

Mono - synthesizer

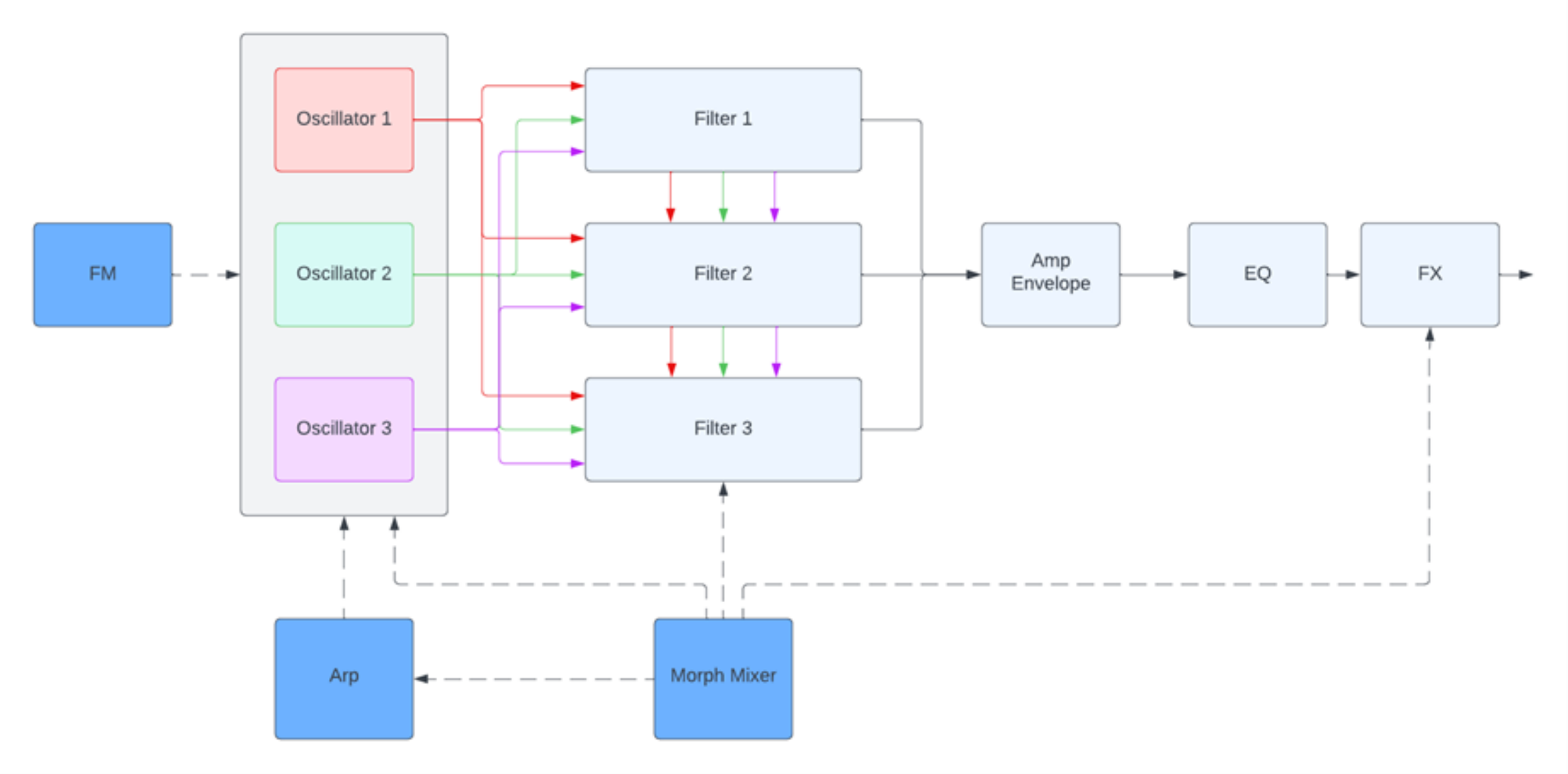
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GUI



