

```
1 C:\Users\mille\Anaconda2\envs\penv3\python.exe C:/Users/
  mille/source/repos/Bianchi/PEL208-Special_Learning_Topics/
  Python_Assignments/mlp/wine.py
2 [2018-12-18 23:16:25.244086] training MLP [3] witn n=0.3
3 [2018-12-18 23:16:25.244086] iteration 0
4 [2018-12-18 23:16:25.317858] iteration 1
5 [2018-12-18 23:16:25.364743] iteration 2
6 [2018-12-18 23:16:25.395979] iteration 3
7 [2018-12-18 23:16:25.442850] iteration 4
8 [2018-12-18 23:16:25.474097] training MLP [3] witn n=0.1
9 [2018-12-18 23:16:25.474097] iteration 0
10 [2018-12-18 23:16:25.520982] iteration 1
11 [2018-12-18 23:16:25.567853] iteration 2
12 [2018-12-18 23:16:25.630348] iteration 3
13 [2018-12-18 23:16:25.677209] iteration 4
14 [2018-12-18 23:16:25.739717] training MLP [3] witn n=0.03
15 [2018-12-18 23:16:25.739717] iteration 0
16 [2018-12-18 23:16:25.942826] iteration 1
17 [2018-12-18 23:16:26.161561] iteration 2
18 [2018-12-18 23:16:26.333412] iteration 3
19 [2018-12-18 23:16:26.507527] iteration 4
20 [2018-12-18 23:16:26.695026] training MLP [3] witn n=0.01
21 [2018-12-18 23:16:26.695026] iteration 0
22 [2018-12-18 23:16:27.257474] iteration 1
23 [2018-12-18 23:16:27.865443] iteration 2
24 [2018-12-18 23:16:28.366363] iteration 3
25 [2018-12-18 23:16:28.897585] iteration 4
26 [2018-12-18 23:16:29.475347] training MLP [3] witn n=0.003
27 [2018-12-18 23:16:29.475347] iteration 0
28 [2018-12-18 23:16:30.974875] iteration 1
29 [2018-12-18 23:16:32.772269] iteration 2
30 [2018-12-18 23:16:34.286507] iteration 3
31 [2018-12-18 23:16:36.022652] iteration 4
32 ##### Wine Experiment - Layers [3]
33
34 Best n:
35 0.3
36 Confusion Matrix:
37 [[12  0  0]
38  [ 0 14  0]
39  [ 0  0 10]]
40 Precision:
41 1.0
42 [2018-12-18 23:16:37.989936] training MLP [4] witn n=0.3
43 [2018-12-18 23:16:37.989936] iteration 0
```

File - wine

```
44 [2018-12-18 23:16:38.021185] iteration 1
45 [2018-12-18 23:16:38.068056] iteration 2
46 [2018-12-18 23:16:38.114930] iteration 3
47 [2018-12-18 23:16:38.161813] iteration 4
48 [2018-12-18 23:16:38.224308] training MLP [4] witn n=0.1
49 [2018-12-18 23:16:38.224308] iteration 0
50 [2018-12-18 23:16:38.286790] iteration 1
51 [2018-12-18 23:16:38.349299] iteration 2
52 [2018-12-18 23:16:38.411783] iteration 3
53 [2018-12-18 23:16:38.458655] iteration 4
54 [2018-12-18 23:16:38.536773] training MLP [4] witn n=0.03
55 [2018-12-18 23:16:38.536773] iteration 0
56 [2018-12-18 23:16:38.724260] iteration 1
57 [2018-12-18 23:16:38.896133] iteration 2
58 [2018-12-18 23:16:39.056295] iteration 3
59 [2018-12-18 23:16:39.259408] iteration 4
60 [2018-12-18 23:16:39.474805] training MLP [4] witn n=0.01
61 [2018-12-18 23:16:39.474805] iteration 0
62 [2018-12-18 23:16:40.146631] iteration 1
63 [2018-12-18 23:16:40.630626] iteration 2
64 [2018-12-18 23:16:41.114967] iteration 3
65 [2018-12-18 23:16:41.678723] iteration 4
66 [2018-12-18 23:16:42.199281] training MLP [4] witn n=0.003
67 [2018-12-18 23:16:42.199281] iteration 0
68 [2018-12-18 23:16:44.066574] iteration 1
69 [2018-12-18 23:16:45.943717] iteration 2
70 [2018-12-18 23:16:47.602037] iteration 3
71 [2018-12-18 23:16:49.380886] iteration 4
72 ##### Wine Experiment - Layers [4]
73
74 Best n:
75 0.3
76 Confusion Matrix:
77 [[12  0  0]
78  [ 0 14  0]
79  [ 0  0 10]]
80 Precision:
81 1.0
82 [2018-12-18 23:16:51.104979] training MLP [5] witn n=0.3
83 [2018-12-18 23:16:51.104979] iteration 0
84 [2018-12-18 23:16:51.163451] iteration 1
85 [2018-12-18 23:16:51.195605] iteration 2
86 [2018-12-18 23:16:51.235933] iteration 3
87 [2018-12-18 23:16:51.284331] iteration 4
88 [2018-12-18 23:16:51.318899] training MLP [5] witn n=0.1
```

```
89 [2018-12-18 23:16:51.318899] iteration 0
90 [2018-12-18 23:16:51.377356] iteration 1
91 [2018-12-18 23:16:51.458061] iteration 2
92 [2018-12-18 23:16:51.508459] iteration 3
93 [2018-12-18 23:16:51.558774] iteration 4
94 [2018-12-18 23:16:51.607175] training MLP [5] witn n=0.03
95 [2018-12-18 23:16:51.607175] iteration 0
96 [2018-12-18 23:16:51.790829] iteration 1
97 [2018-12-18 23:16:51.950046] iteration 2
98 [2018-12-18 23:16:52.103185] iteration 3
99 [2018-12-18 23:16:52.243968] iteration 4
100 [2018-12-18 23:16:52.433312] training MLP [5] witn n=0.01
101 [2018-12-18 23:16:52.433312] iteration 0
102 [2018-12-18 23:16:52.858929] iteration 1
103 [2018-12-18 23:16:53.341332] iteration 2
104 [2018-12-18 23:16:55.042840] iteration 3
105 [2018-12-18 23:16:56.206777] iteration 4
106 [2018-12-18 23:16:56.886736] training MLP [5] witn n=0.
