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Using JFreeChart to graph cubic functions in Java was not to much of a challenge. The program ask the user for inputs for the coefficients (a,b,c,d) of the cubic equation , Then asks for the range and step interval for x. It then calculates the y values using a loop and stores them in an XY Series dataset for graphing. I also included Descriptive Statistics from Apache Commons Math to calculate basic statistics for the dataset, although this wasn't directly used in the final graphs.

JFreeChart made it straightforward to generate the graph using ChartFactory.createXYLineChart. The chart is displayed in a Swing window using a ChartPanel. Then the file will automatically export to your desktop folder since I got tired of changing the name to find the destination. Compared to octave. Using the JFreeCharts may have been more customizable. I was able to make the graph exactly how I wanted to and display it how I wanted to. To implement the use of the JFreeChart was a bit of a hassle. I need to change the dependency in my pom file. I used these dependencies to help me get the program to run. After implementing this my program ran perfectly fine.

*<dependencies>*

*<!-- https://mvnrepository.com/artifact/org.jfree/jfreechart -->*

*<dependency>*

*<groupId>org.jfree</groupId>*

*<artifactId>jfreechart</artifactId>*

*<version>1.5.0</version>*

*</dependency>*

*<!-- Correct dependency for Apache Commons Math 3.x -->*

*<dependency>*

*<groupId>org.apache.commons</groupId>*

*<artifactId>commons-math3</artifactId>*

*<version>3.6.1</version> <!-- Updated version -->*

*</dependency>*

*</dependencies>*