CS5243 Assignment #2 Comments

I was looking for the following items:
- Correct testing of aabb within view frustum – Many of you took the codes from the web without doing much to improve it.
- A reasonable scene to test culling feature.
- Proper translate and rotate operation of the camera.

Notes:
- Please indicate CLEARLY where you got your codes – with our class size, it is difficult for me to not know you get the codes from the web as it is likely two or more people will be using the same set of codes from the web.
- For a report to be useful, it is not about the length of the report - I expect more than just a listing of functions/procedures and repeat of requirements -- please explain more on the algorithms, experiences, etc. stuff that are not immediately obvious in your submission.
- 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 – thus, those near the end get very little comments as some of the earlier comments may also apply (as I am seeing the same codes from the same tutorial).

715: score 7
- Some abs in your SphereInFrustum are not needed as those values are positive for sure
- I believe there is some problem with your code SphereInFrustum when t==6 and count2!=6 (plane intersects with ball; when count2>=0 means it is for sure outside)
- In CubeInFrustum – you did not initialize count1[6] properly; also, problem similar to count2!=6 may happen here.
- The so-called “stupid” cases still should return true (rather than false).
- With 1000 spheres + a single object is not a good approach to tell whether your algorithm is correct or not (in fact, your algorithm has problem).

237: score 7
- Problem with compiling your codes to run -- you have not used the standard of GL\gl.h etc. in your code. I corrected them – still have problem running the codes and thus use your compiled version. I had the same problem in assignment #1; please fix it!
- Your message in the console is not good – they are all the same and it is hard to tell when a new message is being written to the console. This makes it difficult to tell whether you have culled the object correctly.
- The part on if(!result) still not completed – it is possible that all 8 points are outside the frustum but yet part of the AABB is within the frustum.

332: score 6
- should provide feedback when “c” is pressed to indicate culling on or off.
- I don’t observe a difference in the fps when culling on and culling off.
- It is not good enough to test for just left and right shooting lines (+ the front line); there are in total 6 planes bounding the viewing frustum.
- Did not do a method to move the camera according to the movement of the mouse.

125: score 7
- The code (Frustum.cpp) taken directly does not solve the problem completely – I would expect some effort from you to make it better. As it is, I cannot tell whether you understand the codes or not.
- With culling on, when I moved to behind all objects, I still have the same fps (for my machine) – I have to display one of your objects many many times to see the difference.
- Please shorten your report to include essential stuff.
- I don’t see much significant work of yours to Octree.cpp that I can give you extra credit point.

174: score 7
- Should show the status (such as culling is currently on or off) once it is changed.
- Cannot tell the difference in fps when both objects are outside the current view (with my machine).
- Will grade assignment #3 later.
Your codes are difficult to digest – quite a number of static (global) variables – see for example the file on Camera.cpp
- The code (Frustum.cpp) taken directly does not solve the problem completely – I would expect some effort from you to make it better.

569: score 7
- I have problem in loading all your files – still can run from your old executable file.
- For FrustumCulling::cullSphere – I think the statement “if(dist < radius)” should be “if(dist < -radius)”
- You did test out the codes from the web you get; I expect more consideration put into the codes to make it better.
- I am not comfortable with the frame rate issue as you pointed out in your readme file too – you should try with other machines to verify your work.
- It is difficult to tell what is in your scene with the type of motions allowed by your program.

168: score 6
- Some problem with continuous mouse movement to move the object further (or nearer) – at some points the direction of the motion is changed – this same comment is given for assignment #1.
- The culling is not good – a triangle with all 3 vertices outside the viewing frustum can still be visible within the viewing frustum.
- I am looking for culling of whole object rather than just triangle by triangle (using the AABB we computed).

065: score 7
- Details report – can cut to show the essentials stuff. Somehow, a few tips on using your program can be helpful. I don’t understand the message “Ignore Frustum”.
- I tried using the arrow keys (up and down) to test the “In Frustum” message at the status bar – you should experiment it to see that it is NOT consistently updated (just try the transition between false and true to note the inconsistency). Similar problem when “1” is pressed and the status bar is not updated immediately.
- I don’t have a good way to test culling on and off with your environment.
- The calculation of frame per second has some problem.

int: score 7
- Your report is not informative for me to know how you implemented the algorithms – a listing of functions/procedures serves little purpose here. For example, I was wondering why your objects have missing triangles when a part of the bounding box is outside the viewing frustum (this is undesirable) – I have no answer from your report.
- You took the same set of codes as many of the other students from digiben. I expect more than that….

177: score 7.5
- You wrote your own codes on the testing of AABB within the view frustum – the approach is still the same as the original codes from the web.
- I have to double up your objects to tell any difference in the frame rate (with my machine).

132: score 6
- The messages are confusing – e.g. with frustum culling off, objects rendered is 0 and yet the frame rate is so low; with frustum culling on, the number of objects shown on the screen is much lower than that indicated in your message.
- Even if all points of the box are outside the frustum, we can still have a part of the box inside the frustum.
- It does not seem a good way to do glTranslated etc. to update your view frustum for each object in your drawMain() routine – such glTranslated should be the “property” of the object – in other words, the drawMain() routine should just go through each object to draw it rather than doing lots of transformations for each object.

koh: score 9 + 2
- Very comprehensive work with good report to discuss the issues.
- Besides aabb-in-frustum, implemented frustum-in-aabb.
- I think your far plane is not far enough – with a small movement backward (upon start up), some of your objects disappear.
- Implemented quadtree on the advanced option.
241: score 7.5
- Your implementation of AABB in frustum is still pretty much the same as the one in the tutorial.
- Your scene is good in testing culling on-off. So, I reward you with a better grade than some of the above.
- I am not clear on the difference of “pressing 1 and move mouse” vs “moving mouse”.

yic: score 6
- I am looking for a scene with objects to test culling – the structure of your program is not what I wanted. For example, the drawing routine is supposed to support drawing of various objects in the scene and not just one specific one.

363: score 7.5
- The FPS flicker too often that it not useful to know how well culling is doing (though the scene has enough objects to test this feature).
- BSP is not graded here as there is an assignment on BSP.

342: score 7
- The lighting is affecting your messages – at some angle, the text is rather dim.
- Expected some effort made to those codes given in the tutorial.

616: score 8
- Comprehensive scene, but does not show a difference in the FPS on my machine
- Good to have implemented frustum capture – these can be helpful in understanding the culling result – but there is little I can do with the not so-smooth (or too-smooth) mouse operation. You may try a “2D version” of this frustum capture to get a better visualization 😊

858: score 7
- Also use the same tutorial codes. Only has one object for testing of culling – though it works, it can be made better with more objects to understand the culling.
- The boundary cases are not handled well – you can try to move your object close to the left (or the right), you can see that with a very slight movement of the mouse, your object disappear and appear (occupying a significant part of the display).

118: score 6
- The camera control is not good – I cannot freely move around in the environment.
- The frame rate displayed is not good for understanding.
- Got the codes from the tutorial – only do the simple point in frustum test – expect more than that.

t34: score 7.5
- You should explain some of the allowance used in AABBFrustum (such as 10.0, -20 etc.) – either in the report or as comments in your codes
- Do not know what is the use of GLee stuff
- You should make some effort to provide comments to your codes.