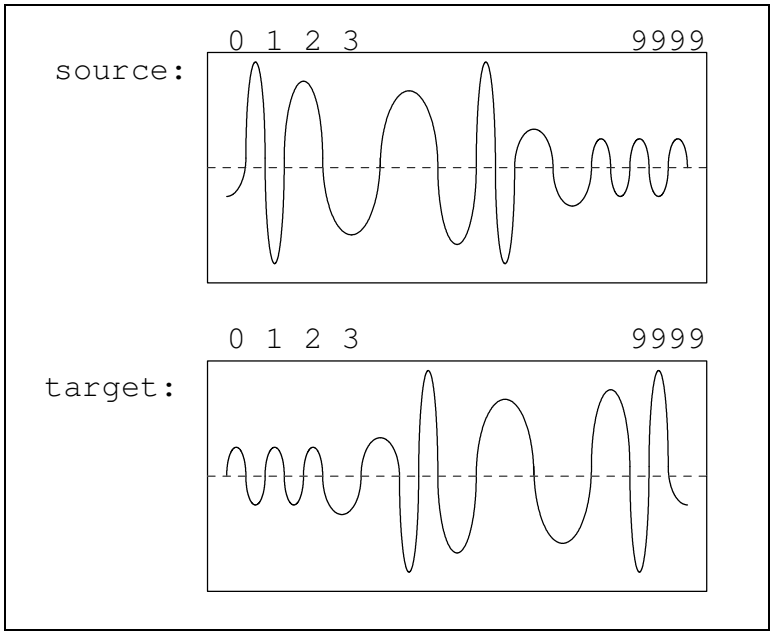
1. Since the late ’60s an "urban myth" claimed that famous bands (the Beatles, Led Zeppelin, Queen, the Eagles, etc.) had hiding secret Satanic messages in their music if it was played backwards (see web-site below). With JES you too can be a "myth buster" and write a function to play a sound backwards.

http://www.vh1.com/music/tuner/2014-02-20/15-songs-satanic-backwards-messages/

a) If the original source song had 10,000 samples, how many samples would be in the reversed song?

b) Complete the table of corresponding `sourceIndex` and `targetIndex` locations to reverse the song?

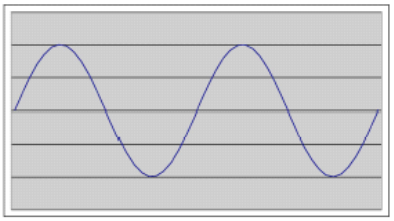


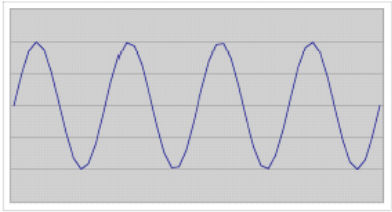
sourceIndex	targetIndex
0	
1	
2	
9,997	
9,998	
9,999	

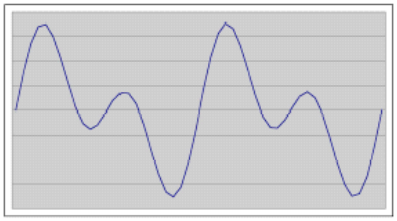
c) Complete the following function to reserve a sound.

```
def reverse(source):
  """ Returns the reserved sound of the source """

  target = makeEmptySound(                                        )

  targetIndex =

  for sourceIndex in range(                                    ):
    sourceValue = getSampleValueAt(                                  )

    setSampleValueAt(                                                )

    targetIndex  =

  return target
```

Chapter 8. Making Sounds by Combining Pieces deals with a range of examples: blending sounds so one fades into another, creating echoes, changing the frequency (pitch) of sound, synthesis of new sounds by adding sine waves.







2. As with pictures we can blend two sounds together so both play at the same time. As with blending pictures we could blend the sounds 50% each by adding together half of each corresponding sample value.

a) If we add together 50% of each of the corresponding sample values do we need to worry about clipping (i.e., exceeding the maximum height of a sample)?

b) Complete the following function to blend two sounds `s1` and `s2`.

```
def blendSounds(s1,s2):
  len1 = getLength(s1)
  len2 = getLength(s2)
  if len1>len2:
    longestLength =
    shortestLength =
    longerSound =
  else:
    longestLength =
    shortestLength =
    longerSound =

  blendedSound = makeEmptySound(                                    )

  for index in range(0,                                          ):
    newValue = (getSampleValueAt(s1,index) + getSampleValueAt(          ))/2
    setSampleValueAt(                                                  )

  for index in range(                                            ):
    sampleValue = getSampleValueAt(                                  )
    setSampleValueAt(                                                  )

  return blendedSound
```

c) Summarize in English the function of the above:

- `if` statement

- 1st `for`-loop

- 2nd `for`-loop