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Course: **Computer Science 4481**

Assignment Number: **4**

Date: March 29, 2024

Overview

Prediction Rule	1 (W)	2 (N)	3 (W/2 + N/2)	4 (CALIC)
Peppers Average Errors	10.410461	9.594406	8.379486	7.337789
Goldhill Average Errors	11.636747	12.631896	10.102884	9.073259
Peppers Std. Dev. of Errors	5.976553	6.532810	4.175761	4.510292
Goldhill Std. Dev. of Errors	3.706404	3.142701	2.114658	2.534245
Peppers Compression Time	0.015000 secs	0.015000 secs	0.014000 secs	0.034000 secs
Goldhill Compression Time	0.024000 secs	0.022000 secs	0.024000 secs	0.053000 secs
Peppers Decompression Time	0.045000 secs	0.043000 secs	0.046000 secs	0.093000 secs
Goldhill Decompression Time	0.067000 secs	0.082000 secs	0.072000 secs	0.136000 secs

With respect to compression and decompression time, CALIC is slow on both images. Although, CALIC has the smallest average prediction errors for both images as well as comparably low standard deviation to the other prediction rules. CALIC is suitable for compression and decompression on both images.

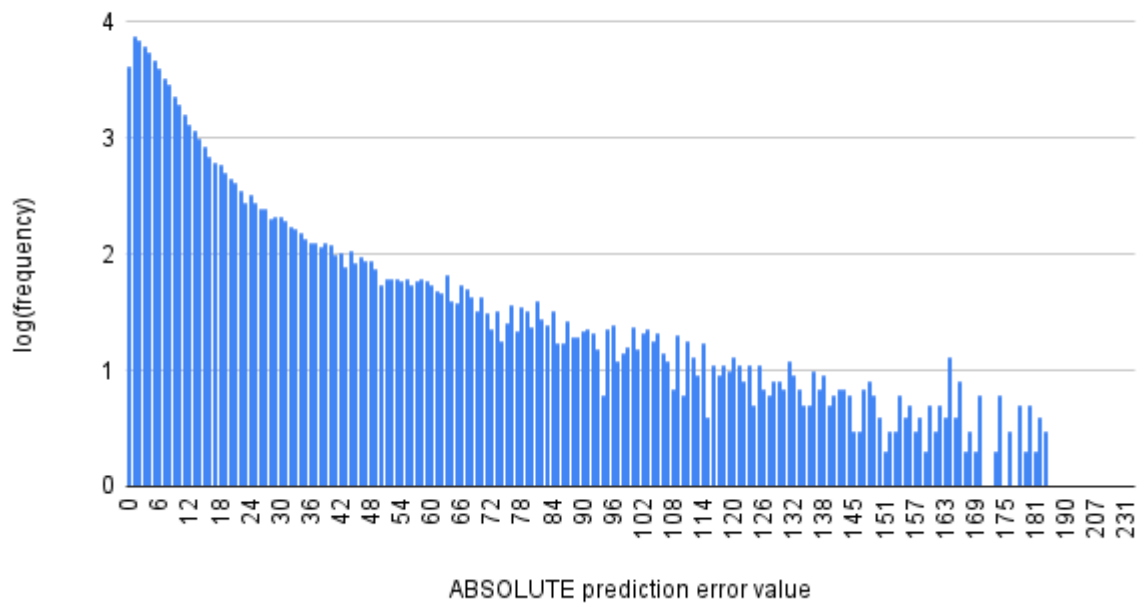# Peppers.raw.pgm

prediction_rule = 1

Average of Absolute Prediction Errors: 10.410461
Standard Deviation of Absolute Prediction Errors: 5.976553
Compression time: 0.015000 seconds
Decompression time: 0.045000 seconds

