

University of Central Florida
Department of Computer Science
CDA 5106: Fall 2020
Machine Problem 2: Branch Prediction

by

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Honor Pledge: "I have neither given nor received unauthorized aid on this test or assignment."

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(sign by typing your name)

PART 1: SMITH N-BIT COUNTER PREDICTOR

The below table shows the misprediction rates for different values of b. The file used is **gcc_trace.txt**

	Misprediction B rate
1	45.24
2	43.01
3	41.57
4	41.68
5	41.33
6	41.94



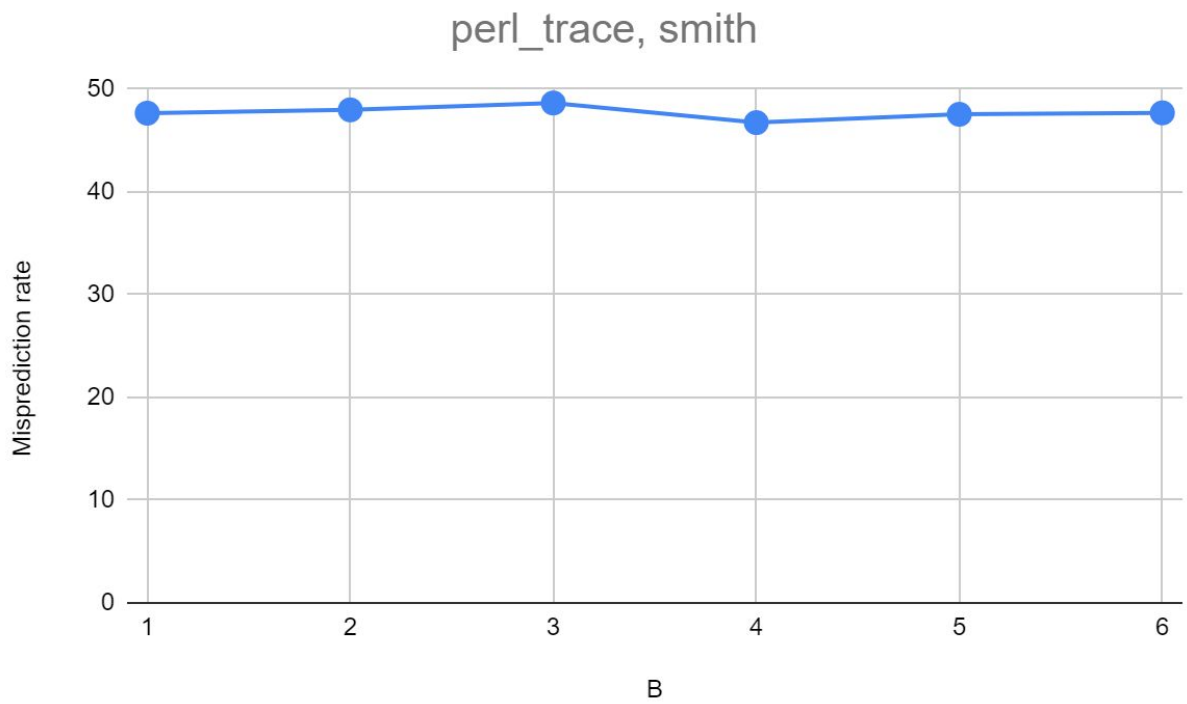
Jpeg_trace

