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I. Arbitrary Waveform Generator:

1. Consider an arbitrary waveform sequence for one period
   $$R(n) = \{1,2,3,4,5\}.$$
   Now plot the following recursive equation for 100 cycles.
   $Y(n) = y(n-5) + R(0)\delta(n) + R(1)\delta(n-1) + R(2)\delta(n-2) + R(3)\delta(n-3) + R(4)\delta(n-4)$.

II. IIR Filters:

1. Generate and plot an impulse response of $h(n) = (0.9)^n u(n)$, using 1% and 0.1% of initial value as thresholds (n_{eff}). Finally write the recursive equation.

2. Read the given audio signal for 2 sec duration. Consider this as input $x(n)$ to the above recursive equation.

3. Calculate the output $y(n)$ of above recursive equation for the duration $(length(x(n)) + n_{eff} - 1)$. Plot and play the output $y(n)$.

4. Repeat the question 1 by consider the following impulse responses
   a) $h(n) = (-0.9)^n u(n)$,
   b) $h(n) = (-0.9)^n u(n) + (0.9)^n u(n)$,
   c) $h(n) = (0.5)^n u(n) + (0.9)^n u(n)$