Aditya Agrawal
aagraw14@ucsc.edu
CSE13s Spring 2021

Writeup

```
aditya@aditya-VirtualBox:~/aagraw14/asgn5$ ./encode < error.c | ./entropy
3.348501
aditya@aditya-VirtualBox:~/aagraw14/asgn5$ ./encode < error.c | ./error | ./entropy
3.431376
aditya@aditya-VirtualBox:~/aagraw14/asgn5$ ./encode < error.c | ./error -e .001 | ./entropy
3.431376
aditya@aditya-VirtualBox:~/aagraw14/asgn5$ ./encode < error.c | ./error -e .0001 | ./entropy
3.365607
aditya@aditya-VirtualBox:~/aagraw14/asgn5$ ./encode < error.c | ./error -e .5 | ./entropy
7.957873
aditya@aditya-VirtualBox:~/aagraw14/asgn5$ ./encode < error.c | ./error -e .9 | ./entropy
6.554371
aditya@aditya-VirtualBox:~/aagraw14/asgn5$ ./encode < error.c | ./error -e 1 | ./entropy
3.348501
```

The image above shows the entropy values when the file error.c is input into the encoder. As the error rate increases the entropy generally does as well which can be seen for the error rate of .5 where the entropy is around 7.9 which is a stark difference from the default error rate which has an entropy of 3.43. It can also be seen that when the error rate is lowered to .0001 the entropy also slightly decreases to 3.36 from. This increase does not remain constant however, when the error rate is increased to .9 the entropy is lower than it was when it was set to .5 and when it is set to 1 it is back to its original value. This is most likely due to the fact that when error rate is 100% all the bits are flipped so it is essentially the same as the default. I am aware the quality of this writeup is severely lacking, bad choices and study habits as per usual.