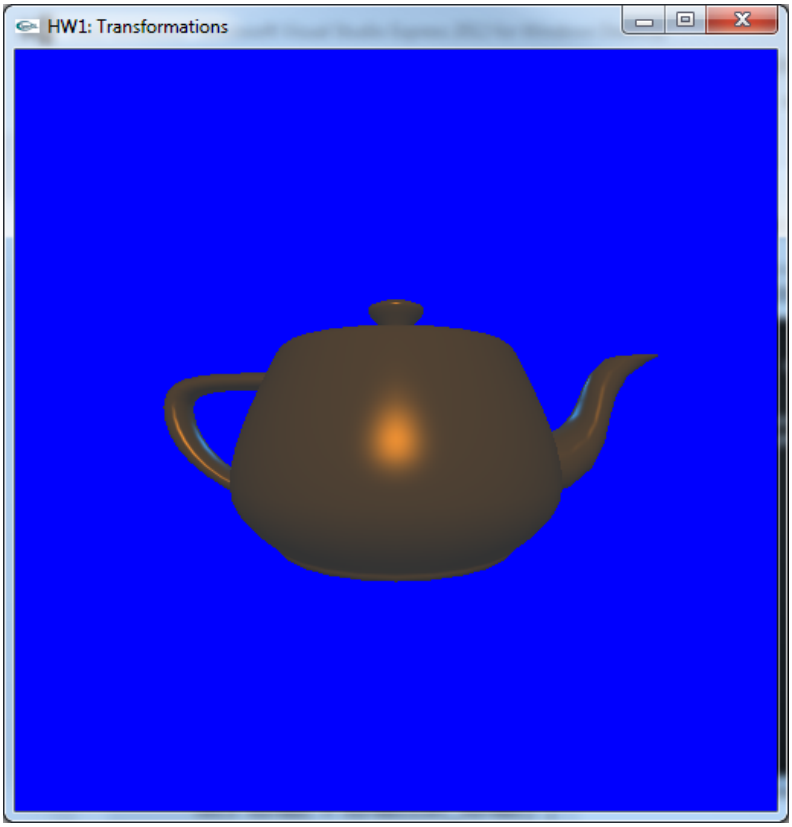
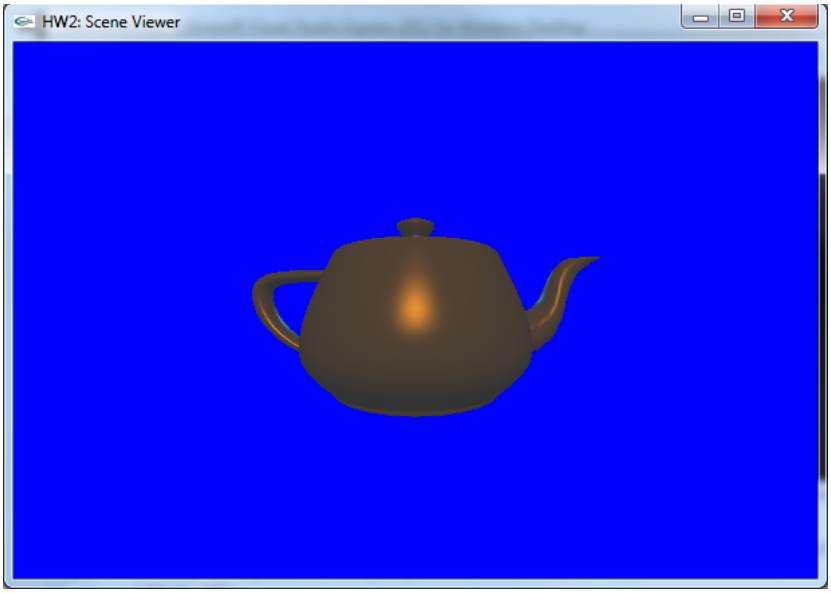
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/445603)

a day ago

Some images of where I'm at. First is from HW1. Second is HW2 using HW1.txt, a little smaller teapot and different shaped window but thinking this is normal. Third is after a translate to the left, not sure if the distortion is normal. Fourth is using demo.txt instead and fifth is after rotating from fourth slightly left and upward. For some reason left/right rotation makes scene slowly move further away although it doesn't do this with HW1.txt Any tips from here would be appreciated. After working on it for a week I scrapped what I had done and started over using these tips and have at least gotten further...been working on it today for 16 hours straight, time for a nap. Beginning to wonder if the time needed is even worth it in the end. Absolutely ridiculous. I'm so pissed right now.....