    003
107 [2018-12-18 23:16:56.886736] iteration 0
108 [2018-12-18 23:16:59.278854] iteration 1
109 [2018-12-18 23:17:01.398170] iteration 2
110 [2018-12-18 23:17:03.570706] iteration 3
111 [2018-12-18 23:17:05.911987] iteration 4
112 ##### Wine Experiment - Layers [5]
113
114 Best n:
115 0.3
116 Confusion Matrix:
117 [[12  0  0]
118  [ 0 14  0]
119  [ 0  0 10]]
120 Precision:
121 1.0
122 [2018-12-18 23:17:08.005393] training MLP [6] witn n=0.3
123 [2018-12-18 23:17:08.005393] iteration 0
124 [2018-12-18 23:17:08.083511] iteration 1
125 [2018-12-18 23:17:08.146019] iteration 2
126 [2018-12-18 23:17:08.224126] iteration 3
127 [2018-12-18 23:17:08.270999] iteration 4
128 [2018-12-18 23:17:08.333493] training MLP [6] witn n=0.1
129 [2018-12-18 23:17:08.333493] iteration 0
130 [2018-12-18 23:17:08.395988] iteration 1
131 [2018-12-18 23:17:08.458485] iteration 2
132 [2018-12-18 23:17:08.520993] iteration 3
```

File - wine

```
133 [2018-12-18 23:17:08.614720] iteration 4
134 [2018-12-18 23:17:08.692843] training MLP [6] witn n=0.03
135 [2018-12-18 23:17:08.692843] iteration 0
136 [2018-12-18 23:17:08.895954] iteration 1
137 [2018-12-18 23:17:09.088503] iteration 2
138 [2018-12-18 23:17:09.308118] iteration 3
139 [2018-12-18 23:17:09.539014] iteration 4
140 [2018-12-18 23:17:09.742137] training MLP [6] witn n=0.01
141 [2018-12-18 23:17:09.742137] iteration 0
142 [2018-12-18 23:17:10.367855] iteration 1
143 [2018-12-18 23:17:10.977174] iteration 2
144 [2018-12-18 23:17:11.716454] iteration 3
145 [2018-12-18 23:17:12.318528] iteration 4
146 [2018-12-18 23:17:12.959111] training MLP [6] witn n=0.
003
147 [2018-12-18 23:17:12.959111] iteration 0
148 [2018-12-18 23:17:15.298932] iteration 1
149 [2018-12-18 23:17:17.538263] iteration 2
150 [2018-12-18 23:17:20.258873] iteration 3
151 [2018-12-18 23:17:22.445180] iteration 4
152 ##### Wine Experiment - Layers [6]
153
154 Best n:
155 0.3
156 Confusion Matrix:
157 [[12  0  0]
158  [ 0 14  0]
159  [ 0  0 10]]
160 Precision:
161 1.0
162 [2018-12-18 23:17:25.399455] training MLP [3, 3] witn n=0
.3
163 [2018-12-18 23:17:25.399455] iteration 0
164 [2018-12-18 23:17:26.519169] iteration 1
165 [2018-12-18 23:17:27.586211] iteration 2
166 [2018-12-18 23:17:28.309158] iteration 3
167 [2018-12-18 23:17:29.333774] iteration 4
168 [2018-12-18 23:17:30.114957] training MLP [3, 3] witn n=0
.1
169 [2018-12-18 23:17:30.114957] iteration 0
170 [2018-12-18 23:17:32.992967] iteration 1
171 [2018-12-18 23:17:35.928162] iteration 2
172 [2018-12-18 23:17:38.663085] iteration 3
173 [2018-12-18 23:17:41.415470] iteration 4
174 [2018-12-18 23:17:44.472791] training MLP [3, 3] witn n=0
```

```
174 .03
175 [2018-12-18 23:17:44.472791] iteration 0
176 [2018-12-18 23:17:47.350008] iteration 1
177 [2018-12-18 23:17:50.054798] iteration 2
178 [2018-12-18 23:17:52.928437] iteration 3
179 [2018-12-18 23:17:55.708195] iteration 4
180 [2018-12-18 23:17:58.567884] training MLP [3, 3] witn n=0
    .01
181 [2018-12-18 23:17:58.567884] iteration 0
182 [2018-12-18 23:18:01.427788] iteration 1
183 [2018-12-18 23:18:04.604399] iteration 2
184 [2018-12-18 23:18:07.554442] iteration 3
185 [2018-12-18 23:18:10.414316] iteration 4
186 [2018-12-18 23:18:13.135810] training MLP [3, 3] witn n=0
    .003
187 [2018-12-18 23:18:13.135810] iteration 0
188 [2018-12-18 23:18:15.807682] iteration 1
189 [2018-12-18 23:18:18.648429] iteration 2
190 [2018-12-18 23:18:21.427170] iteration 3
191 [2018-12-18 23:18:24.319102] iteration 4
192 ##### Wine Experiment - Layers [3, 3]
193
194 Best n:
195 0.3
196 Confusion Matrix:
197 [[12  0  0]
198 [ 1 13  0]
199 [ 1  0  9]]
200 Precision:
201 0.9444444444444444
202 [2018-12-18 23:18:27.092104] training MLP [3, 4] witn n=0
    .3
203 [2018-12-18 23:18:27.092104] iteration 0
204 [2018-12-18 23:18:29.928904] iteration 1
205 [2018-12-18 23:18:30.380724] iteration 2
206 [2018-12-18 23:18:32.053435] iteration 3
207 [2018-12-18 23:18:33.755526] iteration 4
208 [2018-12-18 23:18:34.322299] training MLP [3, 4] witn n=0
    .1
209 [2018-12-18 23:18:34.322299] iteration 0
210 [2018-12-18 23:18:36.977738] iteration 1
211 [2018-12-18 23:18:39.618336] iteration 2
212 [2018-12-18 23:18:42.476885] iteration 3
213 [2018-12-18 23:18:45.305220] iteration 4
214 [2018-12-18 23:18:48.820161] training MLP [3, 4] witn n=0
```

```
214 .03
215 [2018-12-18 23:18:48.820161] iteration 0
216 [2018-12-18 23:18:51.765169] iteration 1
217 [2018-12-18 23:18:54.528024] iteration 2
218 [2018-12-18 23:18:57.182446] iteration 3
219 [2018-12-18 23:18:59.865523] iteration 4
220 [2018-12-18 23:19:02.695532] training MLP [3, 4] witn n=0
    .01
221 [2018-12-18 23:19:02.695532] iteration 0
222 [2018-12-18 23:19:05.508694] iteration 1
223 [2018-12-18 23:19:08.318292] iteration 2
224 [2018-12-18 23:19:11.060401] iteration 3
225 [2018-12-18 23:19:13.744754] iteration 4
226 [2018-12-18 23:19:16.568624] training MLP [3, 4] witn n=0
    .003
227 [2018-12-18 23:19:16.568624] iteration 0
228 [2018-12-18 23:19:19.396997] iteration 1
229 [2018-12-18 23:19:22.382640] iteration 2
