**Introduction**

The software radio team was given two laptops built in with all the necessary hardware by EPIQ solutions with the long term goal developing a custom wireless protocol and software. This semester the team focused on learning how to use the program GNU radio and how to implement binary phase shift keying (BPSK) and binary frequency shift keying (BFSK). The overall software radio team split into different teams working over towards different goals. This report is over the work of the binary frequency shift keying.

Though the previous software radio team from last semester as a whole developed a method to transmit data through BFSK on just one computer, their process did not accurately sent data to different computers and we were tasked with finding a new way to do BFSK, one that would hopefully send data to different computers and over long distances. The main struggle was that we were to hopefully rebuild the BFSK process from scratch while neither of us had prior experience with GNU radio software.

Our initial goals were to quickly learn how to use GNU radio and build a flowchart for the process for both the transmitter and receiver side, then write our own encode to implement Hamming code on the transmitter side and our own custom decoder for the Hamming Code on the receiver side to obtain more accurate data transmission. We were then to spend the last few weeks of the semester testing and debugging our flowchart.