Block Diagram

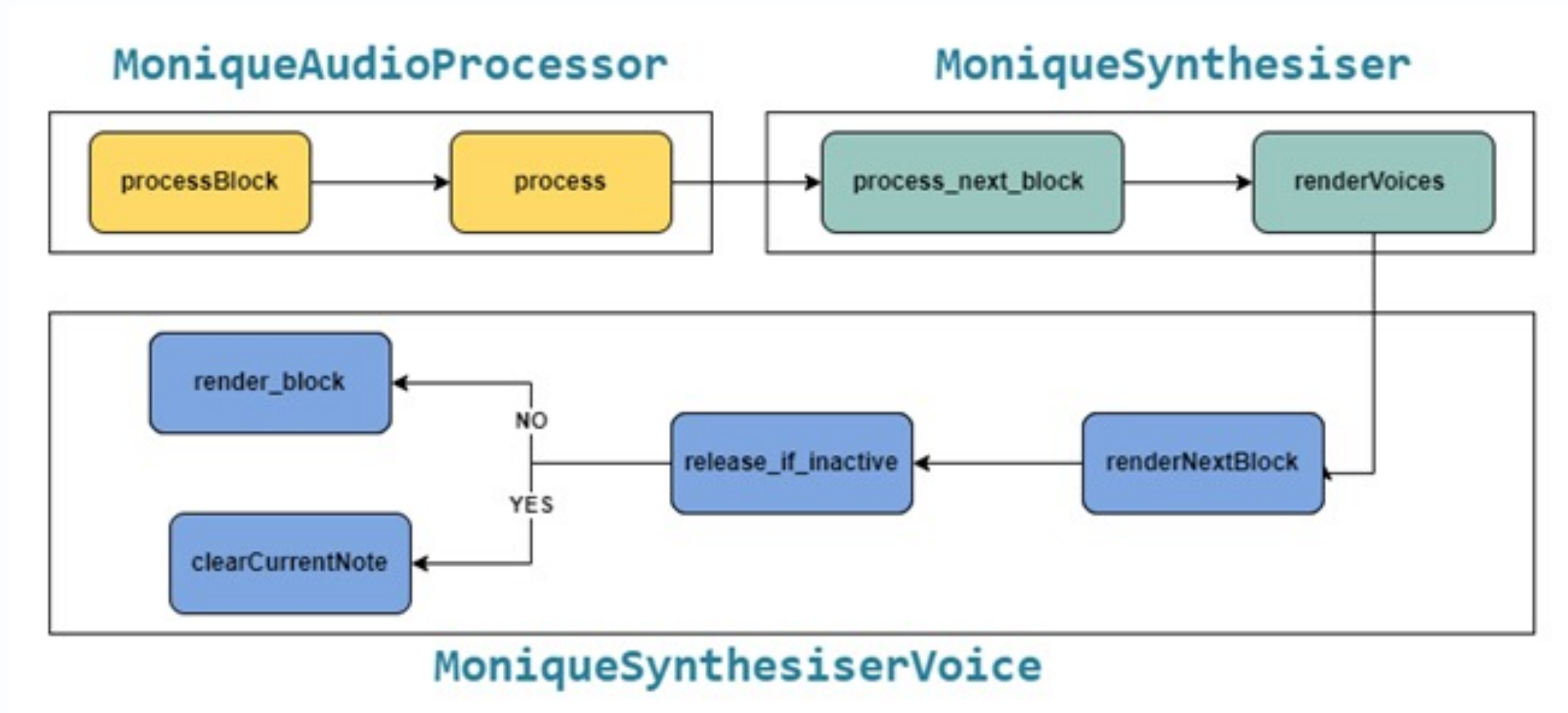


Code Structure

- Source Code split between Core and UI subfolders
- Core includes:
 - Monique_core_parameters
 - Monique_core_datastructures
 - Monique_core_Processor
 - Monique_core_Synth
- UI includes:
 - Monique_ui_LookAndFeel
 - Monique_ui_GloablSettings
 - Monique_ui_AmpPainter



Audio Processing Functions



4.43ms OFF 100% OFF 5ms



ATT

DEC

SUS

RETRIG

REL

Morph Function



4.43ms

OFF

100%

OFF

5ms



ATT



DEC



SUS



RETRIG



REL

Morph Function Python Implementation

```
sine = 4*np.sin(2 * np.pi * f *4* x / Fs)
square = signal.square(2 * np.pi * f * x / Fs)

target_signal = square
diff = square - sine
update = diff
morphed = np.array([])
morphed_chunk = sine
morphing_speed = 0.003 # how fast morphing is

while True:
    morphed_chunk = morphed_chunk + morphing_speed*update
    morphed = np.concatenate((morphed, morphed_chunk))
    update = target_signal - morphed_chunk
    if np.mean(update**2) < 0.000001:
        break

sd.play(morphed, Fs)
```