230 [2018-12-18 23:19:25.180658] iteration 3
231 [2018-12-18 23:19:27.912299] iteration 4
232 ##### Wine Experiment - Layers [3, 4]
233
234 Best n:
235 0.3
236 Confusion Matrix:
237 [[12  0  0]
238  [ 1 12  1]
239  [ 0  0 10]]
240 Precision:
241 0.9444444444444444
242 [2018-12-18 23:19:30.862703] training MLP [3, 5] witn n=0
    .3
243 [2018-12-18 23:19:30.862703] iteration 0
244 [2018-12-18 23:19:31.962326] iteration 1
245 [2018-12-18 23:19:32.397722] iteration 2
246 [2018-12-18 23:19:32.797788] iteration 3
247 [2018-12-18 23:19:33.259159] iteration 4
248 [2018-12-18 23:19:33.677896] training MLP [3, 5] witn n=0
    .1
249 [2018-12-18 23:19:33.677896] iteration 0
250 [2018-12-18 23:19:36.381807] iteration 1
251 [2018-12-18 23:19:39.128136] iteration 2
252 [2018-12-18 23:19:41.828704] iteration 3
253 [2018-12-18 23:19:44.614410] iteration 4
254 [2018-12-18 23:19:47.171078] training MLP [3, 5] witn n=0
```

```
254 .03
255 [2018-12-18 23:19:47.171078] iteration 0
256 [2018-12-18 23:19:50.113270] iteration 1
257 [2018-12-18 23:19:52.934291] iteration 2
258 [2018-12-18 23:19:55.743399] iteration 3
259 [2018-12-18 23:19:58.536658] iteration 4
260 [2018-12-18 23:20:01.334828] training MLP [3, 5] witn n=0
    .01
261 [2018-12-18 23:20:01.334828] iteration 0
262 [2018-12-18 23:20:04.122930] iteration 1
263 [2018-12-18 23:20:06.718013] iteration 2
264 [2018-12-18 23:20:09.445681] iteration 3
265 [2018-12-18 23:20:12.614576] iteration 4
266 [2018-12-18 23:20:15.380799] training MLP [3, 5] witn n=0
    .003
267 [2018-12-18 23:20:15.380799] iteration 0
268 [2018-12-18 23:20:18.137164] iteration 1
269 [2018-12-18 23:20:20.881947] iteration 2
270 [2018-12-18 23:20:23.680766] iteration 3
271 [2018-12-18 23:20:26.602772] iteration 4
272 ##### Wine Experiment - Layers [3, 5]
273
274 Best n:
275 0.3
276 Confusion Matrix:
277 [[12  0  0]
278  [ 1 13  0]
279  [ 2  0  8]]
280 Precision:
281 0.9166666666666666
282 [2018-12-18 23:20:29.524450] training MLP [3, 6] witn n=0
    .3
283 [2018-12-18 23:20:29.524450] iteration 0
284 [2018-12-18 23:20:30.149404] iteration 1
285 [2018-12-18 23:20:30.743224] iteration 2
286 [2018-12-18 23:20:31.414578] iteration 3
287 [2018-12-18 23:20:32.209429] iteration 4
288 [2018-12-18 23:20:32.836657] training MLP [3, 6] witn n=0
    .1
289 [2018-12-18 23:20:32.836657] iteration 0
290 [2018-12-18 23:20:35.696479] iteration 1
291 [2018-12-18 23:20:38.458431] iteration 2
292 [2018-12-18 23:20:41.356926] iteration 3
293 [2018-12-18 23:20:44.272612] iteration 4
294 [2018-12-18 23:20:47.190503] training MLP [3, 6] witn n=0
```

```
294 .03
295 [2018-12-18 23:20:47.190503] iteration 0
296 [2018-12-18 23:20:49.974720] iteration 1
297 [2018-12-18 23:20:52.755331] iteration 2
298 [2018-12-18 23:20:55.461968] iteration 3
299 [2018-12-18 23:20:58.117822] iteration 4
300 [2018-12-18 23:21:00.694101] training MLP [3, 6] witn n=0
    .01
301 [2018-12-18 23:21:00.694101] iteration 0
302 [2018-12-18 23:21:03.399758] iteration 1
303 [2018-12-18 23:21:06.224314] iteration 2
304 [2018-12-18 23:21:08.866752] iteration 3
305 [2018-12-18 23:21:11.615709] iteration 4
306 [2018-12-18 23:21:14.382585] training MLP [3, 6] witn n=0
    .003
307 [2018-12-18 23:21:14.382585] iteration 0
308 [2018-12-18 23:21:17.084204] iteration 1
309 [2018-12-18 23:21:19.915403] iteration 2
310 [2018-12-18 23:21:22.569103] iteration 3
311 [2018-12-18 23:21:25.211096] iteration 4
312 ##### Wine Experiment - Layers [3, 6]
313
314 Best n:
315 0.3
316 Confusion Matrix:
317 [[12  0  0]
318  [ 1 12  1]
319  [ 2  0  8]]
320 Precision:
321 0.8888888888888888
322 [2018-12-18 23:21:28.203821] training MLP [4, 3] witn n=0
    .3
323 [2018-12-18 23:21:28.203821] iteration 0
324 [2018-12-18 23:21:28.962257] iteration 1
325 [2018-12-18 23:21:29.476855] iteration 2
326 [2018-12-18 23:21:30.054926] iteration 3
327 [2018-12-18 23:21:30.690343] iteration 4
328 [2018-12-18 23:21:31.366539] training MLP [4, 3] witn n=0
    .1
329 [2018-12-18 23:21:31.366539] iteration 0
330 [2018-12-18 23:21:34.146605] iteration 1
331 [2018-12-18 23:21:37.105686] iteration 2
332 [2018-12-18 23:21:39.880356] iteration 3
333 [2018-12-18 23:21:42.509109] iteration 4
334 [2018-12-18 23:21:45.280795] training MLP [4, 3] witn n=0
```

```
334 .03
335 [2018-12-18 23:21:45.280795] iteration 0
336 [2018-12-18 23:21:47.927481] iteration 1
337 [2018-12-18 23:21:50.711795] iteration 2
338 [2018-12-18 23:21:53.522847] iteration 3
339 [2018-12-18 23:21:56.382067] iteration 4
340 [2018-12-18 23:21:59.265807] training MLP [4, 3] witn n=0
    .01
341 [2018-12-18 23:21:59.265807] iteration 0
342 [2018-12-18 23:22:02.061678] iteration 1
343 [2018-12-18 23:22:04.904230] iteration 2
344 [2018-12-18 23:22:07.708660] iteration 3
345 [2018-12-18 23:22:10.530337] iteration 4
346 [2018-12-18 23:22:13.429315] training MLP [4, 3] witn n=0
    .003
347 [2018-12-18 23:22:13.429315] iteration 0
348 [2018-12-18 23:22:16.430998] iteration 1
349 [2018-12-18 23:22:19.350462] iteration 2
350 [2018-12-18 23:22:22.253693] iteration 3
351 [2018-12-18 23:22:25.100832] iteration 4
