Moving Average Comparison

DSP week 3

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# Problem

In the signal processing world, many filters are used to have control over the final output. A very prominent variant of this filter is the Moving Average filter; whereof there exists many. In this case, use a direct approach (FIIR) and an alternative approach (IIR) to check a series of 100 with a filter length of 10.

# Progress

I made the assignment in matlab. I plotted the same random numbers using FIIR and IIR, which gave these two output graphs:

A screenshot of a computer screen

Description automatically generated

One thing which is very clear is that the IIR and FIIR are mirrored in the beginning, the FIIR needs to gather samples to build a good mean; while the IIR already has values due to it looking ahead. Besides that, we can see that FIIR is more direct and keeps more of the sharp outliers; while IIR smoothes it down more.

# Reflection

Nice secondairy exercise to get a bit more into what signal processing is really about.