(https://profile.intra.42.fr/searches) **lflandri**

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SCALE FOR PROJECT RT (/PROJECTS/42CU RT)

You should evaluate 3 students in this team

★

Git repository

```
git@vogsphere.42angouleme.fr:vogsphere/intra-uuid-2aa5afe0-9d58
```

Introduction

Please respect the following rules:

- Remain polite, courteous, respectful and constructive
throughout the evaluation process. The well-being of the community
depends on it.

- Identify with the person (or the group) graded the eventual
dysfunctions of the work. Take the time to discuss
and debate the problems you have identified.

- You must consider that there might be some difference in how your
peers might have understood the project's instructions and the
scope of its functionalities. Always keep an open mind and grade
him/her as honestly as possible. The pedagogy is valid only and
only if peer-evaluation is conducted seriously.

Guidelines

- Only grade the work that is in the student or group's
GiT repository.

- Double-check that the GiT repository belongs to the student
or the group. Ensure that the work is for the relevant project
and also check that "git clone" is used in an empty folder.

- Check carefully that no malicious aliases was used to fool you
and make you evaluate something other than the content of the
official repository.

- To avoid any surprises, carefully check that both the correcting
and the corrected students have reviewed the possible scripts used
to facilitate the grading.

- If the correcting student has not completed that particular
project yet, it is mandatory for this student to read the
entire subject prior to starting the defence.

- Use the flags available on this scale to signal an empty repository,
non-functioning program, cheating etc. In these cases,
the grading is over and the final grade is 0 (or -42 in case of
cheating). However, with the exception of cheating, you are
encouraged to continue to discuss on the group's work (even if they have not
finished it) in order to identify any issues that may have caused
this failure and avoid repeating the same mistake in the future.

Attachments

subject.pdf (https://cdn.intra.42.fr/pdf/pdf/144476/en.subject.pdf)

minilibx_mms_beta.tgz (https://cdn.intra.42.fr/document/document/28634/minilibx_mms_beta.t minilibx-linux.tgz (https://cdn.intra.42.fr/document/document/28635/minilibx-linux.tgz)

minilibx_opengl.tgz (https://cdn.intra.42.fr/document/document/28636/minilibx_opengl.tgz)

Preliminaries

Reminder : Remember that for the duration of the defence, no segfault, nor other unexpected, prem
uncontrolled or unexpected termination of the program, else the final grade is 0. Use the appropriat
is active thoughout the whole defence.

Basic stuff

Check the following:

- Something was submitted
- The whole groupe is present

If at least one isn't ok defence the is over and final grade is 0.

✓ Yes ✕ No

Mandatory part

This part match the miniRT. It is mandatory and eliminatory. If parts are missing, the defense ends,
0. As stipulated in the subject: "The mandatory part is worth 0 and options will reward points only if
part is 100% complete". The subjects requires 3 scenes (see illustration in the subject) to validate q
the mandatory part. That's now time for the group to raytrace these scenes.

Exposes without recalculation

Drag a window above the window of rt, change the keyboard focus from one window to another. Does it draw again? With or without calculation? Check if there is indeed an event management implemented => mlx: use of mlx_expose_hook (on Linux/X11) with a dedicated function, ask the student to convince yourself by modifying the code (adding a printf at each expose for example). Verify that the calculations are not done again. Whatever the method, it should go faster to display again without recalculation. If any doubt, see the code. The classical approach is the use of images of the minilibX.

✓ Yes ✕ No

Objets

Verify that the 4 basic shapes are present, that they can be in the same scene, and that several objects of the same type can also coexist. Check that each object has its own simple intersection function. All objects must be able to be in any position and direction (undergo translations and rotations). Finally, the intersections between objects must look coherent.

✓ Yes ✕ No

Did you know ?

REM are the initials of Rapid Eye Movement. Can the eye be placed anywhere in the scene? And looking to any direction? Verify that the second mandatory image can be also displayed by using the first mandatory image, with only a change (translation, rotation) of the eye / camera.

✓ Yes ✕ No

Lights

Is brightness present on the objects? (color gradient on the object: from the brightest on the side of the spot, to the darkest on the non-illuminated sides). Shadows are present? Shine effects are present? (Or specular light: the color of the spot is added to the color of the object, often creating a small white spot == saturation of the light at this location) Finally, proper multi-spot management: brightness is mixed, multiple gradients according to the position of the spots, shadows are shaded according to the number of visible / hidden light sources. Third mandatory image allows to verify these aspects.

✓ Yes ✕ No

Options

Reminder : Remember that for the duration of the defence, no segfault, nor other unexpected, prem uncontrolled or unexpected termination of the program, else the final grade is 0. Use the appropriat is active thoughout the whole defence. There is a lot of options. Since the large posibility and range options for the RT, the success grade isn't very high. With a fair number of option it should be a pas than with MORE options.

Scene files

There is a descriiption file for the scene.

✓ Yes ✕ No

File ++

Scene files are in XML, or following a proper stucture or hierachy. To make it simple it's not just a file with one information per line or basic blocs separated by just an empty line..

✓ Yes ✕ No

Ambiance light

Objects are never in full dark.

✓ Yes ✕ No

Ambiance ++

More points if the ambiance light can be managed from a configuration file.

✓ Yes ✕ No

Limited objects

For this section give one point for each of the following:

- It's possible to slice objects on the x,y,z axes.
- It's possible to choose the slice from simple or really position (a cylinder can be sliced followi or following a real axis)
- Rotations and translations still works after the slice.
- The slice effect is unique to every object and not applied on all of them.
- It's possible to slice the plane differently than on the axes (if you limit it on x and y, you'll get a example a triangle or a disc.