352 ##### Wine Experiment - Layers [4, 3]
353
354 Best n:
355 0.3
356 Confusion Matrix:
357 [[12  0  0]
358  [ 1 13  0]
359  [ 1  0  9]]
360 Precision:
361 0.9444444444444444
362 [2018-12-18 23:22:28.008653] training MLP [4, 4] witn n=0
    .3
363 [2018-12-18 23:22:28.008653] iteration 0
364 [2018-12-18 23:22:28.599157] iteration 1
365 [2018-12-18 23:22:29.072974] iteration 2
366 [2018-12-18 23:22:29.660460] iteration 3
367 [2018-12-18 23:22:30.176037] iteration 4
368 [2018-12-18 23:22:30.789837] training MLP [4, 4] witn n=0
    .1
369 [2018-12-18 23:22:30.789837] iteration 0
370 [2018-12-18 23:22:33.554807] iteration 1
371 [2018-12-18 23:22:36.320455] iteration 2
372 [2018-12-18 23:22:39.057245] iteration 3
373 [2018-12-18 23:22:41.962048] iteration 4
374 [2018-12-18 23:22:44.755650] training MLP [4, 4] witn n=0
```

```
374 .03
375 [2018-12-18 23:22:44.755650] iteration 0
376 [2018-12-18 23:22:47.524367] iteration 1
377 [2018-12-18 23:22:50.320247] iteration 2
378 [2018-12-18 23:22:53.148239] iteration 3
379 [2018-12-18 23:22:55.958472] iteration 4
380 [2018-12-18 23:22:58.886097] training MLP [4, 4] witn n=0
    .01
381 [2018-12-18 23:22:58.886097] iteration 0
382 [2018-12-18 23:23:01.699248] iteration 1
383 [2018-12-18 23:23:04.585173] iteration 2
384 [2018-12-18 23:23:07.246582] iteration 3
385 [2018-12-18 23:23:10.022107] iteration 4
386 [2018-12-18 23:23:13.104929] training MLP [4, 4] witn n=0
    .003
387 [2018-12-18 23:23:13.104929] iteration 0
388 [2018-12-18 23:23:15.884228] iteration 1
389 [2018-12-18 23:23:18.615886] iteration 2
390 [2018-12-18 23:23:21.427645] iteration 3
391 [2018-12-18 23:23:24.335743] iteration 4
392 ##### Wine Experiment - Layers [4, 4]
393
394 Best n:
395 0.3
396 Confusion Matrix:
397 [[12  0  0]
398  [ 1 13  0]
399  [ 2  0  8]]
400 Precision:
401 0.9166666666666666
402 [2018-12-18 23:23:27.366215] training MLP [4, 5] witn n=0
    .3
403 [2018-12-18 23:23:27.366215] iteration 0
404 [2018-12-18 23:23:27.944296] iteration 1
405 [2018-12-18 23:23:28.320064] iteration 2
406 [2018-12-18 23:23:28.799129] iteration 3
407 [2018-12-18 23:23:29.205347] iteration 4
408 [2018-12-18 23:23:29.569026] training MLP [4, 5] witn n=0
    .1
409 [2018-12-18 23:23:29.569026] iteration 0
410 [2018-12-18 23:23:32.520890] iteration 1
411 [2018-12-18 23:23:35.309579] iteration 2
412 [2018-12-18 23:23:38.038072] iteration 3
413 [2018-12-18 23:23:40.881446] iteration 4
414 [2018-12-18 23:23:43.683099] training MLP [4, 5] witn n=0
```

```
414 .03
415 [2018-12-18 23:23:43.683099] iteration 0
416 [2018-12-18 23:23:46.618185] iteration 1
417 [2018-12-18 23:23:49.536639] iteration 2
418 [2018-12-18 23:23:52.414582] iteration 3
419 [2018-12-18 23:23:55.216053] iteration 4
420 [2018-12-18 23:23:58.008669] training MLP [4, 5] witn n=0
    .01
421 [2018-12-18 23:23:58.008669] iteration 0
422 [2018-12-18 23:24:00.851644] iteration 1
423 [2018-12-18 23:24:03.648474] iteration 2
424 [2018-12-18 23:24:06.506484] iteration 3
425 [2018-12-18 23:24:09.194626] iteration 4
426 [2018-12-18 23:24:12.045800] training MLP [4, 5] witn n=0
    .003
427 [2018-12-18 23:24:12.045800] iteration 0
428 [2018-12-18 23:24:14.918944] iteration 1
429 [2018-12-18 23:24:17.867705] iteration 2
430 [2018-12-18 23:24:20.759167] iteration 3
431 [2018-12-18 23:24:23.630492] iteration 4
432 ##### Wine Experiment - Layers [4, 5]
433
434 Best n:
435 0.3
436 Confusion Matrix:
437 [[12  0  0]
438  [ 1 13  0]
439  [ 2  0  8]]
440 Precision:
441 0.9166666666666666
442 [2018-12-18 23:24:26.443188] training MLP [4, 6] witn n=0
    .3
443 [2018-12-18 23:24:26.443188] iteration 0
444 [2018-12-18 23:24:27.017073] iteration 1
445 [2018-12-18 23:24:27.521420] iteration 2
446 [2018-12-18 23:24:28.021382] iteration 3
447 [2018-12-18 23:24:28.459610] iteration 4
448 [2018-12-18 23:24:28.959589] training MLP [4, 6] witn n=0
    .1
449 [2018-12-18 23:24:28.959589] iteration 0
450 [2018-12-18 23:24:31.877256] iteration 1
451 [2018-12-18 23:24:34.742919] iteration 2
452 [2018-12-18 23:24:37.538878] iteration 3
453 [2018-12-18 23:24:40.490885] iteration 4
454 [2018-12-18 23:24:43.273514] training MLP [4, 6] witn n=0
```

```
454 .03
455 [2018-12-18 23:24:43.273514] iteration 0
456 [2018-12-18 23:24:46.243611] iteration 1
457 [2018-12-18 23:24:49.271175] iteration 2
458 [2018-12-18 23:24:52.225810] iteration 3
459 [2018-12-18 23:24:55.209327] iteration 4
460 [2018-12-18 23:24:58.008793] training MLP [4, 6] witn n=0
    .01
461 [2018-12-18 23:24:58.008793] iteration 0
462 [2018-12-18 23:25:00.960717] iteration 1
463 [2018-12-18 23:25:03.833454] iteration 2
464 [2018-12-18 23:25:06.774217] iteration 3
465 [2018-12-18 23:25:09.676926] iteration 4
466 [2018-12-18 23:25:12.537416] training MLP [4, 6] witn n=0
    .003
467 [2018-12-18 23:25:12.537416] iteration 0
468 [2018-12-18 23:25:15.381487] iteration 1
469 [2018-12-18 23:25:18.240949] iteration 2
470 [2018-12-18 23:25:21.119837] iteration 3
471 [2018-12-18 23:25:24.058140] iteration 4
472 ##### Wine Experiment - Layers [4, 6]
473