	Misprediction B rate
1	50.02
2	30.98
3	29.12
4	28.14
5	28
6	27.94



Perl_trace, smith

B	Misprediction rate
1	47.66
2	47.98
3	48.65
4	46.74
5	47.55
6	47.69



PART 2: BIMODAL PREDICTOR

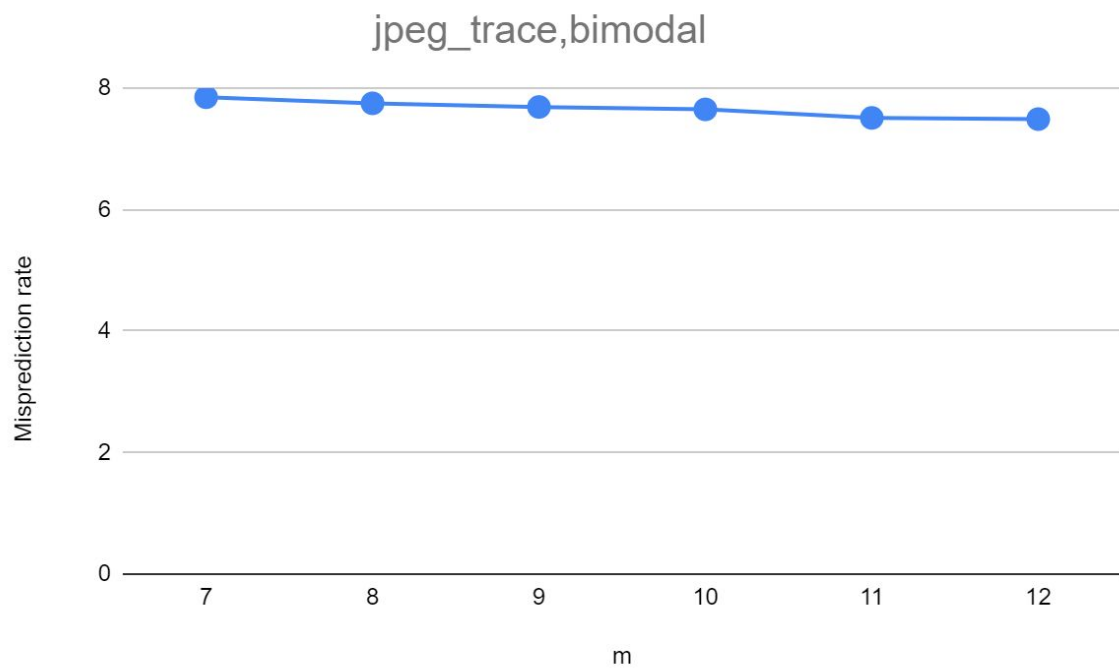
Gcc_trace

m	Misprediction rate
7	25.72
8	21.66
9	18
10	15.33
11	13.46
12	12.3



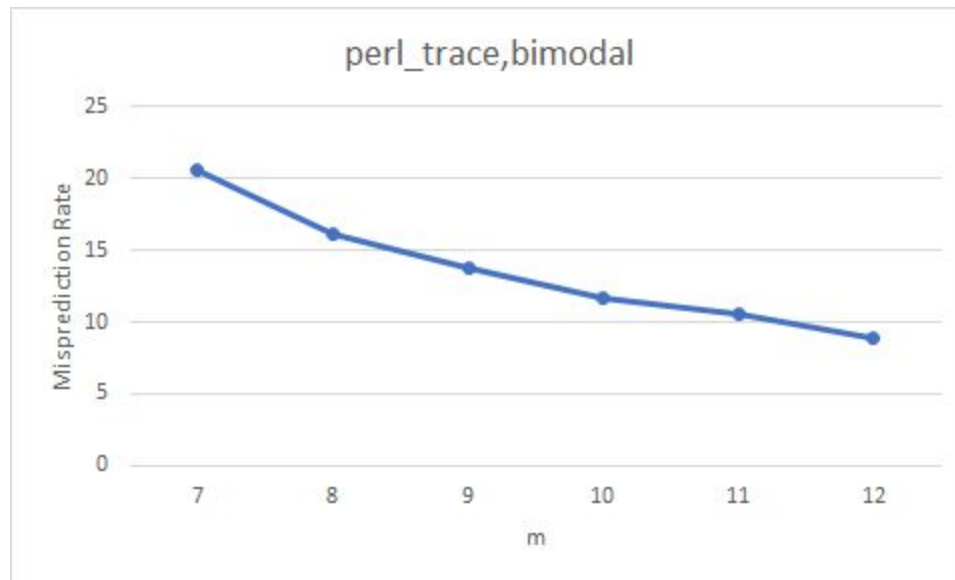
Jpeg_trace

m	Misprediction rate
7	7.85
8	7.75
9	7.69
10	7.65
11	7.51
12	7.49



Perl_trace

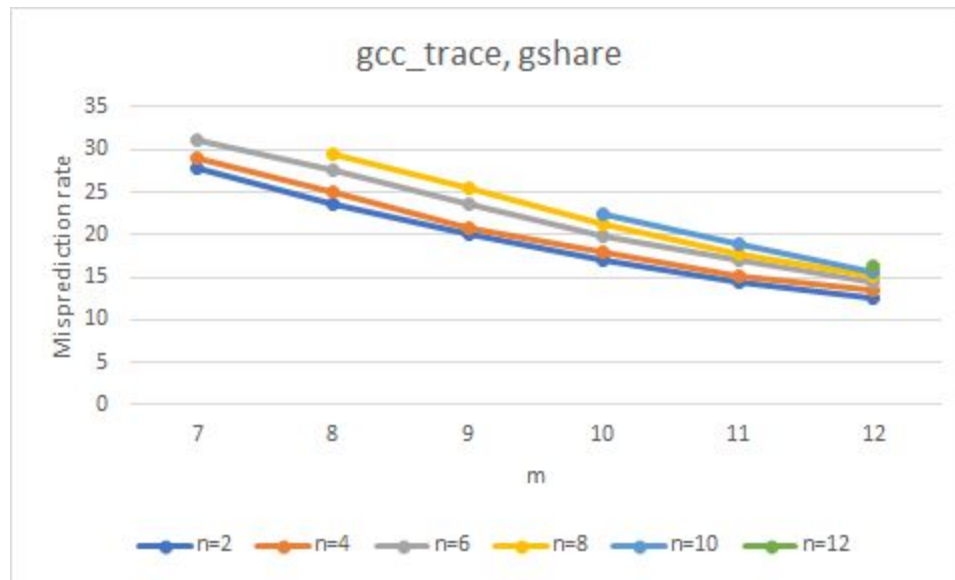
m	Misprediction rate
7	20.6
8	16.17
9	13.79
10	11.62
11	10.59
12	8.94



PART 3: GSHARE PREDICTOR

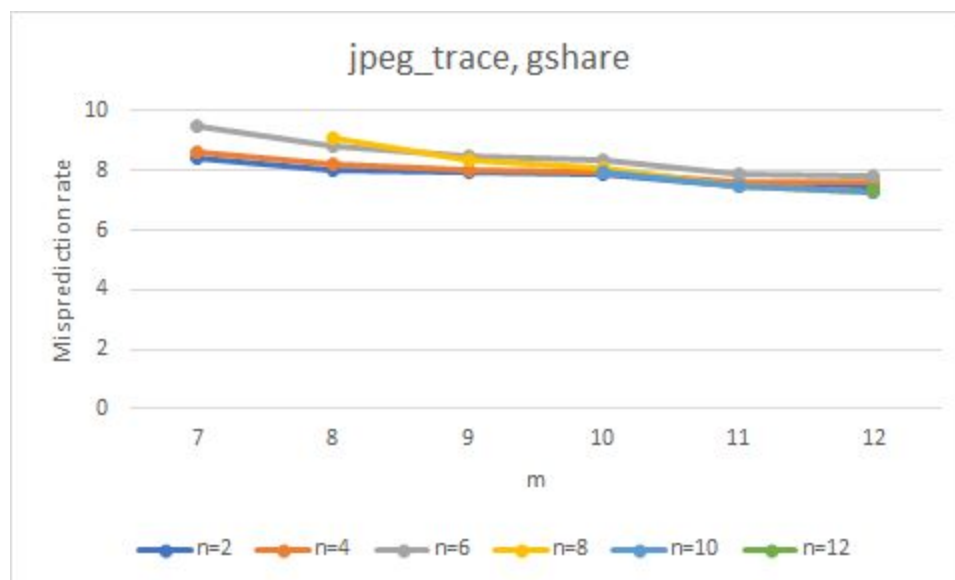
Gcc_trace