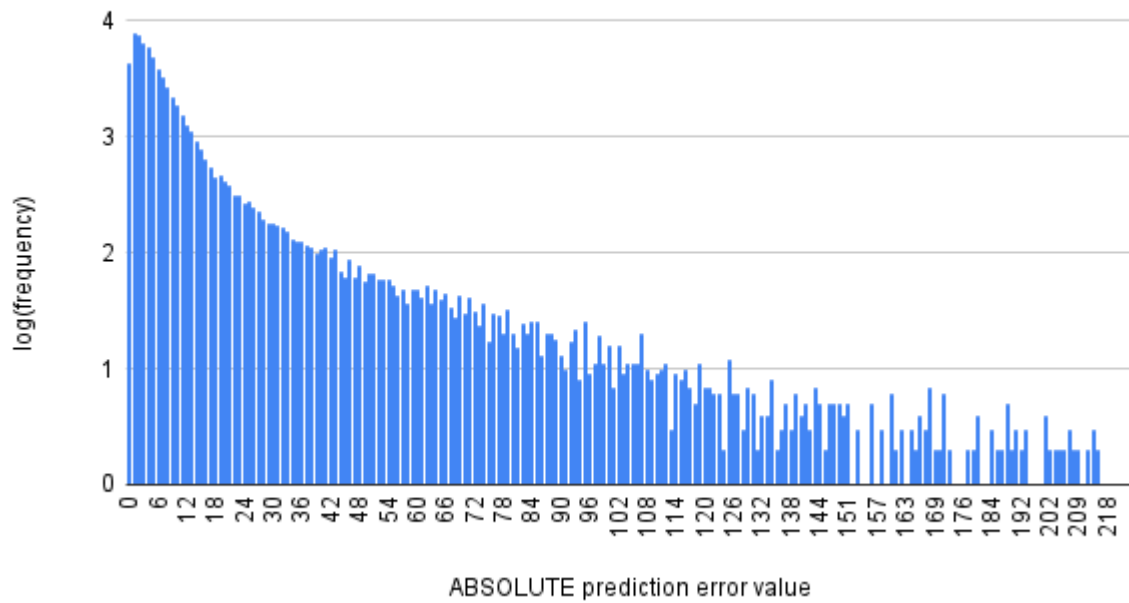log(frequency) vs ABSOLUTE prediction error value

prediction_rule = 2

Average of Absolute Prediction Errors: 9.594406
Standard Deviation of Absolute Prediction Errors: 6.532810
Compression time: 0.015000 seconds
Decompression time: 0.043000 seconds

log(frequency) vs ABSOLUTE prediction error value
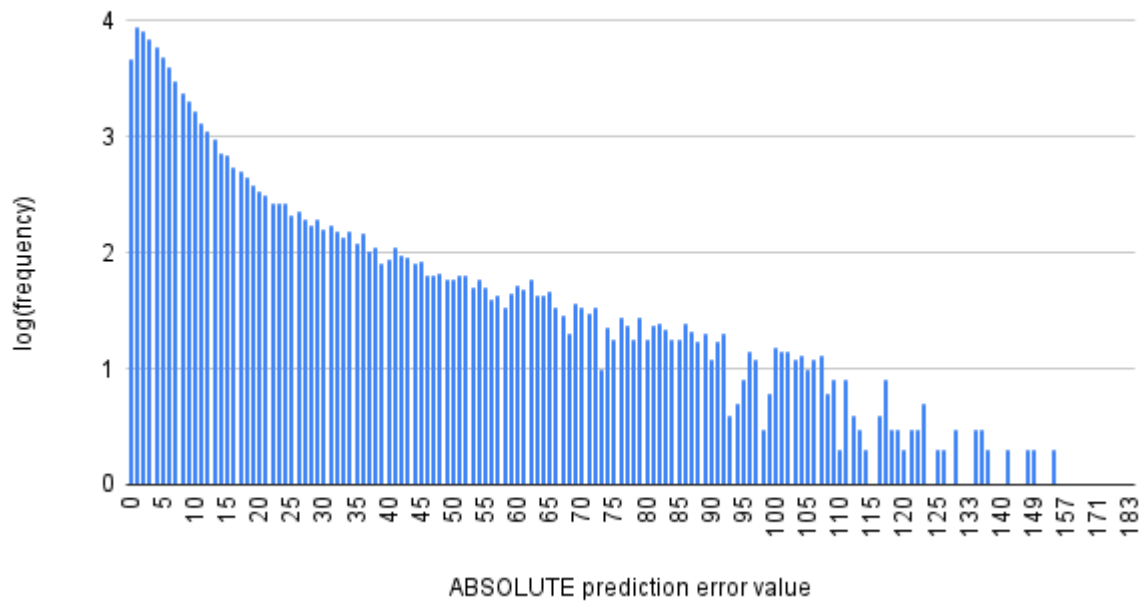
prediction_rule = 3