474 Best n:
475 0.3
476 Confusion Matrix:
477 [[12  0  0]
478  [ 1 13  0]
479  [ 1  1  8]]
480 Precision:
481 0.9166666666666666
482 [2018-12-18 23:25:27.121224] training MLP [5, 3] witn n=0
    .3
483 [2018-12-18 23:25:27.121224] iteration 0
484 [2018-12-18 23:25:27.821050] iteration 1
485 [2018-12-18 23:25:28.567735] iteration 2
486 [2018-12-18 23:25:29.130194] iteration 3
487 [2018-12-18 23:25:29.802021] iteration 4
488 [2018-12-18 23:25:30.521777] training MLP [5, 3] witn n=0
    .1
489 [2018-12-18 23:25:30.521777] iteration 0
490 [2018-12-18 23:25:33.367912] iteration 1
491 [2018-12-18 23:25:36.145786] iteration 2
492 [2018-12-18 23:25:38.946607] iteration 3
493 [2018-12-18 23:25:41.711155] iteration 4
494 [2018-12-18 23:25:44.415058] training MLP [5, 3] witn n=0
```

```
494 .03
495 [2018-12-18 23:25:44.415058] iteration 0
496 [2018-12-18 23:25:47.283276] iteration 1
497 [2018-12-18 23:25:50.148441] iteration 2
498 [2018-12-18 23:25:53.101155] iteration 3
499 [2018-12-18 23:25:56.006662] iteration 4
500 [2018-12-18 23:25:58.928698] training MLP [5, 3] witn n=0
    .01
501 [2018-12-18 23:25:58.928698] iteration 0
502 [2018-12-18 23:26:01.915013] iteration 1
503 [2018-12-18 23:26:04.851145] iteration 2
504 [2018-12-18 23:26:07.615630] iteration 3
505 [2018-12-18 23:26:10.461889] iteration 4
506 [2018-12-18 23:26:13.226075] training MLP [5, 3] witn n=0
    .003
507 [2018-12-18 23:26:13.226075] iteration 0
508 [2018-12-18 23:26:16.038308] iteration 1
509 [2018-12-18 23:26:18.869613] iteration 2
510 [2018-12-18 23:26:21.665385] iteration 3
511 [2018-12-18 23:26:24.476414] iteration 4
512 ##### Wine Experiment - Layers [5, 3]
513
514 Best n:
515 0.3
516 Confusion Matrix:
517 [[12  0  0]
518  [ 1 13  0]
519  [ 1  0  9]]
520 Precision:
521 0.9444444444444444
522 [2018-12-18 23:26:27.443419] training MLP [5, 4] witn n=0
    .3
523 [2018-12-18 23:26:27.443419] iteration 0
524 [2018-12-18 23:26:27.908872] iteration 1
525 [2018-12-18 23:26:28.366331] iteration 2
526 [2018-12-18 23:26:28.725665] iteration 3
527 [2018-12-18 23:26:29.297888] iteration 4
528 [2018-12-18 23:26:29.786548] training MLP [5, 4] witn n=0
    .1
529 [2018-12-18 23:26:29.786548] iteration 0
530 [2018-12-18 23:26:32.678592] iteration 1
531 [2018-12-18 23:26:35.508946] iteration 2
532 [2018-12-18 23:26:38.434787] iteration 3
533 [2018-12-18 23:26:41.382217] iteration 4
534 [2018-12-18 23:26:44.169118] training MLP [5, 4] witn n=0
```

```

534 .03
535 [2018-12-18 23:26:44.169118] iteration 0
536 [2018-12-18 23:26:46.985421] iteration 1
537 [2018-12-18 23:26:49.788297] iteration 2
538 [2018-12-18 23:26:52.646191] iteration 3
539 [2018-12-18 23:26:55.522430] iteration 4
540 [2018-12-18 23:26:58.287765] training MLP [5, 4] witn n=0
    .01
541 [2018-12-18 23:26:58.287765] iteration 0
542 [2018-12-18 23:27:01.053925] iteration 1
543 [2018-12-18 23:27:03.915410] iteration 2
544 [2018-12-18 23:27:06.799800] iteration 3
545 [2018-12-18 23:27:09.618394] iteration 4
546 [2018-12-18 23:27:12.460636] training MLP [5, 4] witn n=0
    .003
547 [2018-12-18 23:27:12.460636] iteration 0
548 [2018-12-18 23:27:15.164284] iteration 1
549 [2018-12-18 23:27:17.898534] iteration 2
550 [2018-12-18 23:27:20.599469] iteration 3
551 [2018-12-18 23:27:23.521323] iteration 4
552 ##### Wine Experiment - Layers [5, 4]
553
554 Best n:
555 0.3
556 Confusion Matrix:
557 [[12  0  0]
558  [ 1 13  0]
559  [ 2  0  8]]
560 Precision:
561 0.9166666666666666
562 [2018-12-18 23:27:26.411722] training MLP [5, 5] witn n=0
    .3
563 [2018-12-18 23:27:26.411722] iteration 0
564 [2018-12-18 23:27:26.755450] iteration 1
565 [2018-12-18 23:27:27.088447] iteration 2
566 [2018-12-18 23:27:27.522767] iteration 3
567 [2018-12-18 23:27:28.038342] iteration 4
568 [2018-12-18 23:27:28.445347] training MLP [5, 5] witn n=0
    .1
569 [2018-12-18 23:27:28.445347] iteration 0
570 [2018-12-18 23:27:31.349285] iteration 1
571 [2018-12-18 23:27:34.199224] iteration 2
572 [2018-12-18 23:27:36.976851] iteration 3
573 [2018-12-18 23:27:39.770983] iteration 4
574 [2018-12-18 23:27:42.583315] training MLP [5, 5] witn n=0

```

```
574 .03
575 [2018-12-18 23:27:42.583315] iteration 0
576 [2018-12-18 23:27:45.443498] iteration 1
577 [2018-12-18 23:27:48.273247] iteration 2
578 [2018-12-18 23:27:50.992512] iteration 3
579 [2018-12-18 23:27:53.851854] iteration 4
580 [2018-12-18 23:27:56.696016] training MLP [5, 5] witn n=0
.01
581 [2018-12-18 23:27:56.696016] iteration 0
582 [2018-12-18 23:27:59.584733] iteration 1
583 [2018-12-18 23:28:02.618092] iteration 2
584 [2018-12-18 23:28:05.522368] iteration 3
585 [2018-12-18 23:28:08.382164] iteration 4
586 [2018-12-18 23:28:11.334896] training MLP [5, 5] witn n=0
.003
587 [2018-12-18 23:28:11.334896] iteration 0
588 [2018-12-18 23:28:13.976069] iteration 1
589 [2018-12-18 23:28:16.842664] iteration 2
590 [2018-12-18 23:28:19.661337] iteration 3
591 [2018-12-18 23:28:22.429884] iteration 4
592 ##### Wine Experiment - Layers [5, 5]
593
594 Best n:
595 0.3
596 Confusion Matrix:
597 [[12  0  0]
598 [ 0 13  1]
599 [ 1  0  9]]
