CS 6347 Results

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Note: 100 means no adaptive, a100 means adaptive was used

Average error:

	name	100	1000	10000	20000	a100	a1000	a10000	a20000
0	Grids_14	-0.260213	-0.256469	-0.256250	-0.256151	-0.282260	-0.279297	-0.279287	-0.279028
1	Grids_15	-0.152081	-0.152799	-0.152516	-0.152605	-0.318137	-0.317835	-0.317643	-0.317728
2	Grids_16	-0.203352	-0.201413	-0.201212	-0.201147	-0.263834	-0.264133	-0.264050	-0.264081
3	Grids_17	-0.165748	-0.165401	-0.165579	-0.165377	-0.191070	-0.188707	-0.188801	-0.188883
4	Grids_18	-0.166556	-0.165757	-0.165656	-0.165667	-0.182691	-0.180488	-0.180501	-0.180517

Standard deviation on error:

	name	100	1000	10000	20000	a100	a1000	a10000	a20000
0	Grids_14	0.004630	0.000966	0.000319	0.000315	0.004397	0.001187	0.000303	0.000395
1	Grids_15	0.002056	0.000362	0.000174	0.000232	0.000844	0.000282	0.000218	0.000222
2	Grids_16	0.002120	0.000048	0.000110	0.000173	0.004506	0.000286	0.000218	0.000153
3	Grids_17	0.002750	0.000510	0.000342	0.000183	0.000747	0.000679	0.000228	0.000101
4	Grids_18	0.001120	0.000533	0.000154	0.000127	0.001355	0.000494	0.000105	0.000137

Average time (in seconds):

	name	100	1000	10000	20000
0	Grids_14	19.907518	195.569250	3976.919811	21473.241583
1	Grids_15	266.235258	2640.266839	28743.708351	70746.161467
2	Grids_16	254.430284	2530.681101	27554.966810	65443.922687
3	Grids_17	236.854985	2396.503109	26164.519272	63901.282595
4	Grids_18	239.826573	2393.757432	26072.386227	61666.681251

Standard deviation on time (in seconds):

	name	100	1000	10000	20000
0	Grids_14	0.093758	0.236995	6.834217	94.606370
1	Grids_15	3.521363	3.892399	25.597664	323.341791
2	Grids_16	0.188323	13.485652	67.131144	238.239292
3	Grids_17	0.133810	7.495164	30.289066	75.104563
4	Grids_18	1.734855	6.038096	97.905749	278.427981

Report:
As we can see from the results, we can obtain a fairly good estimate on most of our models with low sample sizes. Around N=1000 we are obtaining our best estimate, and higher results seem to not matter as much. The adaptive proposal seemed reasonable at first but we are seeing worse results from it than just normal uniform results. However, there may have been errors with floating precision in this case, as that seemed to skew many of the true results since these numbers ended up being extremely large.
Based on these results, it is reasonable to conclude that using around N=1000 is the best method for this case because time complexity jumps by a lot for each new sample needed to be computed.

Notes:
Due to time constraints, these tables only use Grids_14 when w=1, Grids_15 when w=2 and so on. This also limited me to only 4 samples of each at the end instead of 10. Sorry for this error, but I just did not have enough time to compute this.