CS5243 Assignment #3 Comments

I was looking for the following items:
- The assignment is such that if you have the time (in the world), you should consider carefully what is the USE of the terrain and the skybox in your chosen setting/environment – in a way, many, if not all, of you do not have a preferred setting and you thus did the obvious by getting the codes from the tutorial for integration without special effort put in. For example, if the terrain is meant for walking through and not for flying through, then you can decide on the size of the terrain accordingly, and may be you can also put in some “moving” (simple) clouds (or rotation of the texture of the sky with clouds) to make it even better still.
- The sky box should enclose the world with no seam (at the edges of the sky box); choose a texture that can blend very well to the environment. To avoid seam, you need the following statements in your declaration of textures for the sky (http://home.planet.nl/~monstrous/skybox.html)
  #define  GL_CLAMP_TO_EDGE 0x812F // This is for our skybox textures
  glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_S, GL_CLAMP_TO_EDGE);
  glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_T, GL_CLAMP_TO_EDGE);
- I hope to see a good implementation of your “world” that can immerse the player in your world – I do not see this in your submission – I often go in to strange cases of viewing the bottom of your “world”, etc. in trying out your program as your program hardly put in restriction on the legal movement.
- Setting large value for the far plane (so that you can still see the sky box) may penalize the accuracy of the depth tests for other objects. I am thinking of the possibility that you can do some “trick” to render the sky first (such as orthographic projection) and render the “world” (in, of course, perspective projection) to achieve our goal without setting a large far plane value...just a random thought for you....

Notes:
- It seems that many of you do not test your programs rigorously – I am generally provided with little “tools” to visually test your program – these tools should be there as you also needed them to do your debugging. Some how, you have assumed (generally) that all the codes from the web are okay already and you just need to integrate them into yours. I tend to explore your codes at near the boundary cases by moving the camera to extreme ends – I see quite a number of submissions with problems in this way.
- Please indicate CLEARLY where you got your codes and where are your important (original) codes – I said this before; still I am not clear at a few places whether you coded them or you got them from the web.
- Good to keep new codes in files separated from the rest of the old (other people’s) codes.
- Please note that the marking is in the order of the following comments – you should also look at comments I gave to other as some of these are general in nature.
- First impression is rather important © You should try to start up the program at the default position of a good view (for marking).

koh: 7
- Good report to discuss the various issues in doing the assignment – there are various typos and grammatical problem in the report that need a few more rounds of proof-reading before submission.
- There is some problem with the triangle mode – you should try moving backward to a far distance, then toggle between triangle and line mode to see that line mode is okay in rendering all triangles of the terrain whereas triangle mode is not (it eats up some triangle at the far end of the terrain). This could be the same problem as in assignment #2 which I observed that some objects disappear.
- The +/- keys do not work to change the terrain step size.
- Ge Shu has some experience on display list, vertex array, etc. Your question on why glDrawElements(GL_TRIANGLES) is unexpectedly slow may be because vertices are NOT stored in graphics card but need to be sent for each frame to the graphics card.

715: 7
- Change in the state (pressing F5) is not reflected anywhere
- The sky has a seam.
- Hard to tell the look of your terrain.
- The approach of walking on the terrain is not “smooth” – i.e. there is some “bumpy” ride due to the way you update the height above the terrain.
The sky has a seam.
- The appearance of the leaves (due to alpha blending stuff) is not nice after seeing the leaves separated from the tree trunk within the world.
- You should set the default initial position to one that is most convenient to the user (ME!) for purposes of marking – it is rather difficult to turn around to check your sky box – I can see very little of your sky with the controls given to me (while you do not do back face culling).

Please acknowledge where you obtained the codes for your purposes – I notice there are quite a bit of codes similar to those I marked before yours, and I thus believe these codes are from the net.
- For the option on frustum capture, once you set it, you cannot un-set it?? This is not friendly.
- For the option with "F", once set, I need to hit "D" twice (some time, once is enough if I am "lucky") to un-set it some how.

Having seen the program for 3 times, I see some use of GLee stuff (e.g. GL_CLAMP_TO_EDGE)
- Still the same comment as before: I wish to see more comments on the work/codes.
- I cannot move forward in your scene and I cannot turn on wireframe (I did modify your code a bit for me to do it) – these would be good for me to test your work.