Average of Absolute Prediction Errors: 8.379486
Standard Deviation of Absolute Prediction Errors: 4.175761
Compression time: 0.014000 seconds
Decompression time: 0.046000 seconds

log(frequency) vs ABSOLUTE prediction error value

prediction_rule = 4 (CALIC)

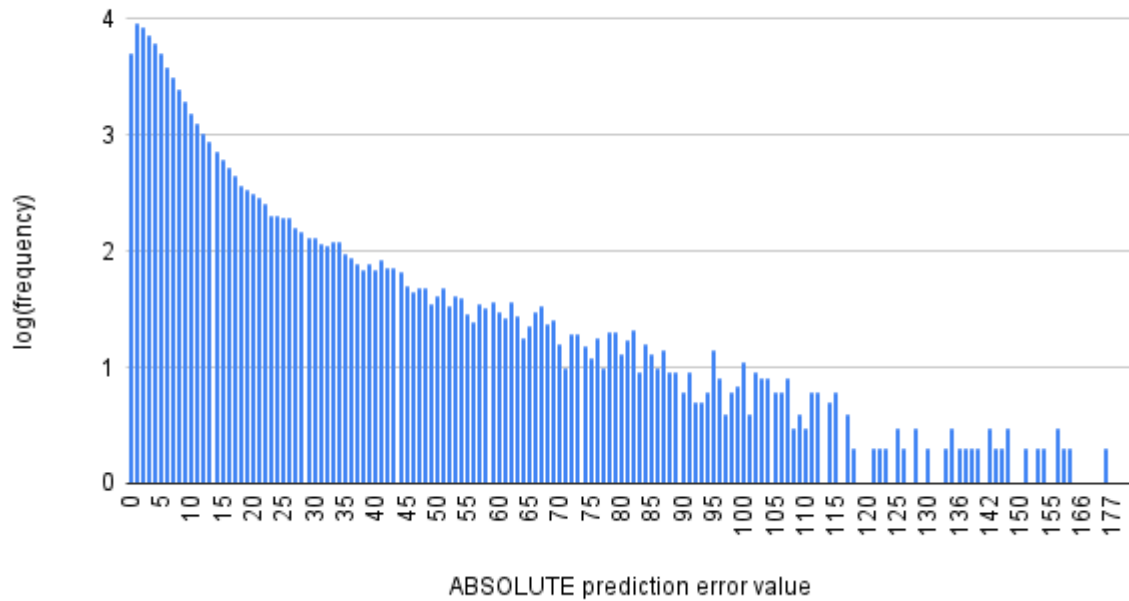*Some logical error in my algorithm as I get a non-zero mean average error calculation.*
Average of Absolute Prediction Errors: 7.337789
Standard Deviation of Absolute Prediction Errors: 4.510292
Compression time: 0.034000 seconds
Decompression time: 0.093000 seconds

