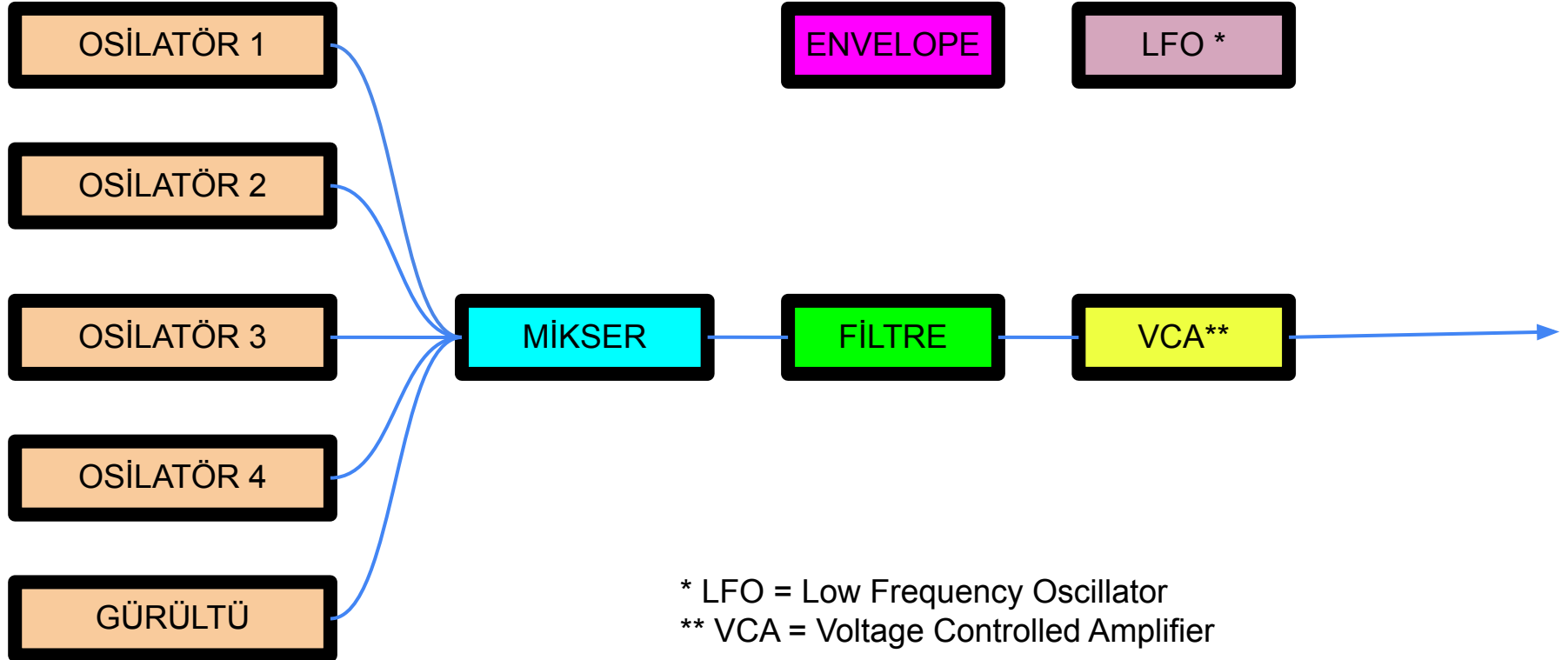


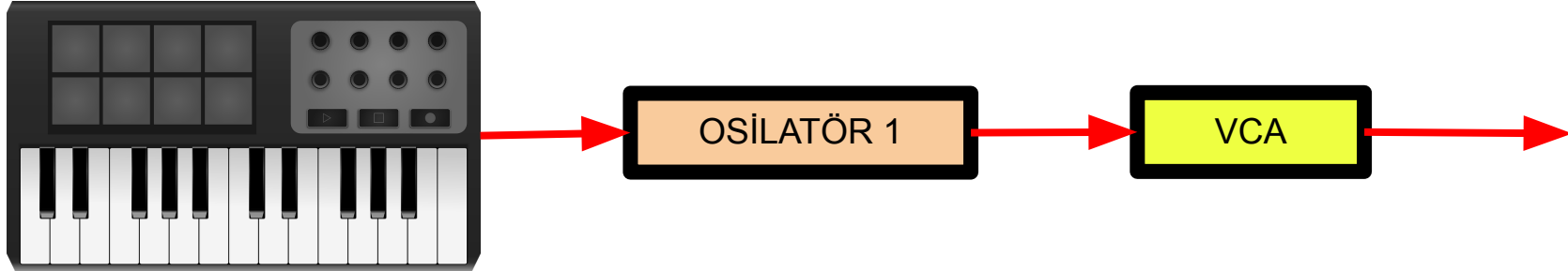
# SYNTHESIZER ATÖLYESİ

Hafta 2: FM Sentezleme

