Chynelle Ziarah C. Villostas Lab Output - Interpolation
Below are the graphs generated by interpolating the dow.txt data set:

(a) 50%   (b) 30%
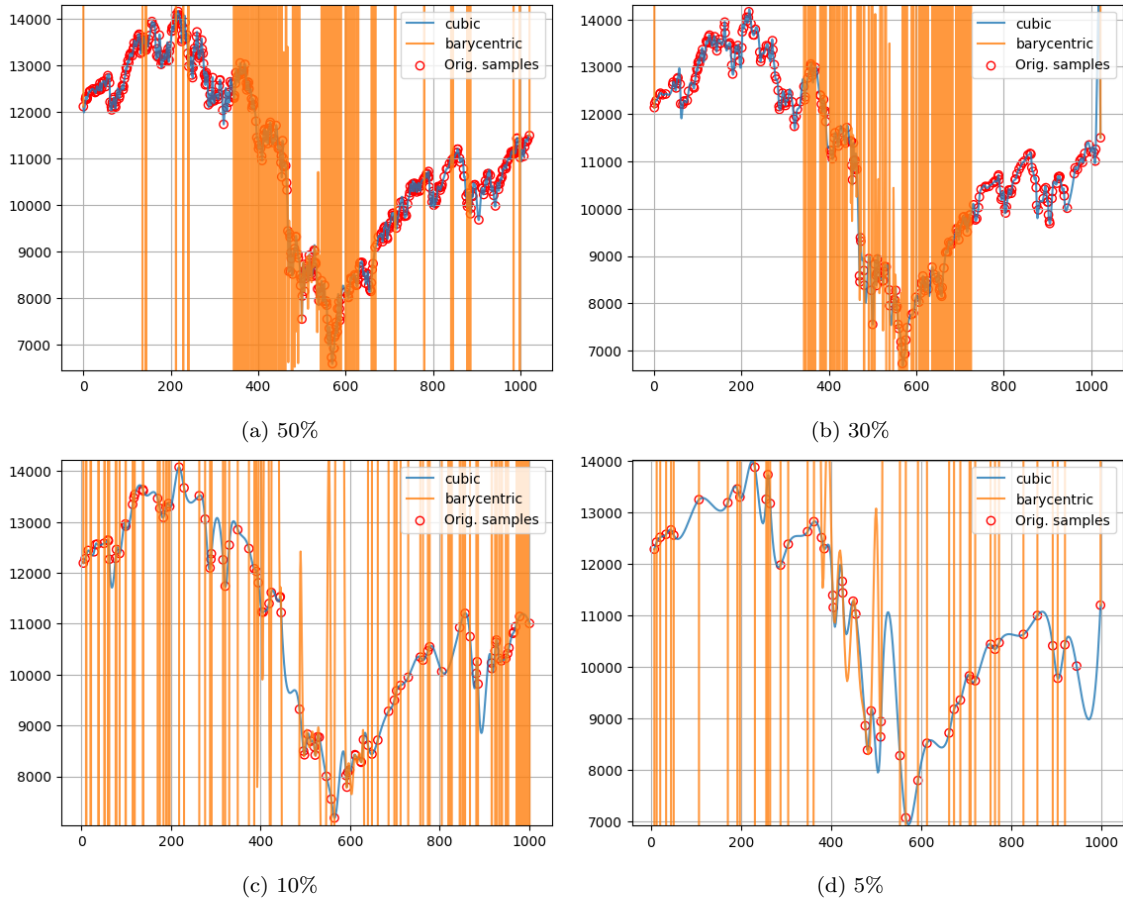
(c) 10%   (d) 5%

Figure 1: Interpolation of the given data set using barycentric and cubic spline method

Clearly, we see that the barycentric interpolation does not work very well. This is because barycentric interpolation tries to fit n data points into a single polynomial of degree $\leq n-1$. Since this data set is really noisy and irregularly sampled, trying to fit it into a single polynomial develops oscillations between nodes. Another consequence is that adding more data doesn't really solve the problem, because it just introduces more noise and the approximated function would have more oscillation. Now, the cubic spline or polynomial interpolation works better because it does the opposite. Instead of fitting one high degree polynomial, it uses piecewise cubic polynomials. With this, the oscillations from that of the barycentric method are avoided. Also, it works even better for more data points because each segment depends on nearby points.