log(frequency) vs ABSOLUTE prediction error value
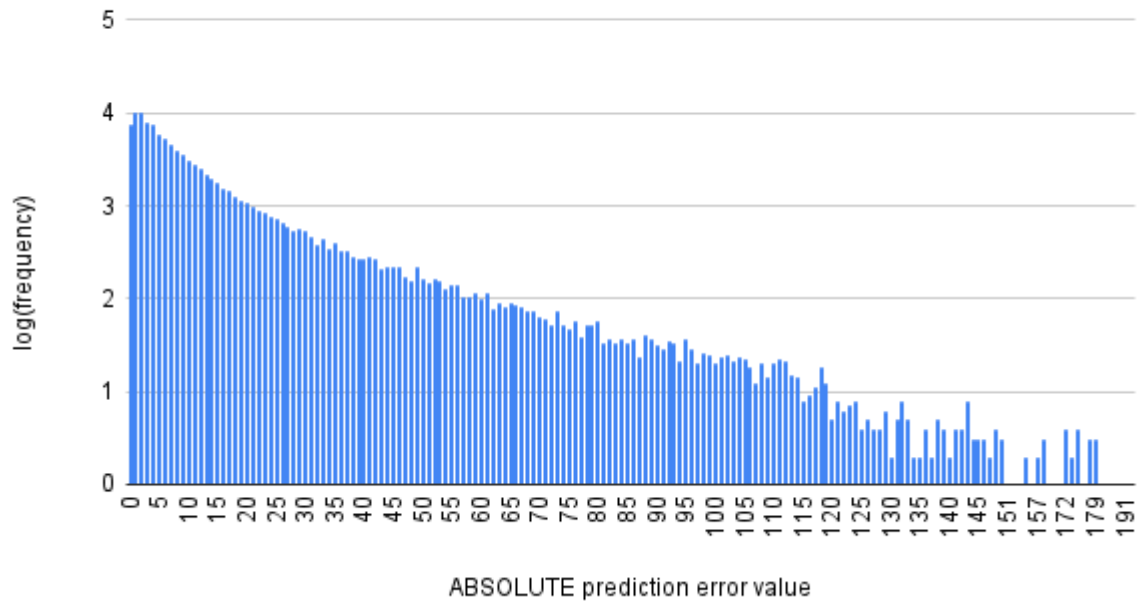
Goldhill.raw.pgm

prediction_rule = 1

Average of Absolute Prediction Errors: 11.636747
Standard Deviation of Absolute Prediction Errors: 3.706404
Compression time: 0.024000 seconds
Decompression time: 0.067000 seconds

log(frequency) vs ABSOLUTE prediction error value
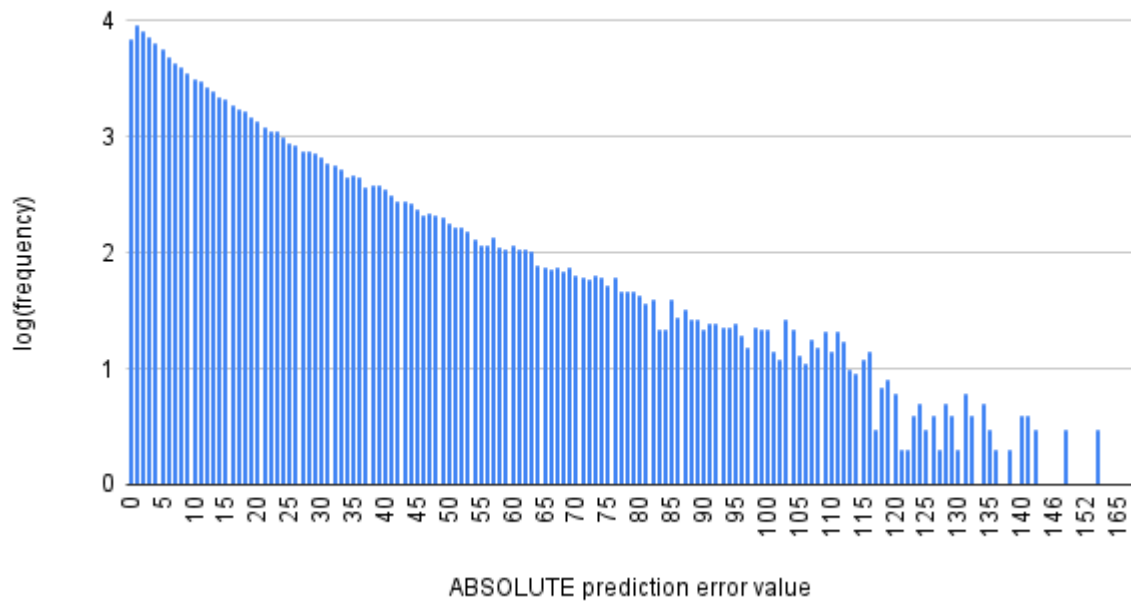
prediction_rule = 2