I can now compile and run the program.
- Your sky and terrain are not clear – they are too plain and with no proper shading to show the details of the terrain/sky. I appreciate your effort to convert height to color – the conversion does not achieve good visual effect currently, but good attempt.
- Most people took some nice textures of sky for their assignment.
- I consider the texture at the "top" of the sky as strange looking.

There is some problem with the triangle mode – you should try moving backward to a far distance to notice that triangles at the far end are dropped – you can check this by toggling between triangle and line mode – but you first need to fix your codes to do the toggling (it has a bug still that once you are in the wire mode, you cannot switch back to the solid mode).
- Your terrain does not blend well (visually) to the skybox texture you chose.

It may be easy to draw a "box" as you said to be the sky – but it is not easy to draw one that is convincing. For example, your default start up position immediately gives away the realism as I can very quickly notice I am near to the side of the box to see a bending at the corner of the box.
- Good effort to attempt segmenting terrain for culling purposes.

I read your readme with interests – as you wanted to do something different from those I have marked so far.
- On trying your program, I notice a few problems: 1. the shading of the car is not quite right (there could be some triangles oriented in the wrong way or the normals are not right to give you the patchy effect – you can try enable backface culling to check whether your triangles are oriented correctly. 2. with wireframe on and toggling with "B" to checking the LOD, I see that you have lots of "T"-junction stuff in the terrain, and there is a significant "jump" in the terrain. For LOD to be effective or done correctly, the "jump" should be minimized. 3. I notice there are cracks in the terrain with your drawing (terrain LOD disabled, draw wireframe disabled).
- I still give you good grade to encourage attempts like yours.

Your codes are very much like many others whom used codes from the tutorial.
- The creature (robot?) in the terrain is not nicely done – the shading is flat! By the way, the creature seems to penetrate through the terrain as I see from the "bottom" of the terrain.
- Your terrain also seems too small – with mouse, I am very quickly out of the terrain.
The use of fog is a good attempt to blur the real terrain from the pictures (terrain and sky). But, your implementation of the rendering of sky with fog is not stable (on my machine) – I see the fog on and off with slight change in the mouse movement.

You can shorten your report – for example, you do not have to repeat my assignment statements.

The rendering due to ROAM vs that due to triangle strip are very different – when you do this correctly, both rendering should be about the same (I note that the resolution due to the triangle strip case is too low for this to happen).

You must compare apple with apple – the comparison of ROAM with triangle strip is not fair – you need both to have the same resolution, and then measure the error in the rendering etc. to be fair.

I don’t see much significant work of yours to geo-morphing that I can give you extra credit point.

Your far plane is not far enough – part of the sky is clipped when I move sufficiently far.

Your wireframe mode only applies to the model – I was looking for it to check the terrain resolution.

On the whole, your effort on terrain and sky is similar to many others in the class.

I did not see an executable file in your submission. So, I tried compiling your codes – there are problems – glutSpecialUpFunc (special_keyboard_up) has an error; I have to load glext.h from somewhere; I have to load corona etc…..in the next round, you can help me by providing all the necessary files that we do not normally use in your submission too and make them local.

I don’t see your height map is working well – it is too flat.

The sky and terrain parts are very much like a few others – from the tutorial.

Report is good enough – again, a few tips on using your program can be helpful.

By now I have seen many versions of the codes you also use 😊

Some how those triangles at the side of the screen are clipped away wrongly some time.

By now, I also notice many of you do not have “enough” features in your codes that allow one to debug (or me to experiment) the codes – somehow, most of the stuff, as they are available from the web, MUST be correct 😊

Your sky has seams – you have GL_CLAMP_TO_EDGE but did not utilize it.

Should provide feedback for “n” and “m”, just like when an unknown key is pressed.

It is good to try LOD here – but LOD should be an integrated part of the engine rather than the way (manual way) you provided.

Same as many others – there is a bit of problem with your terrain. It is at one boundary where all the vertices along that boundary have the same height and the height is a big jump from the neighboring vertices.

Option “2” has problem – see the missing terrain at the boundary of the screen.

Your terrain is not done properly with a texture – when I turn off the wire mode, I see a pink “terrain” with very flat shading.

Your report is reasonable to explain your effort.

By now, you should have fixed your codes in getting the right shading for all your objects in the scene.

Same as many other students in taking it from the tutorial.

There are seams in your sky.

Your program does not refresh properly when resizing the openGL window.

Your codes should be kept in different files for easy reference/tracing – the file is getting too big and with quite a number of global variables.