4.43ms OFF 100% OFF 5ms



ATT



DEC



SUS

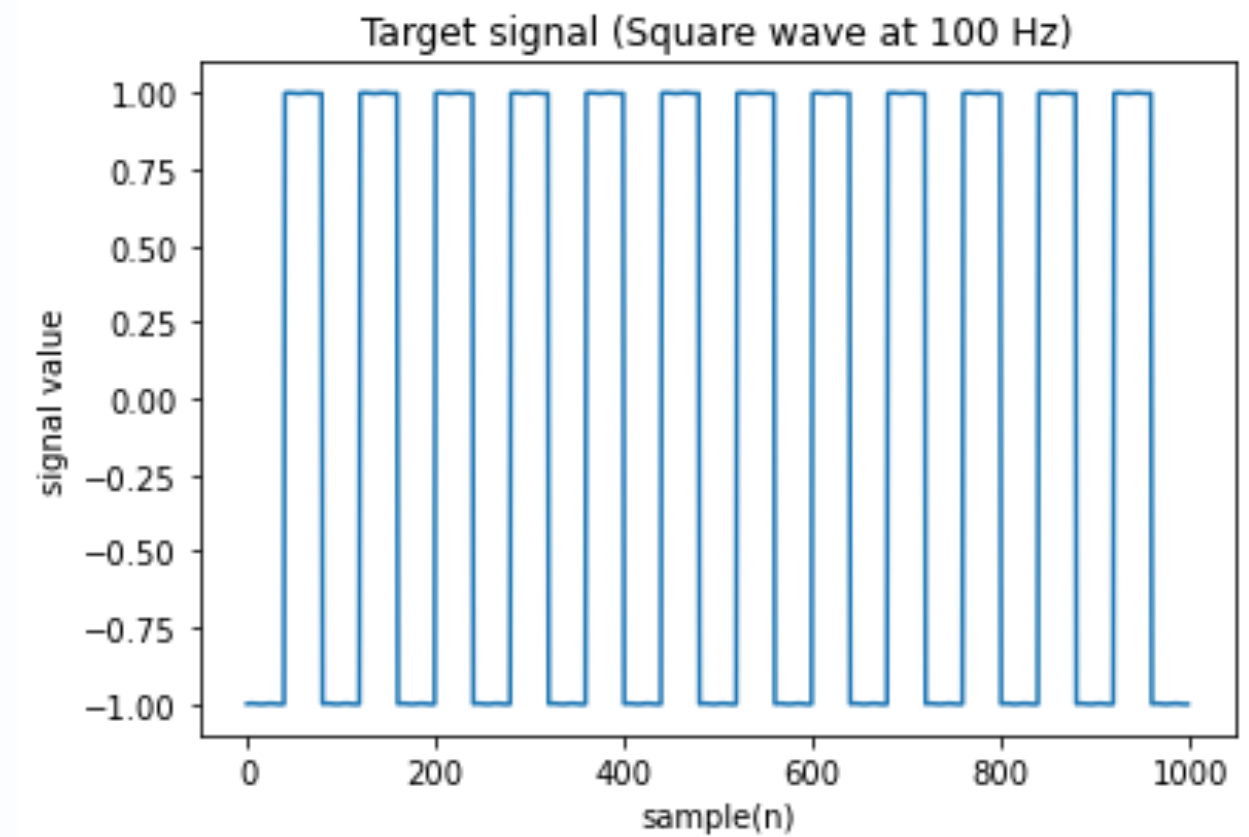
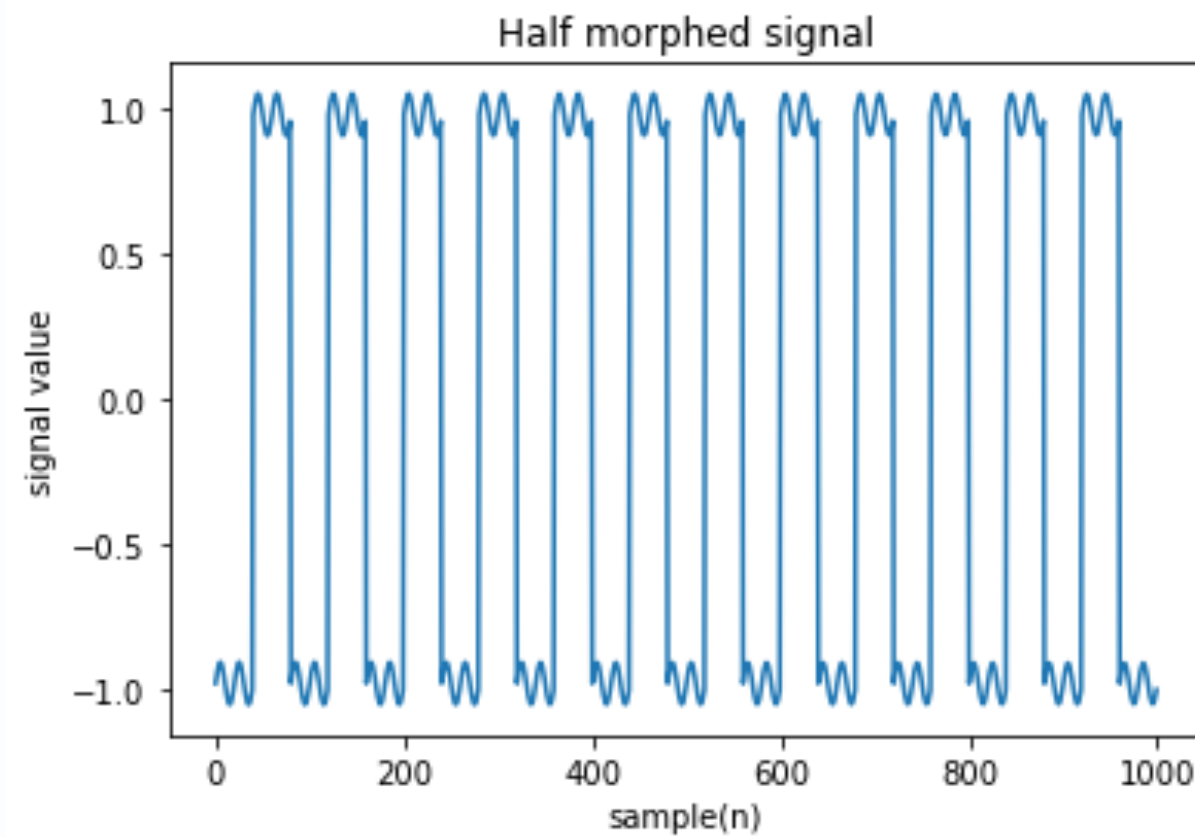