m	n=2	n=4	n=6	n=8	n=10	n=12
7	27.8 1	28.9 5	31.1			
8	23.5 6	24.9 6	27.5 3	29.5 3		
9	19.9 4	20.8 4	23.4 7	25.4 9		
10	16.9 5	18.0 0	19.8 8	21.2 2	22.5 2	
11	14.4 6	15.0 5	17.0 6	17.7 5	18.8 4	
12	12.5 3	13.4	14.4 7	15.1 6	15.6 9	16.2 8



Jpeg_trace

m	n=2	n=4	n=6	n=8	n=10	n=12
7	8.41	8.65	9.49			
8	8.04	8.2	8.82	9.07		
9	7.94	8.04	8.46	8.32		
10	7.87	7.97	8.37	8.05	7.98	
11	7.45	7.62	7.9	7.5	7.47	
12	7.43	7.6	7.84	7.28	7.3	7.35



Perl_trace

m	n=2	n=4	n=6	n=8	n=10	n=12
7	21.28	24.78	28.72			
8	17.47		22.63	23.39		
9	14.58	16.11	18.19	17.69		
10	11.52	13.19	13.78	12.64	13.66	
11	9.91	11.03	12.03	9.29	8.91	
12	8.83	9.42	10	6.97	6.42	6.88