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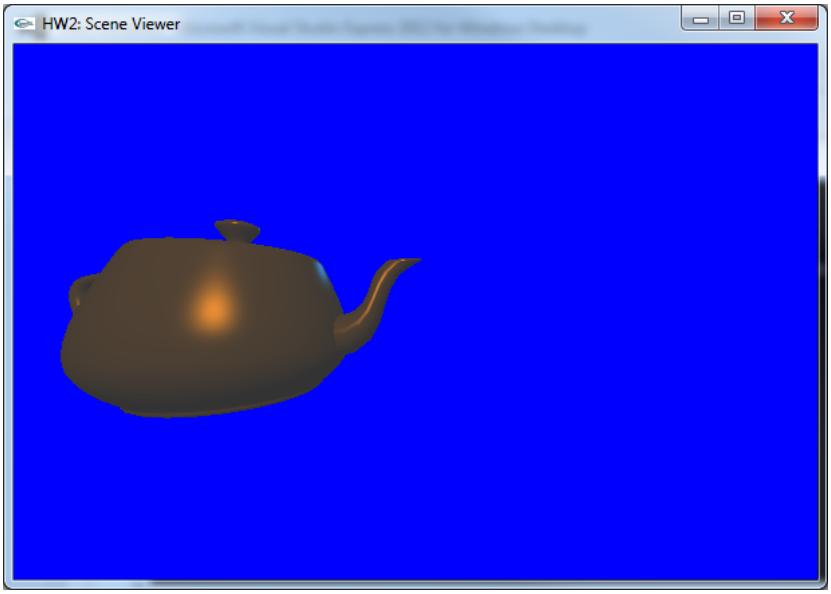
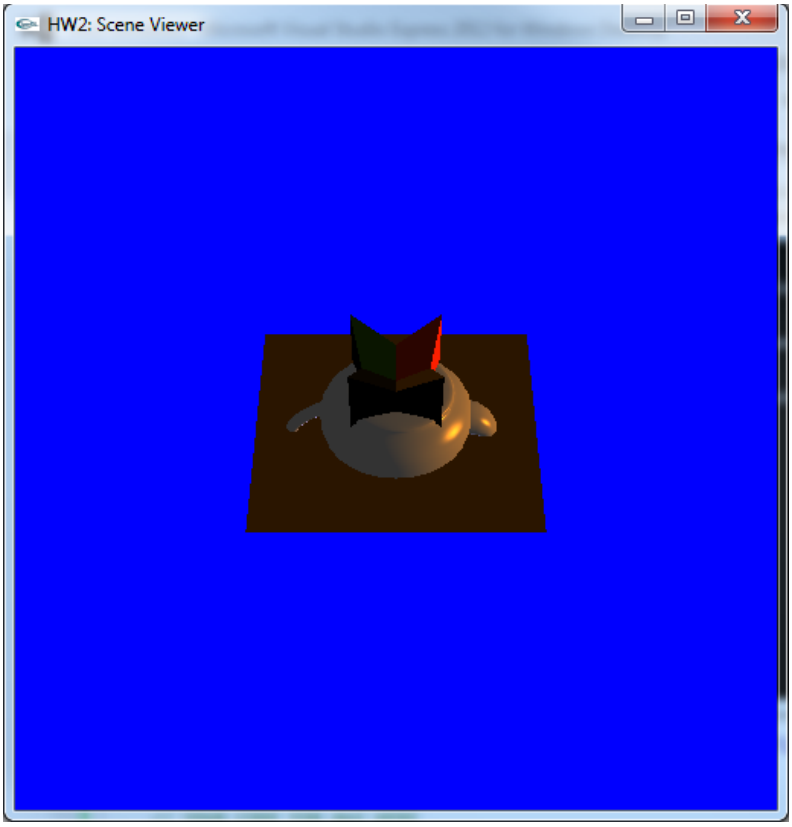
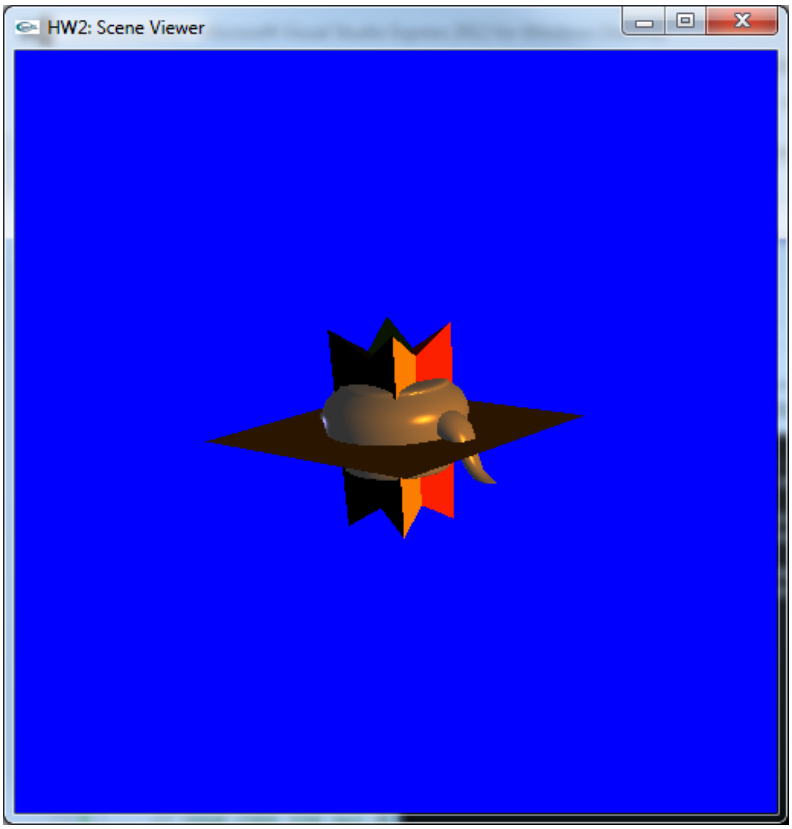

