Final Project

The Final Project

The following are class requirements for the final project.

- Written in Java
- Object-oriented
- Processing or replit
- Game, application, or mathematical simulation.

Required Components

1) Object-oriented. Needs at least 3-5 object classes. One of the classes must be a subclass.
2) At least one object class must have 3 or more instance variables, 4 or more public methods and one or more constructors
3) Needs at least 1D array, 2D array, OR arraylist of **objects. For example, Arraylist of Student, 2D array of Cells.**
4) An algorithm in the form of a method with **at least one parameter** that is a 1D array, 2D array or Arraylist of objects. The method needs to have:
    a) iteration(at least one loop)
    b) selection(conditional statement, if, else if, etc..)
5) Must have some user interactivity: for example: keyboard/mouse.

Ideas

You may use the Platformer game tutorials and do something similar. For example:

1) Two-player platformer game
2) A different platformer game with different stage/map, enemies and objectives.

OR you can do a top-down game(where the view is from the ceiling, for example, the original Zelda game or the Tank Shooting Lab we've done in class).

Other Ideas

Other Ideas:

1) Asteroids shooting game
2) Brick breaker
3) Tank shooting
4) Connect Four(**2D Arrays**)
5) Racecar(Obstacles avoidance)
6) Game of Life Simulation
7) Platformer similar to our labs
8) Tetris(harder)
9) Other 80's Nintendo games

Images

If you are using Processing and need images for your game:

Kenney.nl
OpenGameArt.org
HasGraphics.com

Applications

More Ideas:

1) Educational Applications:
   - Software that teaches basic math, music theory, shapes/color learning.
   - Memory matching.

2) Other Useful Applications:
   - Basic calculator, mortgage calculators, budgeting software, planners/schedulers.
   - Look on Processing

Applications

More Ideas:

1) https://processing.org/tutorials/ for more ideas. For example, photography(pixels/images/filters), instant messenger(chat program),data processing, video processing, 3D.

Do a Project = Your Ability

Do a project that is equal to your ability.

Your project should be your own work. If you use a tutorial or like to expand on another project, please cite your sources in the comments at the top of your code.

Please avoid ”I got help from my cousin who is a programmer.”

Some More Advice

Consider doing the following to make your code more readable, which makes it easy to debug and make revisions/improvements.

1) Indent nicely.

2) Refactor your code. If the draw method(or your main algorithm method) is too long, consider moving some blocks of code to different methods.

3) Use comments to clarify confusing parts.

4) Write the game incrementally and iteratively: Test your code early and often. Don't write five classes, none of which work! Instead, write a class, make it move and display properly. Then add more methods to it if necessary.

Your Proposal

Write a short proposal of your project. See the attached document.

1) A short description of the program. For example, if it is a game, explain how the game works, the objective of the game, etc..

2) What are some of the classes you need to implement? For example, Player, Asteroid, Bullet.

3) What data structures will you use? Arraylist of Bullets, 1D array of Asteroids.

4) What's your required algorithm? An algorithm in the form of a method with **at least one parameter** that is a 1D array, 2D array or Arraylist of objects. The method needs to have:

a) iteration(at least one loop)

b) selection(conditional statement, if, else if, etc..)