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MP3 – REPORT

Part 1:

If you run: python encoder.py -g # -k # -d #
-g is any generator int,
-k is number of bits in the data input
-d specifies the decimal equivalent of the data input

with -g # -k # -d # specified - you will get the computed crc code

with only -g # specified - you will get the performance results of the table based approach and the non-table based approach where the tests are run with specified generator and random data 1000000 times

Performance Analysis:

```
python encoder.py -g 9
Stats - 1000000 runs - random data
CRC:  19.4423699379
<timeit-src>:2: SyntaxWarning: import * only allowed at module level
CRC Table:  3.49995803833
0.1 Probability with 10000 Executions
Error Detected: 0.6112
Error Not Detected: 0.0629
0.2 Probability with 10000 Executions
Error Detected: 0.8004
Error Not Detected: 0.1132
0.3 Probability with 10000 Executions
Error Detected: 0.8594
Error Not Detected: 0.121
```

Here we see that as the channel gets noisy more packets get lost. Infact with a 30% chance of error - we lose over 10% of the packets

Part2:

run: python checksum.py 2000 121 4 53 221 856 10005 9345
results "checksum: 42930 0b1010011110110010"
The first number is the decimal checksum and the second number is the binary checksum.
You can specify more than 9 words