Average of Absolute Prediction Errors: 12.631896
Standard Deviation of Absolute Prediction Errors: 3.142701
Compression time: 0.022000 seconds
Decompression time: 0.082000 seconds

log(frequency) vs ABSOLUTE prediction error value
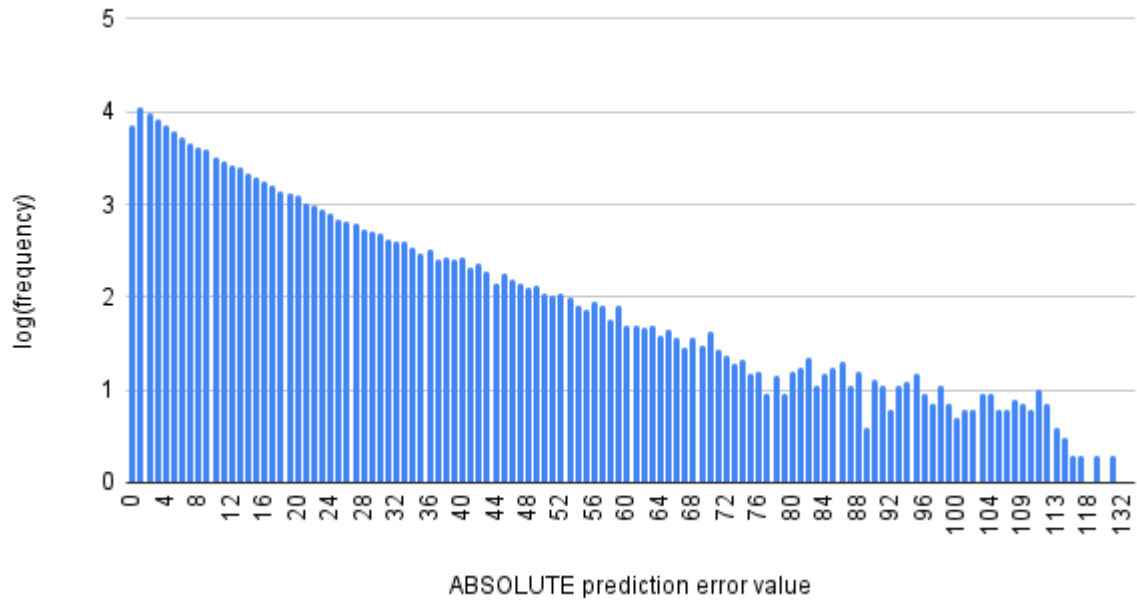
prediction_rule = 3

Average of Absolute Prediction Errors: 10.102884
Standard Deviation of Absolute Prediction Errors: 2.114658
Compression time: 0.024000 seconds
Decompression time: 0.072000 seconds

log(frequency) vs ABSOLUTE prediction error value

prediction_rule = 4

Average of Absolute Prediction Errors: 9.073259
Standard Deviation of Absolute Prediction Errors: 2.534245
Compression time: 0.053000 seconds
Decompression time: 0.136000 seconds

log(frequency) vs ABSOLUTE prediction error value