List of practice tasks (LabVIEW+MATLAB)
1 Noise generator + Averaging by 3 points
2 Time interval measurements + SubVIs

Task2 Random signal and average signal by 3 points

1. Take VI s1random.vi (task1).
2. Create 3 copies of Random number (0-1) function (Functions -> Numeric -> Random number (0-1) outside the While loop.
3. Using context menu of While loop add shift register.
4. Expand source terminal of the shift register up to 3 outputs (on the left side of the cycle frame)
5. Initialize the shift register using wiring 3 Random number (0-1) functions outside the cycle frame to 3 source terminals of the shift register.
6. Delete wire Random number (0-1) – Waveform chart using Position tool
7. Wiring: Random number (0-1) – Destination terminal of the shift register (on the right side of the cycle frame)
8. Join 3 random values into array of 3 random values (vector of 3 components). Functions -> Programming -> Array -> Build array
9. Wiring: Source terminal of the Shift register – input of the Build array (3 wires)
10. Functions -> Programming -> Numeric -> Add array element
11. Wiring: Build array – Add array element (thick continuous line indicate array data type)
12. Functions -> Programming -> Numeric -> Divide
13. Functions -> Programming -> Numeric -> Constant 3
14. Wiring: Add array element – Divide top, Constant 3 – divide bottom.
15. Functions -> Programming -> Cluster & Variant -> Bundle (join to scalar data flow – raw signal and average by 3 points – into cluster data flow required by waveform chart)
16. Wiring: top source terminal of the Shift register – Bundle (top), Divide – Bundle (bottom), Bundle – Waveform chart.
17. Front panel -> Expand Plot legend of the Waveform chart up to 2 rays (“Raw” – white, “Average” – red)
18. Front panel -> Context menu of “Average” ray of the Plot legend of the Waveform chart -> Fill base line -> Zero
19. Save results as s2average.vi

Task1 Random signal.

1. LabVIEW start menu -> Blank VI
2. Functions -> Programming -> Structures -> While loop
3. Functions -> Programming -> Numeric -> Random number (0-1)
4. Controls -> Graph -> Waveform chart
5. Tools -> Connect wire
6. Wiring: Random number - Waveform chart
7. Tools -> Position
8. Controls -> Boolean -> Stop button
9. Wiring: Stop button – Stop condition terminal of While loop
10. Functions -> Programming -> Timing -> Wait until next ms multiple
11. Controls -> Numeric -> Horizontal pointer slide
12. Context menu of Horizontal pointer slide “Period” -> Mapping -> Logarithmic
13. Functions -> Programming -> Numeric -> Multiply
14. Functions -> Programming -> Numeric -> Constant 1000

15. Wiring: “Period” – Multiply, 1000 – Multiply, Multiply – Wait until next ms multiple