600 Precision:
601 0.9444444444444444
602 [2018-12-18 23:28:25.490007] training MLP [5, 6] witn n=0
.3
603 [2018-12-18 23:28:25.490007] iteration 0
604 [2018-12-18 23:28:25.818108] iteration 1
605 [2018-12-18 23:28:26.220106] iteration 2
606 [2018-12-18 23:28:26.786917] iteration 3
607 [2018-12-18 23:28:27.265961] iteration 4
608 [2018-12-18 23:28:27.805563] training MLP [5, 6] witn n=0
.1
609 [2018-12-18 23:28:27.805563] iteration 0
610 [2018-12-18 23:28:30.677229] iteration 1
611 [2018-12-18 23:28:33.663179] iteration 2
612 [2018-12-18 23:28:36.520999] iteration 3
613 [2018-12-18 23:28:39.414944] iteration 4
614 [2018-12-18 23:28:42.268004] training MLP [5, 6] witn n=0
```

```
614 .03
615 [2018-12-18 23:28:42.268004] iteration 0
616 [2018-12-18 23:28:45.129957] iteration 1
617 [2018-12-18 23:28:48.007253] iteration 2
618 [2018-12-18 23:28:51.036920] iteration 3
619 [2018-12-18 23:28:54.053077] iteration 4
620 [2018-12-18 23:28:57.020195] training MLP [5, 6] witn n=0
  .01
621 [2018-12-18 23:28:57.020195] iteration 0
622 [2018-12-18 23:28:59.881331] iteration 1
623 [2018-12-18 23:29:02.786850] iteration 2
624 [2018-12-18 23:29:05.567734] iteration 3
625 [2018-12-18 23:29:08.316168] iteration 4
626 [2018-12-18 23:29:11.317736] training MLP [5, 6] witn n=0
  .003
627 [2018-12-18 23:29:11.317736] iteration 0
628 [2018-12-18 23:29:14.209054] iteration 1
629 [2018-12-18 23:29:17.039300] iteration 2
630 [2018-12-18 23:29:19.975371] iteration 3
631 [2018-12-18 23:29:22.859886] iteration 4
632 ##### Wine Experiment - Layers [5, 6]
633
634 Best n:
635 0.3
636 Confusion Matrix:
637 [[12  0  0]
638  [ 1 13  0]
639  [ 2  0  8]]
640 Precision:
641 0.9166666666666666
642 [2018-12-18 23:29:25.882228] training MLP [6, 3] witn n=0
  .3
643 [2018-12-18 23:29:25.882228] iteration 0
644 [2018-12-18 23:29:26.617693] iteration 1
645 [2018-12-18 23:29:27.242648] iteration 2
646 [2018-12-18 23:29:27.790246] iteration 3
647 [2018-12-18 23:29:28.396302] iteration 4
648 [2018-12-18 23:29:28.974374] training MLP [6, 3] witn n=0
  .1
649 [2018-12-18 23:29:28.974374] iteration 0
650 [2018-12-18 23:29:31.708522] iteration 1
651 [2018-12-18 23:29:34.523735] iteration 2
652 [2018-12-18 23:29:37.490881] iteration 3
653 [2018-12-18 23:29:40.317512] iteration 4
654 [2018-12-18 23:29:43.111362] training MLP [6, 3] witn n=0
```

```
654 .03
655 [2018-12-18 23:29:43.111362] iteration 0
656 [2018-12-18 23:29:46.023647] iteration 1
657 [2018-12-18 23:29:48.852430] iteration 2
658 [2018-12-18 23:29:51.508000] iteration 3
659 [2018-12-18 23:29:54.263915] iteration 4
660 [2018-12-18 23:29:57.216126] training MLP [6, 3] witn n=0
.01
661 [2018-12-18 23:29:57.216126] iteration 0
662 [2018-12-18 23:30:00.165011] iteration 1
663 [2018-12-18 23:30:03.100526] iteration 2
664 [2018-12-18 23:30:05.898162] iteration 3
665 [2018-12-18 23:30:08.820744] iteration 4
666 [2018-12-18 23:30:11.720946] training MLP [6, 3] witn n=0
.003
667 [2018-12-18 23:30:11.720946] iteration 0
668 [2018-12-18 23:30:14.476712] iteration 1
669 [2018-12-18 23:30:17.335288] iteration 2
670 [2018-12-18 23:30:20.196202] iteration 3
671 [2018-12-18 23:30:22.977237] iteration 4
672 ##### Wine Experiment - Layers [6, 3]
673
674 Best n:
675 0.3
676 Confusion Matrix:
677 [[12  0  0]
678  [ 0 14  0]
679  [ 0  1  9]]
680 Precision:
681 0.9722222222222222
682 [2018-12-18 23:30:26.038908] training MLP [6, 4] witn n=0
.3
683 [2018-12-18 23:30:26.038908] iteration 0
684 [2018-12-18 23:30:26.618023] iteration 1
685 [2018-12-18 23:30:27.020918] iteration 2
686 [2018-12-18 23:30:27.552119] iteration 3
687 [2018-12-18 23:30:28.098966] iteration 4
688 [2018-12-18 23:30:28.583294] training MLP [6, 4] witn n=0
.1
689 [2018-12-18 23:30:28.583294] iteration 0
690 [2018-12-18 23:30:31.336596] iteration 1
691 [2018-12-18 23:30:34.256886] iteration 2
692 [2018-12-18 23:30:37.274492] iteration 3
693 [2018-12-18 23:30:40.365876] iteration 4
694 [2018-12-18 23:30:43.271571] training MLP [6, 4] witn n=0
```

```
694 .03
695 [2018-12-18 23:30:43.271571] iteration 0
696 [2018-12-18 23:30:46.005717] iteration 1
697 [2018-12-18 23:30:48.975197] iteration 2
698 [2018-12-18 23:30:52.006813] iteration 3
699 [2018-12-18 23:30:54.912418] iteration 4
700 [2018-12-18 23:30:57.836890] training MLP [6, 4] witn n=0
    .01
701 [2018-12-18 23:30:57.836890] iteration 0
702 [2018-12-18 23:31:00.772082] iteration 1
703 [2018-12-18 23:31:03.567815] iteration 2
704 [2018-12-18 23:31:06.303679] iteration 3
705 [2018-12-18 23:31:09.288224] iteration 4
706 [2018-12-18 23:31:12.181553] training MLP [6, 4] witn n=0
    .003
707 [2018-12-18 23:31:12.181553] iteration 0
708 [2018-12-18 23:31:14.958851] iteration 1
709 [2018-12-18 23:31:17.819680] iteration 2
710 [2018-12-18 23:31:20.708445] iteration 3
711 [2018-12-18 23:31:23.602433] iteration 4
712 ##### Wine Experiment - Layers [6, 4]
713
714 Best n:
715 0.3
716 Confusion Matrix:
717 [[12  0  0]
718  [ 1 13  0]
719  [ 0  1  9]]
720 Precision:
721 0.9444444444444444
722 [2018-12-18 23:31:26.601612] training MLP [6, 5] witn n=0