# Synthesizer Modülleri (Subtractive)



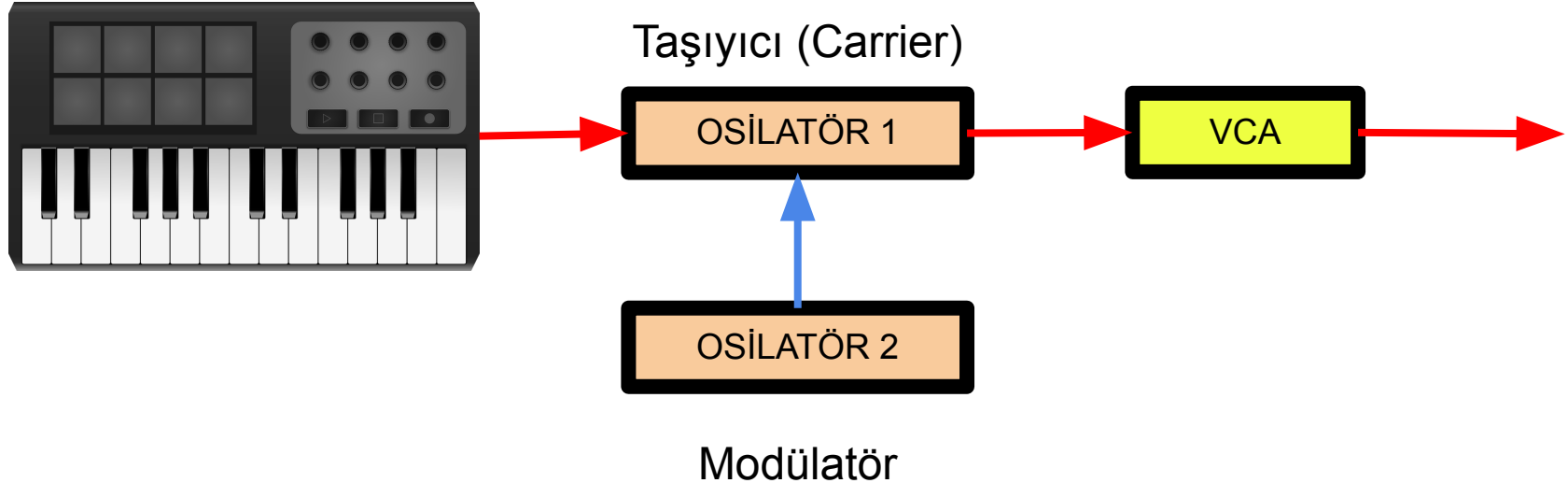
# Synthesizer Modülleri (Subtractive)



