CS211

Milestone #1

10 April 2016

You must submit the code that you have developed during the first five weeks of the project on **the 10th of April, before 23:55**. This first part of the project will be graded based on the items listed below.

CODE SUBMISSION

The three sketches `Projections.pde`,`InteractiveProjection.pde` and `Game.pde` must be in the same repository, under different directories. If you work with other Java IDEs, copy and past your code in Processing, and make sure that it runs in Processing development environment.

When your code is ready for submission, **tag your git repository** with the tag `milestone1`:

```
$ git tag milestone1
$ git push --tags
```

(if you made a mistake, re-tag your repository as desired with `git tag -f milestone1` and 'force' push it: `git push -f --tags`)

Then, submit the public URL of the repository on Moodle (under *Milestone#1*). Check that we do have the right to clone it! GitHub repositories are public by default, but not necessarily other git hosting services.

Note

Even though the project is to be done in group and you will receive one single grade per team, **it is important that every team member contributes in every part of the project**. We remind you that the final written exam will include questions related to topics that are dealt with during the project only.

Projections.pde

- When running the sketch `Projections.pde`, it displays 3 cubes on the screen, each of the rotate, scale, and translate transformation are visible (like the figure on the last page of assignment #2)
- `Projections.pde` implements these transformations and the projections in P2D rendering mode and using matrix multiplications (**no** use of Processing built-in transformation functions)

InteractiveProjection.pde

- When running Processing sketch `InteractiveProjection.pde`, a cuboid appears at the center of the screen.
- Up and Down keys must rotate the cuboid around the X axis.
- Right and Left keys must rotate the cuboid around the Y axis.

Game.pde

- A Processing sketch named `Game.pde` displays a 3D 'board' at the center of the screen, with a ball (3D sphere) on it.
- Mouse drag tilts a board around the X and Z axes.
- Mouse wheel increases/decreases the tilt motion speed.
- When the board is tilted, the ball moves according to the gravity and friction (gravity points toward +Y).
- By pressing the Shift key, a top view of the board is displayed (*object placement mode*). In this mode, a click on the board surface adds a new cylinder at click's location.
- These cylinders remain on the board when the Shift key is released, and move with the board when it is tilted with the mouse.
- The ball collides with the cylinders and board's edges. The correct collision distance is computed.
- When colliding with a cylinder or hitting the edges of the board, the ball makes a realistic bounce (by realistic we mean: correct bounce direction)