Keltner Channel Calculation – General Case

Keltner Channel Middle Line = EMA
Typical Keltner Channel Upper Band = EMA + 2*ATR
Typical Keltner Channel Lower Band = EMA - 2*ATR
EMA = Exponential moving average (typically 20 periods)
ATR = Average True Range (typically over 10 periods)

1. Calculate **Max, Min, Max-Min,** and **Mean Value** in real time for every period (6 minutes) for 10 consecutive hours.

   Note: You need to update **Max, Min, Max-Min,** and **Mean Value** continuously inside each period when you find a new Max, Min, Max-Min, and Mean Value. (Call Max-Min as VOL (from volatility) from now on.)

2. After the first period (6 minutes), calculate 100 Keltner Upper Bands, and update it every 6 minutes:
   Keltner Channel Upper Band = **Mean Value** + n*0.025***VOL**, n from 1 to 100, where **Mean Value** and **VOL** are calculated from the previous period of 6 minutes.

3. After the first period (6 minutes), calculate 100 Keltner Lower Bands, and update it every 6 minutes:
   Keltner Channel Upper Band = **Mean Value** – n*0.025***VOL**, n from 1 to 100, where **Mean Value** and **VOL** are calculated from the previous period of 6 minutes.

Note: Every time you start a new 6-minute period, you already know the following 100 Keltner Upper Bands and the following 100 Keltner Lower Bands because all bands are calculated from previous values.

4. From period #2 to period #100, inside each 6-minute period, count the number of times **N** the price of a currency pair crosses a Keltner Channel and divide it by **VOL**. Call **N/VOL** as **FD** (from the fractal dimension). So, from period #2 to period #100, you will build a sequence of data vectors Vi with 5 data information:

Max
Min
Mean
VOL
FD.