

```
1 2023-05-24 18:52:18.238 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
2 2023-05-24 18:52:18.410 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
3 2023-05-24 18:52:31.851 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
4 2023-05-24 18:52:33.796 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
5 2023-05-24 18:52:34.609 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
6 2023-05-24 18:52:39.216 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
7 2023-05-24 18:53:01.840 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
8 2023-05-24 18:53:01.878 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
9 2023-05-24 18:53:18.683 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
10 2023-05-24 18:53:18.725 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
11 2023-05-24 18:58:05.443 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
12 2023-05-24 18:58:05.528 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
13 2023-05-24 18:58:17.207 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
14 2023-05-24 18:58:17.320 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
15 2023-05-24 18:58:17.422 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
16 2023-05-24 18:58:17.451 Python[49014:11243719] Warning: Window move completed without
  beginning
17 2023-05-24 18:58:26.287 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
18 2023-05-24 18:58:26.329 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
19 2023-05-24 18:58:39.925 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
20 2023-05-24 18:58:39.962 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
21 2023-05-24 19:00:30.336 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
22 2023-05-24 19:00:30.390 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
23 2023-05-24 19:00:48.667 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
24 2023-05-24 19:00:48.711 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
25 2023-05-24 19:01:06.432 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
26 2023-05-24 19:01:06.472 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
27 2023-05-24 19:03:41.728 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
28 2023-05-24 19:03:41.786 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
29 2023-05-24 19:04:02.345 Python[49014:11243719] Warning: Window move completed without
  beginning
30 2023-05-24 19:04:08.076 Python[49014:11243719] +[CATransaction synchronize] called
  within transaction
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31 2023-05-24 19:04:08.127 Python[49014:11243719] +[CATransaction synchronize] called within transaction
32 2023-05-24 19:04:38.128 Python[49014:11243719] +[CATransaction synchronize] called within transaction
33 2023-05-24 19:04:38.174 Python[49014:11243719] +[CATransaction synchronize] called within transaction
34 2023-05-24 19:04:48.517 Python[49014:11243719] +[CATransaction synchronize] called within transaction
35 2023-05-24 19:04:48.629 Python[49014:11243719] +[CATransaction synchronize] called within transaction
36 2023-05-24 19:04:48.774 Python[49014:11243719] Warning: Window move completed without beginning
37 2023-05-24 19:05:31.909 Python[49014:11243719] +[CATransaction synchronize] called within transaction
38 2023-05-24 19:05:31.951 Python[49014:11243719] +[CATransaction synchronize] called within transaction
39 2023-05-24 19:07:51.201 Python[49014:11243719] +[CATransaction synchronize] called within transaction
40 2023-05-24 19:07:51.240 Python[49014:11243719] +[CATransaction synchronize] called within transaction
41 2023-05-24 19:08:08.982 Python[49014:11243719] +[CATransaction synchronize] called within transaction
42 2023-05-24 19:08:09.026 Python[49014:11243719] +[CATransaction synchronize] called within transaction
43 2023-05-24 19:08:23.009 Python[49014:11243719] +[CATransaction synchronize] called within transaction
44 2023-05-24 19:08:23.058 Python[49014:11243719] +[CATransaction synchronize] called within transaction
45 2023-05-24 19:32:13.998 Python[49014:11243719] +[CATransaction synchronize] called within transaction
46 2023-05-24 19:32:14.050 Python[49014:11243719] +[CATransaction synchronize] called within transaction
47 2023-05-24 19:32:31.337 Python[49014:11243719] +[CATransaction synchronize] called within transaction
48 2023-05-24 19:32:31.452 Python[49014:11243719] +[CATransaction synchronize] called within transaction
49 2023-05-24 19:32:31.584 Python[49014:11243719] Warning: Window move completed without beginning
50 2023-05-24 19:32:47.460 Python[49014:11243719] +[CATransaction synchronize] called within transaction
51 2023-05-24 19:32:47.529 Python[49014:11243719] +[CATransaction synchronize] called within transaction
52 2023-05-24 19:33:01.029 Python[49014:11243719] +[CATransaction synchronize] called within transaction
53 2023-05-24 19:33:01.141 Python[49014:11243719] +[CATransaction synchronize] called within transaction
54 2023-05-24 19:33:01.274 Python[49014:11243719] Warning: Window move completed without beginning
55 2023-05-24 19:33:10.193 Python[49014:11243719] +[CATransaction synchronize] called within transaction
56 2023-05-24 19:33:10.237 Python[49014:11243719] +[CATransaction synchronize] called within transaction
57 2023-05-24 19:35:31.720 Python[49014:11243719] +[CATransaction synchronize] called within transaction
58 2023-05-24 19:35:31.764 Python[49014:11243719] +[CATransaction synchronize] called within transaction
59 2023-05-24 19:35:33.209 Python[49014:11243719] +[CATransaction synchronize] called within transaction
60 2023-05-24 19:35:33.337 Python[49014:11243719] +[CATransaction synchronize] called within transaction

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61 2023-05-24 19:35:33.386 Python[49014:11243719] Warning: Window move completed
    without beginning
62 2023-05-24 19:35:52.330 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
63 2023-05-24 19:35:52.373 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
64 2023-05-24 19:35:53.687 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
65 2023-05-24 19:35:53.792 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
66 2023-05-24 19:35:53.898 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
67 2023-05-24 19:35:54.086 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
68 2023-05-24 19:35:54.204 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
69 2023-05-24 19:35:54.313 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
70 2023-05-24 19:35:54.412 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
71 2023-05-24 19:35:54.416 Python[49014:11243719] Warning: Window move completed
    without beginning
72 2023-05-24 19:36:11.684 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
73 2023-05-24 19:36:11.730 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
74 2023-05-24 19:36:23.619 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
75 2023-05-24 19:36:23.734 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
76 2023-05-24 19:36:23.850 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
77 2023-05-24 19:36:24.047 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
78 2023-05-24 19:36:24.158 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
79 2023-05-24 19:36:24.260 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
80 2023-05-24 19:36:24.366 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
81 2023-05-24 19:36:24.474 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
82 2023-05-24 19:36:24.575 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
83 2023-05-24 19:36:24.630 Python[49014:11243719] Warning: Window move completed
    without beginning
84 2023-05-24 19:38:21.873 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
85 2023-05-24 19:38:21.922 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
86 2023-05-24 19:38:33.748 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
87 2023-05-24 19:38:33.862 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
88 2023-05-24 19:38:33.969 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
89 2023-05-24 19:38:34.009 Python[49014:11243719] Warning: Window move completed
    without beginning
90 2023-05-24 19:38:41.578 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
```