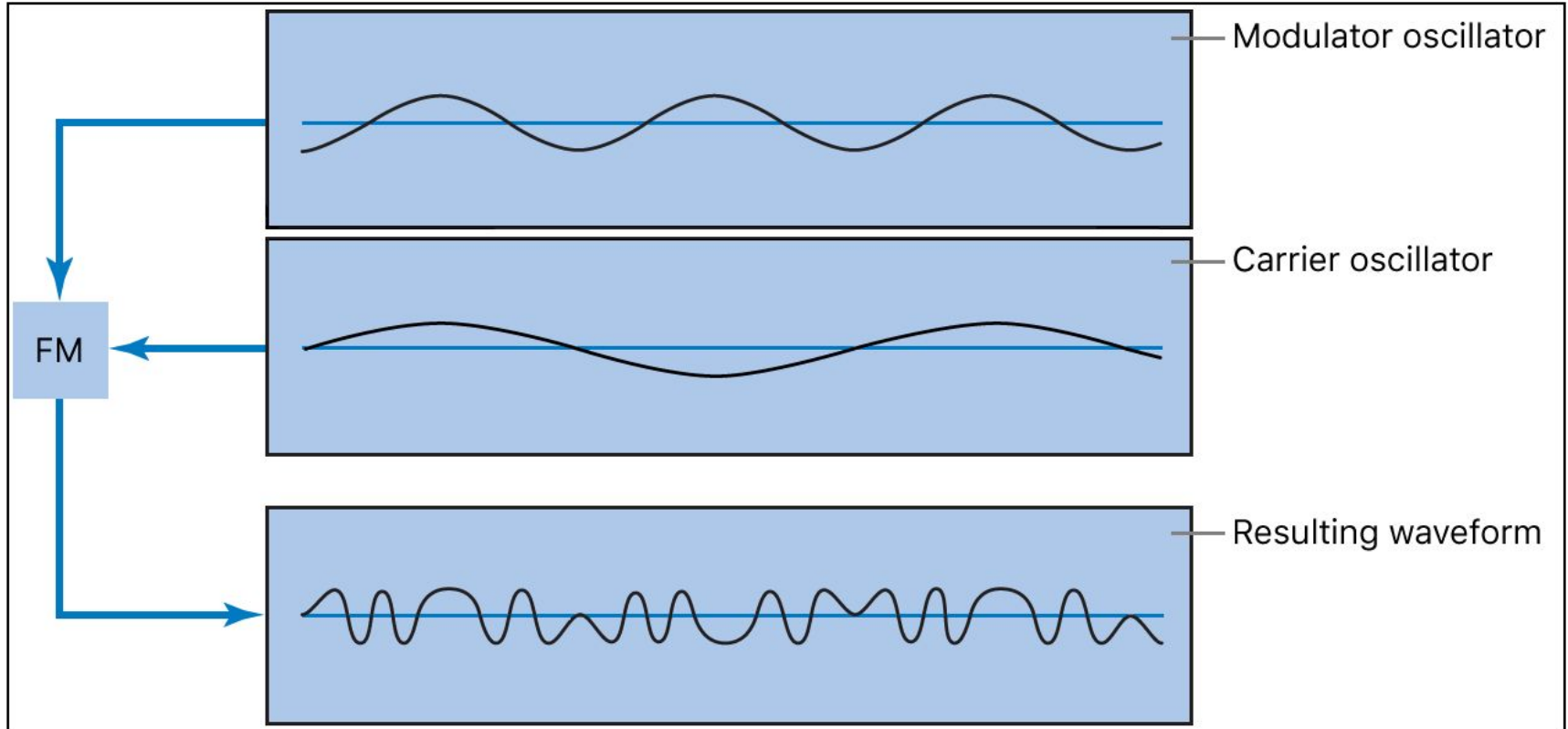
# Notaların frekans karşılıkları

| Note name | Keyboard       | Frequency<br>Hz |
|-----------|----------------|-----------------|
| A0        |                | 27.500          |
| B0        |                | 30.868          |
| C1        |                | 32.703          |
| D1        |                | 36.708          |
| E1        |                | 41.203          |
| F1        |                | 43.654          |
| G1        |                | 48.999          |
| A1        |                | 55.000          |
| B1        |                | 61.735          |
| C2        |                | 65.406          |
| D2        |                | 73.416          |
| E2        |                | 82.407          |
| F2        |                | 87.307          |
| G2        |                | 97.999          |
| A2        |                | 110.00          |
| B2        |                | 123.47          |
| C3        |                | 130.81          |
| D3        |                | 146.83          |
| E3        |                | 164.81          |
| F3        |                | 174.61          |
| G3        |                | 196.00          |
| A3        |                | 220.00          |
| B3        |                | 246.94          |
| C4        |                | <b>261.63</b>   |
| D4        |                | 293.67          |
| E4        |                | 329.63          |
| F4        |                | 349.23          |
| G4        |                | 392.00          |
| A4        |                | <b>440.00</b>   |
| B4        |                | 493.88          |
| C5        |                | 523.25          |
| D5        |                | 587.33          |
| E5        |                | 659.26          |
| F5        |                | 698.46          |
| G5        |                | 783.99          |
| A5        |                | 880.00          |
| B5        |                | 987.77          |
| C6        |                | 1046.5          |
| D6        |                | 1174.7          |
| E6        |                | 1318.5          |
| F6        |                | 1396.9          |
| G6        |                | 1568.0          |
| A6        |                | 1760.0          |
| B6        |                | 1975.5          |
| C7        |                | 2093.0          |
| D7        |                | 2349.3          |
| E7        |                | 2637.0          |
| F7        |                | 2793.0          |
| G7        |                | 3136.0          |
| A7        |                | 3520.0          |
| B7        |                | 3951.1          |
| C8        | J. Wolfe, UNSW | 4186.0          |

