Bilge Kaan Güneyli - 2020400051
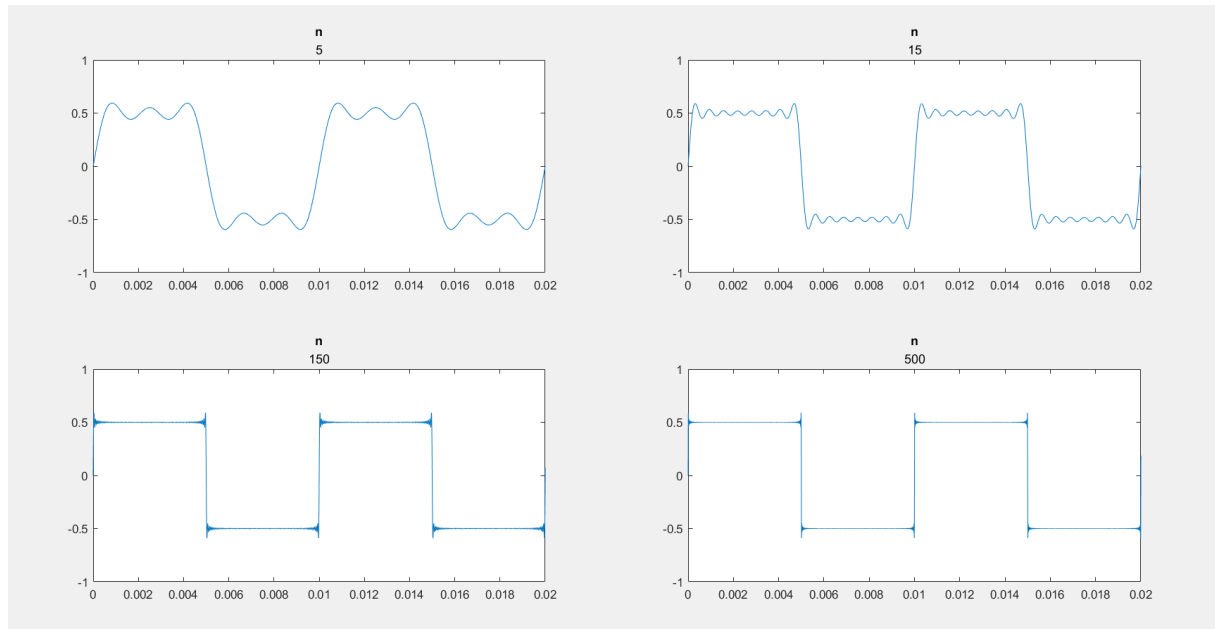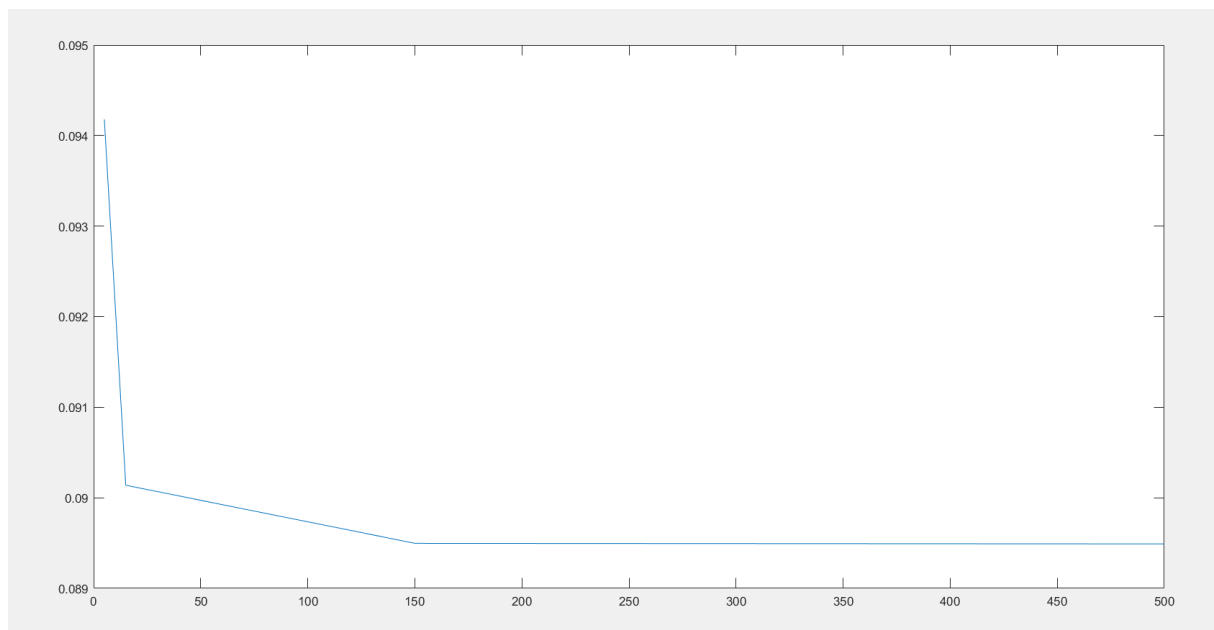
REPORT FOR CMPE362 PROJECT 2

PART 1

We are observing that as we increase n the fluctuations become more congested. So, the waves are closer to converging. This is an expected outcome of the Gibbs' Phenomenon.

PART 2

In the graph, one can see that as we increase n, we come closer to the 0.0895 value. This result is a part of the Gibbs' Phenomenon as it is suggested that as we add more and more sine waves we will be closer to a converging state.

PART 3

n	Minimum sample rate	File size (kB)
5	1000	4
15	3000	12
150	30000	118
500	100000	391

As I picked the sample rates I used the $2*n*f$ formula. I decided to add 2 as a multiplier because the Nyquist Theorem suggests that sample rate should be at least 2 times compared to the frequency. I added n too because our sample rate had to be able to handle the number of waves we added in a certain time interval too.

As a result, we can see direct proportion between the sample rates and file sizes. This is a logical result since sample rate decides how many waves will be processed in a certain amount of time. This is basically how much data will a certain time of audio will contain.