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91 2023-05-24 19:38:41.624 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
92 2023-05-24 19:39:00.571 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction
93 2023-05-24 19:39:00.620 Python[49014:11243719] +[CATransaction synchronize] called
    within transaction

```

```

94 Errors Data, for Dimension 2 =>

```

	Benchmark	D	...	Best Err	Std Err
95					
96 0	high_conditioned_elliptic	2	...	4.319824e-11	11.679795
97 1	high_conditioned_elliptic	2	...	2.683488e-04	13.896196
98 6	bent_cigar	2	...	2.278384e-09	603.585022
99 7	bent_cigar	2	...	2.996257e-04	1527.073729
100 12	discus	2	...	4.510851e-10	782.609827
101 13	discus	2	...	4.082033e-02	1902.313227
102 18	rosenbrocks	2	...	1.679739e-08	1.055247
103 19	rosenbrocks	2	...	6.645016e-04	1.975984
104 24	ackleys	2	...	1.122276e-06	0.802557
105 25	ackleys	2	...	1.818310e-02	0.498040
106 30	weierstrass	2	...	-1.334185e+02	10.818568
107 31	weierstrass	2	...	-1.334494e+02	9.296379
108 36	griewanks	2	...	2.913518e-04	0.005360
109 37	griewanks	2	...	3.711303e-06	0.006041
110 42	rastrigins	2	...	8.221491e-07	1.573067
111 43	rastrigins	2	...	2.379177e-07	1.371232

```

112

```

```

113 [16 rows x 9 columns]

```

```

114

```

```

115 Errors Data, for Dimension 10 =>

```

	Benchmark	D	...	Best Err	Std Err
116					
117 2	high_conditioned_elliptic	10	...	0.814575	2.506486e+03
118 3	high_conditioned_elliptic	10	...	141.068828	1.190349e+03
119 8	bent_cigar	10	...	1475.539108	1.869757e+07
120 9	bent_cigar	10	...	774803.803421	9.432458e+06
121 14	discus	10	...	0.081825	5.814419e+02
122 15	discus	10	...	11.997278	5.179605e+02
123 20	rosenbrocks	10	...	24.694406	3.304687e+04
124 21	rosenbrocks	10	...	137.632105	2.172458e+04
125 26	ackleys	10	...	0.264701	2.872028e+00
126 27	ackleys	10	...	2.706091	1.019808e+00
127 32	weierstrass	10	...	-446.989994	2.831520e+01
128 33	weierstrass	10	...	-656.952412	8.562386e+01
129 38	griewanks	10	...	0.400054	8.388842e-02
130 39	griewanks	10	...	0.053088	1.171081e-01
131 44	rastrigins	10	...	32.328714	3.755737e+01
132 45	rastrigins	10	...	11.059183	2.527044e+01

```

133

```

```

134 [16 rows x 9 columns]

```

```

135

```

```

136 Errors Data, for Dimension 20 =>

```

	Benchmark	D	...	Best Err	Std Err
137					
138 4	high_conditioned_elliptic	20	...	1.192130e+03	9.519211e+03
139 5	high_conditioned_elliptic	20	...	1.212736e+03	3.145313e+03
140 10	bent_cigar	20	...	9.979004e+06	8.896346e+07
141 11	bent_cigar	20	...	9.053394e+06	2.826139e+07
142 16	discus	20	...	1.597015e+02	9.176716e+02
143 17	discus	20	...	5.813633e+01	4.927155e+02
144 22	rosenbrocks	20	...	1.668875e+04	3.485490e+05
145 23	rosenbrocks	20	...	7.823690e+03	9.329845e+04
146 28	ackleys	20	...	3.872445e+00	2.206018e+00
147 29	ackleys	20	...	4.274204e+00	9.121767e-01

Midterm Project

```
148 34          weierstrass 20 ... -5.852593e+02 3.242437e+01
149 35          weierstrass 20 ... -1.325759e+03 2.577582e+02
150 40          griewanks  20 ...  6.548312e-01 6.383590e-02
151 41          griewanks  20 ...  4.135634e-01 3.441948e-02
152 46          rastrigins 20 ...  1.603787e+02 1.000582e+02
153 47          rastrigins 20 ...  3.932683e+01 5.221418e+01
154
155 [16 rows x 9 columns]
156
157
158 Process finished with exit code 0
159
```