Rate it from 0 (failed) through 5 (excellent)

○

Disruptions

One point per implemented disturbance:

- Normal disruption: using sine for example which gives a wave effect.
- Color disruption: checkerboard for example.
- Color disruption: a more complicated algorithm to disrupt the color.
- Color disruption: a very complicated algorithm, for example Perlin noise (this one is worth 2 p it's the only one implemented then don't count the last point).

Rate it from 0 (failed) through 5 (excellent)

○

Direct light

We're blinded by light spot facing us.

✓ Yes ✗ No

Parallel light

A parallel light can light up the scene, following a precise direction. (Unlike a spot that will emit light from a precise point).

✓ Yes ✗ No

Reflection and transparancy

One point per implemented option:

- Reflection works, there is a mirror effect.
- It's possible to change the % of reflection (it's not all or nothing).
- Transparancy works, we can see through the object.
- The refraction index works (if required check the Descartes formula in the code).
- It's possible to change the transparancy %.

Rate it from 0 (failed) through 5 (excellent)

○

Shadows and transparency

Is the shadow more or less darken if the object is transparent?

✓ Yes ✗ No

Textures

For this section give one point for each of the following:

- It's possible to apply a texture on at least one of the 4 basic objects.
- It's possible to apply a texture on the 4 basic objects.
- It's possible to stretch (or the opposite) a texture on an object.
- It's possible to shift a texture on an object.
- Another library than minilibX and its xpm or png functions was used to load texture (jpeg, png

Rate it from 0 (failed) through 5 (excellent)

○

More texture applications

One point per implemented option:

- A texture can be used to disrupt an object's normal (bump mapping roughly)
- A texture can be used to modify the transparancy % on an object on each texture point.
- A texture can be used to limit or slice an object.
- A texture on a semi-transparent object is projected on another object (like a videoprojector). (

Rate it from 0 (failed) through 5 (excellent)

○

Composed elements

It is possible to define a composed element using simple objects. For example a cube can be made with 6 limited planes, a "glass" can be made with limited cone + cylinder + half-sphere. It's possible to put several times the same composed element but at different positions or orientations (if it's not the case, the composed element is useless...)

✓ Yes ✕ No

Negative objects

It's possible to substract an object from another or deform an object with another one. For example:

- A negative sphere that will make a hole in a plane
- A cylinder will deform another perpendicular cylinder to its core.

✓ Yes ✕ No

Simple native objects

Everything that can be solved with a smaller or equal complexity than sphere/cylinder/cone (which are of second degree of complexity) mostly paraboloid et hyperboloid. If at least one object of this nature is present, this section is validated.

✓ Yes ✕ No

Usual visual effects

One point per implemented effect:

- Antialiasing
- Cartoon effect
- Motion blur
- Sepia or any other color filter
- Simple stereoscopy (like red/green glasses)

Rate it from 0 (failed) through 5 (excellent)

○

Technical effects

Here again, one point per implemented effect:

- Clustering rendering (computed on several computers) (2 points)
- Multi thread computing
- The rendering is really fast
- It's possible inside the RT program to save the rendered image (screenshot).

Rate it from 0 (failed) through 5 (excellent)

○

Environment

5 possibility for 5 points:

- There is a graphical interface: a graphic loading message, a progress bar, something more th messages.
- There is a cool interface (made with gtk or QT for ex) with configuration elements like file loa control, buttons, menus, etc. (if true also count the first point)
- It's possible to interact with the scene live (camera or object position, colors or textures...) wi re-running the program.
- It's possible to automatically render multiple images, with some modifications between each interface needed, a serie of scripts can be used here).

- It's possible to add small pieces of program live to your running RT, to dynamically generate s example a torus made of a serie of sphere, DNA-like helix made of spheres and cylinders...

Rate it from 0 (failed) through 5 (excellent)

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Interlude

Let's take a break to evaluate the group organisation.

Group organisation

Evalute here how was the group organised to work through the RT project. Here again a lot of scenarios are acceptable, keep an open mind. Don't validate this if you feel like the group is messy and didn't really show any bit of organisation, or time management. This question is purely subjective and is recognized as such. Know that subjective judgment of a hierachy is part of your professionnal future and even if you don't understand it yet, you can act on it.

✓ Yes ✕ No

More options

It's possible to make a lot of cool stuff with a RT.

Exotic objects

One point per implemented exotic object:

- Perforated cube
- Table cloth
- Torus
- Random equation resolution from a configuration file (a GNU library does it well)
- More objects (fractal objects, etc.), up to 5 points.

Rate it from 0 (failed) through 5 (excellent)

○

In bulk

Here again one point per implemented option:

- A video made from your RT
- Modelers files: it's possible to import pov or 3ds or blend files (for example), and you can ren your RT.
- Using 3D TV technology or VR headset!
- Blurry spot shadows, like a light bulb with a filament.
- Any other crazy stuff.

Rate it from 0 (failed) through 5 (excellent)

○

The Moebius ribbon

A cool and well implemented Moebius ribbon !!

✓ Yes ✕ No

Caustics and/or Global illumination

That's super cool, don't forget to share images on slack.

✓ Yes ✕ No

The last.... and the least

Is it beautiful? It's 100% subjective, but everyone has different tastes.

✓ Yes ✕ No

Ratings

Don’t forget to check the flag corresponding to the defense

✓ Ok ★ Outstanding project

Empty work Incomplete work No author file Invalid compilation Norme

Crash Incomplete group Leaks ⊘ Forbidder

Conclusion

Leave a comment on this evaluation

Finish evaluation

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