HW2: Scene Viewer





Translation looks normal, since it's perspective projection. Maybe after you set camera, teapot will look bigger, but I'm not sure, don't worry about this for now. Trace the distance to check if it moves away. Compare with hw1.

```
void traceVec3(vec3 v) {
printf("coordinates: %.2f, %.2f, %.2f; distance: %.2f\n", v.x,
v.y, v.z, sqrt(pow(v.x, 2) + pow(v.y, 2) + pow(v.z, 2)));
}
```

It could be a problem with floating point arithmetic. Start working on transformations defined in input file. I spend almost 2 days on this assignment.

–posted a day ago by KOlegA
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/753764)

This was after I implemented the rest of the code. I am so disgusted with the lack of information that I couldn't even work on it today. I would have had to smash my keyboard over my monitor. It is so disgusting that I spent this much time on it, got it 90% complete but will still get 0 on it. Absolutely disgusting.

–posted about 20 hours ago by msmithnova
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/445603)

the last image looks similiar to something i had, i was multiplying the transofrmation matrix for each object without transposing it

–posted about 2 hours ago by fersarr
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/682191)

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sithum
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/733295)
a day ago

0

Hi,

I followed the step 1 and changed the teapot colour in to red, and followed the second step as well. but after that only I can see in the screen is red. Could you guys give me a little help on this.

If you see red screen you somewhere inside teapot, so you are applying incoreect modelview matrix. I did everything in vs2010, should work in other environments, but I didn't check.

–posted about 15 hours ago by KOlegA
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/753764)

Add a comment...

Bensky
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/715542)
a day ago

1

KOlegA I want to thank-you for this post! Fantastic explanations and tremendous help. You saved me hours!!!!

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_Ke
(/courses/BerkeleyX/CS184.1x/2012_Fall/discussion/forum/users/782634)
about 2 hours ago

1

Still stuck on shading part, help, please~

- I have filled the lightpos and lightcolor arrays(didn't use memcopy(), just a loop);
- I transform the lightpos to lightransf using transformvec function(passed in every i*4 th element of the array);
- I used glUniform4fv to passed the lightransf to lightpos, lightcolor to lightcol in the shader (numused of lights);
- (This part really confused me) In the glsl, I copied the ComputeLight function and mypos, normal, eyedirn those vectors. Then, I used a loop. For a dir light, I calculated lightdirn from lightposn[i].xyz, then calculated direction & half(same in hw1), and col0(used lightcolor[i] as the second parameter of ComputeLight).Then finalcolor equals last light's finalcolor plus ambient plus col. For point light, only a little difference when calculated position(xyz/w).

Did I miss anything or did anything wrong~ Also what's those variables, ambientcol, diffusecol, specularcol, emissioncol, shininesscol used for? I noticed they are defined, but I don't see them in glsl file in hw2.

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