    .3
723 [2018-12-18 23:31:26.601612] iteration 0
724 [2018-12-18 23:31:27.126554] iteration 1
725 [2018-12-18 23:31:27.552731] iteration 2
726 [2018-12-18 23:31:28.083955] iteration 3
727 [2018-12-18 23:31:28.475338] iteration 4
728 [2018-12-18 23:31:28.881544] training MLP [6, 5] witn n=0
    .1
729 [2018-12-18 23:31:28.881544] iteration 0
730 [2018-12-18 23:31:31.708072] iteration 1
731 [2018-12-18 23:31:34.586177] iteration 2
732 [2018-12-18 23:31:37.568844] iteration 3
733 [2018-12-18 23:31:40.411830] iteration 4
734 [2018-12-18 23:31:43.262293] training MLP [6, 5] witn n=0
```

```
734 .03
735 [2018-12-18 23:31:43.262293] iteration 0
736 [2018-12-18 23:31:46.202532] iteration 1
737 [2018-12-18 23:31:49.143311] iteration 2
738 [2018-12-18 23:31:51.982897] iteration 3
739 [2018-12-18 23:31:54.785162] iteration 4
740 [2018-12-18 23:31:57.569346] training MLP [6, 5] witn n=0
    .01
741 [2018-12-18 23:31:57.569346] iteration 0
742 [2018-12-18 23:32:00.538268] iteration 1
743 [2018-12-18 23:32:03.446685] iteration 2
744 [2018-12-18 23:32:06.335699] iteration 3
745 [2018-12-18 23:32:09.247048] iteration 4
746 [2018-12-18 23:32:12.190715] training MLP [6, 5] witn n=0
    .003
747 [2018-12-18 23:32:12.190715] iteration 0
748 [2018-12-18 23:32:15.068091] iteration 1
749 [2018-12-18 23:32:18.024118] iteration 2
750 [2018-12-18 23:32:20.946363] iteration 3
751 [2018-12-18 23:32:23.803828] iteration 4
752 ##### Wine Experiment - Layers [6, 5]
753
754 Best n:
755 0.3
756 Confusion Matrix:
757 [[12  0  0]
758  [ 0 13  1]
759  [ 1  1  8]]
760 Precision:
761 0.9166666666666666
762 [2018-12-18 23:32:26.804901] training MLP [6, 6] witn n=0
    .3
763 [2018-12-18 23:32:26.804901] iteration 0
764 [2018-12-18 23:32:27.272845] iteration 1
765 [2018-12-18 23:32:27.551205] iteration 2
766 [2018-12-18 23:32:28.019933] iteration 3
767 [2018-12-18 23:32:28.492961] iteration 4
768 [2018-12-18 23:32:28.961606] training MLP [6, 6] witn n=0
    .1
769 [2018-12-18 23:32:28.961606] iteration 0
770 [2018-12-18 23:32:31.804724] iteration 1
771 [2018-12-18 23:32:34.739642] iteration 2
772 [2018-12-18 23:32:37.555913] iteration 3
773 [2018-12-18 23:32:40.336331] iteration 4
774 [2018-12-18 23:32:43.334007] training MLP [6, 6] witn n=0
```

```
774 .03
775 [2018-12-18 23:32:43.334007] iteration 0
776 [2018-12-18 23:32:46.099183] iteration 1
777 [2018-12-18 23:32:48.989731] iteration 2
778 [2018-12-18 23:32:51.649212] iteration 3
779 [2018-12-18 23:32:54.383979] iteration 4
780 [2018-12-18 23:32:57.319595] training MLP [6, 6] witn n=0
    .01
781 [2018-12-18 23:32:57.319595] iteration 0
782 [2018-12-18 23:33:00.232328] iteration 1
783 [2018-12-18 23:33:03.226674] iteration 2
784 [2018-12-18 23:33:06.036570] iteration 3
785 [2018-12-18 23:33:09.032146] iteration 4
786 [2018-12-18 23:33:11.950052] training MLP [6, 6] witn n=0
    .003
787 [2018-12-18 23:33:11.950052] iteration 0
788 [2018-12-18 23:33:14.786288] iteration 1
789 [2018-12-18 23:33:17.662564] iteration 2
790 [2018-12-18 23:33:20.446615] iteration 3
791 [2018-12-18 23:33:23.320671] iteration 4
792 ##### Wine Experiment - Layers [6, 6]
793
794 Best n:
795 0.3
796 Confusion Matrix:
797 [[12  0  0]
798  [ 1 12  1]
799  [ 2  0  8]]
800 Precision:
801 0.8888888888888888
802 [2018-12-18 23:33:26.399184] training MLP [3, 3, 3] witn
    n=0.3
803 [2018-12-18 23:33:26.399184] iteration 0
804 [2018-12-18 23:33:29.632388] iteration 1
805 [2018-12-18 23:33:32.743093] iteration 2
806 [2018-12-18 23:33:35.927852] iteration 3
807 [2018-12-18 23:33:39.123457] iteration 4
808 [2018-12-18 23:33:42.251689] training MLP [3, 3, 3] witn
    n=0.1
809 [2018-12-18 23:33:42.251689] iteration 0
810 [2018-12-18 23:33:45.476072] iteration 1
811 [2018-12-18 23:33:48.679542] iteration 2
812 [2018-12-18 23:33:51.787697] iteration 3
813 [2018-12-18 23:33:54.992373] iteration 4
814 [2018-12-18 23:33:58.117833] training MLP [3, 3, 3] witn
```

```
814 n=0.03
815 [2018-12-18 23:33:58.117833] iteration 0
816 [2018-12-18 23:34:01.272811] iteration 1
817 [2018-12-18 23:34:04.302287] iteration 2
818 [2018-12-18 23:34:07.459012] iteration 3
819 [2018-12-18 23:34:10.568957] iteration 4
820 [2018-12-18 23:34:13.805835] training MLP [3, 3, 3] with
    n=0.01
821 [2018-12-18 23:34:13.805835] iteration 0
822 [2018-12-18 23:34:16.787401] iteration 1
823 [2018-12-18 23:34:20.038628] iteration 2
824 [2018-12-18 23:34:23.077235] iteration 3
825 [2018-12-18 23:34:26.130327] iteration 4
826 [2018-12-18 23:34:29.258066] training MLP [3, 3, 3] with
    n=0.003
827 [2018-12-18 23:34:29.258066] iteration 0
828 [2018-12-18 23:34:32.569720] iteration 1
829 [2018-12-18 23:34:35.725752] iteration 2
830 [2018-12-18 23:34:38.789751] iteration 3
831 [2018-12-18 23:34:41.961277] iteration 4
832 ##### Wine Experiment - Layers [3, 3, 3]
833
834 Best n:
835 0.3
836 Confusion Matrix:
837 [[12  0  0]
838 [ 8  6  0]
839 [ 6  4  0]]
840 Precision:
841 0.5
842 [2018-12-18 23:34:45.279244] training MLP [3, 3, 4] with
    n=0.3
843 [2018-12-18 23:34:45.279244] iteration 0
