Java Programming Project – Asteroids

# Notes from the ‘Project Illustration’ Video

I just took some bullet notes from the TA’s slides. There are no amazing pearls of wisdom here…

* Create the game window: Pane Class, Scene Class
* Create the ship: Polygon class (inherits “Node” class)(setTranslateX, setTranslateY methods)
* Turning the ship: setRotate method, setOnKeyPressed method, onKeyRelased event, AnimationTimer class (helps make animation smoother) (handle method)
* Moving the ship: Point2D class, getRotate method, Math class (Math.cos, Math.sin methods, Math.toRadians method)
* Creating the Asteroid: Same as ship player and it’s functionality
* The Collision Between Ship and Asteroid: Stop method, Shape.intersect method
* Multiple Asteroids: List of objects with random parameters
* Adding points: AtomicInteger class

# Getting Going with JavaFX

## What is Java FX?

“JavaFX is an open source, next generation client application platform for desktop, mobile and embedded systems built on Java. It is a collaborative effort by many individuals and companies with the goal of producing a modern, efficient, and fully featured toolkit for developing rich client applications.”

## Short Introduction to JavaFX:

<https://openjfx.io/openjfx-docs/>

I’m guessing we’ll be using “the JavaFX SDK”?? Unless anyone knows loads about Maven/Gradle and wants to teach the rest of us?

JavaFX lets you run java applications on Windows, macOS, Linux etc. and appears to have two parts:

* The java parts (jars containing classes for the objects we’ll be using)
* A platform dependant part (the libraries (.dll’s, .so’s etc.) that do the magic/make the windows etc. appear on each individual OS.

I’m running Windows. I downloaded “javafx-sdk-17.0.2” from [here](https://gluonhq.com/products/javafx/) and installed it on my machine. To ‘install it’ I:

* unzipped it to a folder
* added the ‘bin’ folder to my PATH environment variable

This is what I had to do to get it running/ to get any java programs to run with it. I’m sure the instructions are different (but similar) on macOS. If we have a mac user perhaps they might include the instructions here? Or if a Windows user knows a better way – just say so/

# Demo Applications:

## HelloFX App:

I keyed in the demo ‘HelloFX’ app detailed in the getting started guide [here](https://openjfx.io/openjfx-docs/) and to get that to compile/work I had to create a ‘lib’ folder in our project, add all the jars for JavaFX to that folder, then add the content of those jars to the project classpath. It seems to run fine.

MainApp/FXMLController:

I keyed in this demo too and it work. I don’t follow all of what’s going on – but I didn’t spend too long worrying about it, I just wanted to see it running. Once it was running I moved on!

# YouTube Resources:

“Lee Stemkoski” Two Part series on building asteroids using JavaFX. Two parts – two hours long!

https://www.youtube.com/user/ProfStemkoski/search?query=asteroids