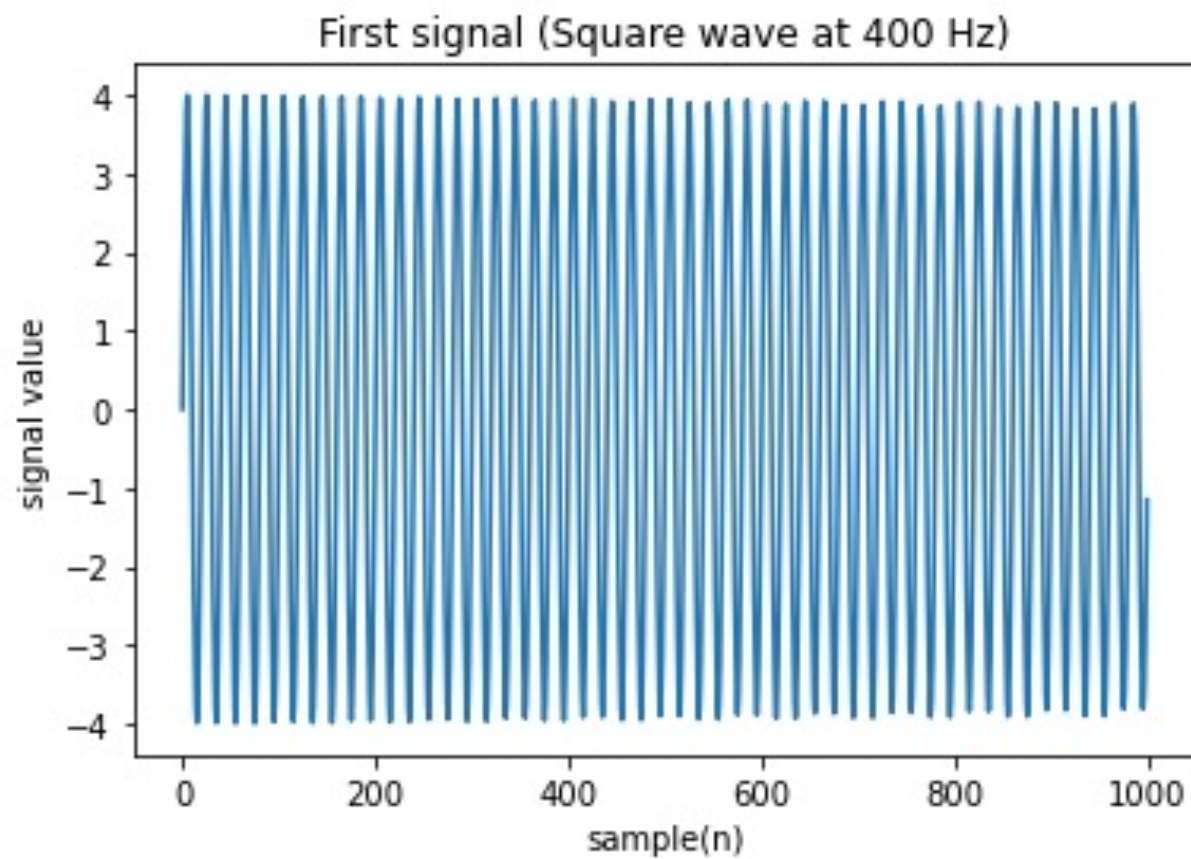


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REL

Morph Function Python Implementation



Demo