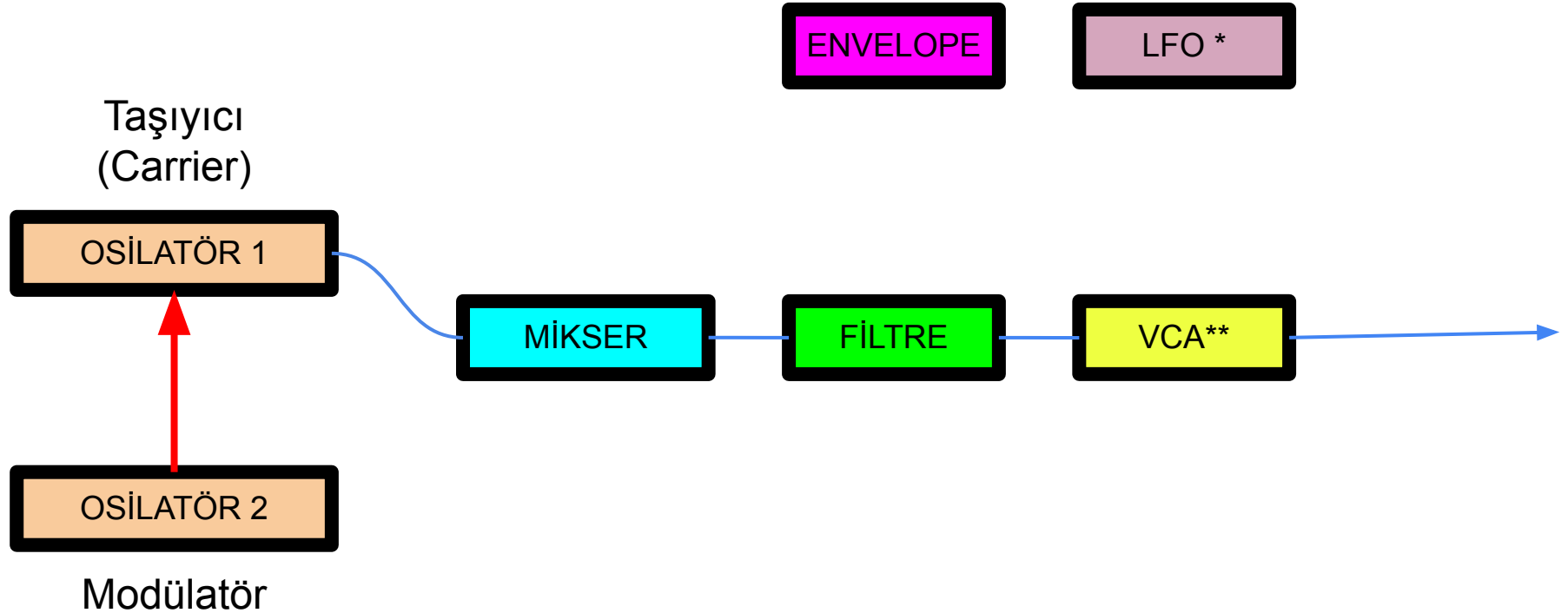
# Synthesizer Modülleri (Frekans Modülasyonu = FM)



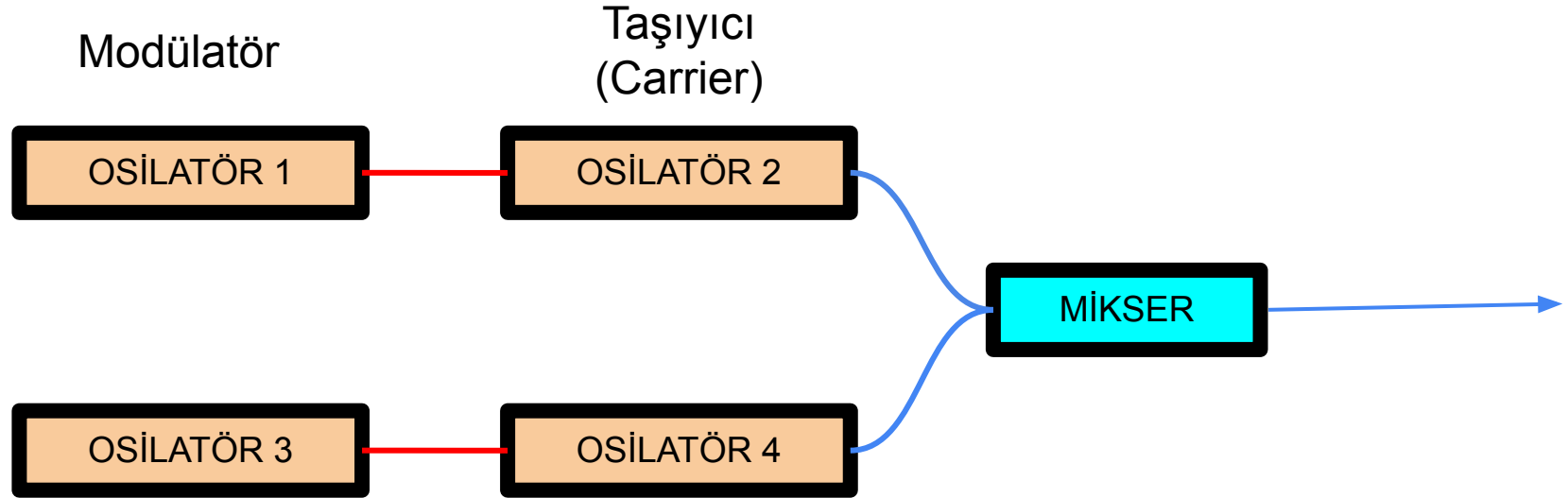
# Synthesizer Modülleri (Frekans Modülasyonu = FM)



# Synthesizer Modülleri (Frequency Modulation = FM)

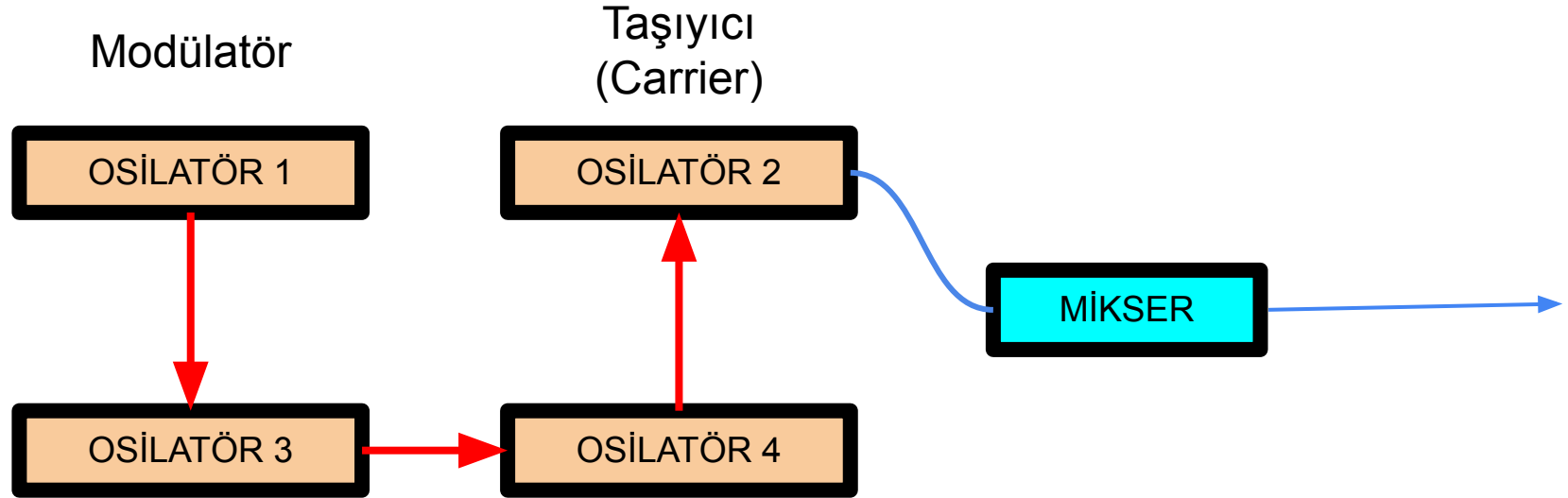


# FM Osilatör Kombinasyonları: Örnek 1





## FM Osilatör Kombinasyonları: Örnek 2



# Tarihçe

Yamaha DX 7 (1983) Dijital synthesizer'ları popüler yapan synthesizer



YÜKSEK SES UYARISI!



**Warning**  
**Sudden**  
**loud noise**