844 [2018-12-18 23:34:48.569425] iteration 1
845 [2018-12-18 23:34:51.648520] iteration 2
846 [2018-12-18 23:34:54.820390] iteration 3
847 [2018-12-18 23:34:58.120890] iteration 4
848 [2018-12-18 23:35:01.337125] training MLP [3, 3, 4] with
    n=0.1
849 [2018-12-18 23:35:01.337125] iteration 0
850 [2018-12-18 23:35:04.508949] iteration 1
851 [2018-12-18 23:35:07.554497] iteration 2
852 [2018-12-18 23:35:10.770791] iteration 3
853 [2018-12-18 23:35:13.977390] iteration 4
854 [2018-12-18 23:35:16.959933] training MLP [3, 3, 4] with
```

```
854 n=0.03
855 [2018-12-18 23:35:16.959933] iteration 0
856 [2018-12-18 23:35:20.065983] iteration 1
857 [2018-12-18 23:35:23.069275] iteration 2
858 [2018-12-18 23:35:26.178365] iteration 3
859 [2018-12-18 23:35:29.292712] iteration 4
860 [2018-12-18 23:35:32.505702] training MLP [3, 3, 4] withn
    n=0.01
861 [2018-12-18 23:35:32.505702] iteration 0
862 [2018-12-18 23:35:35.602864] iteration 1
863 [2018-12-18 23:35:38.867371] iteration 2
864 [2018-12-18 23:35:41.929912] iteration 3
865 [2018-12-18 23:35:45.120507] iteration 4
866 [2018-12-18 23:35:48.407060] training MLP [3, 3, 4] withn
    n=0.003
867 [2018-12-18 23:35:48.407060] iteration 0
868 [2018-12-18 23:35:51.498915] iteration 1
869 [2018-12-18 23:35:54.642579] iteration 2
870 [2018-12-18 23:35:57.757630] iteration 3
871 [2018-12-18 23:36:00.946502] iteration 4
872 ##### Wine Experiment - Layers [3, 3, 4]
873
874 Best n:
875 0.3
876 Confusion Matrix:
877 [[12  0  0]
878  [ 8  6  0]
879  [ 6  4  0]]
880 Precision:
881 0.5
882 [2018-12-18 23:36:04.204102] training MLP [3, 3, 5] withn
    n=0.3
883 [2018-12-18 23:36:04.204102] iteration 0
884 [2018-12-18 23:36:07.144708] iteration 1
885 [2018-12-18 23:36:10.319697] iteration 2
886 [2018-12-18 23:36:13.474980] iteration 3
887 [2018-12-18 23:36:16.584549] iteration 4
888 [2018-12-18 23:36:19.795276] training MLP [3, 3, 5] withn
    n=0.1
889 [2018-12-18 23:36:19.795276] iteration 0
890 [2018-12-18 23:36:23.001018] iteration 1
891 [2018-12-18 23:36:25.942700] iteration 2
892 [2018-12-18 23:36:29.164341] iteration 3
893 [2018-12-18 23:36:32.368018] iteration 4
894 [2018-12-18 23:36:35.539242] training MLP [3, 3, 5] withn
```

```
894 n=0.03
895 [2018-12-18 23:36:35.539242] iteration 0
896 [2018-12-18 23:36:38.875147] iteration 1
897 [2018-12-18 23:36:42.145437] iteration 2
898 [2018-12-18 23:36:45.696625] iteration 3
899 [2018-12-18 23:36:49.267127] iteration 4
900 [2018-12-18 23:36:52.381587] training MLP [3, 3, 5] with
    n=0.01
901 [2018-12-18 23:36:52.381587] iteration 0
902 [2018-12-18 23:36:55.443302] iteration 1
903 [2018-12-18 23:36:58.740837] iteration 2
904 [2018-12-18 23:37:02.054553] iteration 3
905 [2018-12-18 23:37:05.179189] iteration 4
906 [2018-12-18 23:37:08.430049] training MLP [3, 3, 5] with
    n=0.003
907 [2018-12-18 23:37:08.430049] iteration 0
908 [2018-12-18 23:37:11.477328] iteration 1
909 [2018-12-18 23:37:14.677080] iteration 2
910 [2018-12-18 23:37:17.975916] iteration 3
911 [2018-12-18 23:37:21.103253] iteration 4
912 ##### Wine Experiment - Layers [3, 3, 5]
913
914 Best n:
915 0.3
916 Confusion Matrix:
917 [[ 0 12  0]
918 [ 0 14  0]
919 [ 0 10  0]]
920 Precision:
921 0.3888888888888889
922 [2018-12-18 23:37:24.319202] training MLP [3, 3, 6] with
    n=0.3
923 [2018-12-18 23:37:24.319202] iteration 0
924 [2018-12-18 23:37:27.476249] iteration 1
925 [2018-12-18 23:37:30.677648] iteration 2
926 [2018-12-18 23:37:34.124692] iteration 3
927 [2018-12-18 23:37:37.522029] iteration 4
928 [2018-12-18 23:37:40.772190] training MLP [3, 3, 6] with
    n=0.1
929 [2018-12-18 23:37:40.772190] iteration 0
930 [2018-12-18 23:37:43.903884] iteration 1
931 [2018-12-18 23:37:46.943013] iteration 2
932 [2018-12-18 23:37:50.395832] iteration 3
933 [2018-12-18 23:37:53.615289] iteration 4
934 [2018-12-18 23:37:56.750691] training MLP [3, 3, 6] with
```

```
934 n=0.03
935 [2018-12-18 23:37:56.750691] iteration 0
936 [2018-12-18 23:37:59.913155] iteration 1
937 [2018-12-18 23:38:02.989279] iteration 2
938 [2018-12-18 23:38:06.218438] iteration 3
939 [2018-12-18 23:38:09.477867] iteration 4
940 [2018-12-18 23:38:12.663592] training MLP [3, 3, 6] with
    n=0.01
941 [2018-12-18 23:38:12.663592] iteration 0
942 [2018-12-18 23:38:15.818866] iteration 1
943 [2018-12-18 23:38:19.054767] iteration 2
944 [2018-12-18 23:38:22.083412] iteration 3
945 [2018-12-18 23:38:25.241059] iteration 4
946 [2018-12-18 23:38:28.287477] training MLP [3, 3, 6] with
    n=0.003
947 [2018-12-18 23:38:28.287477] iteration 0
948 [2018-12-18 23:38:31.290051] iteration 1
949 [2018-12-18 23:38:34.352001] iteration 2
950 [2018-12-18 23:38:37.523481] iteration 3
951 [2018-12-18 23:38:40.615500] iteration 4
952 ##### Wine Experiment - Layers [3, 3, 6]
953
954 Best n:
955 0.3
956 Confusion Matrix:
957 [[ 0 12  0]
958 [ 0 14  0]
959 [ 0 10  0]]
960 Precision:
961 0.3888888888888889
962 [2018-12-18 23:38:43.911763] training MLP [3, 4, 3] with
    n=0.3
963 [2018-12-18 23:38:43.911763] iteration 0
964 [2018-12-18 23:38:47.076256] iteration 1
965 [2018-12-18 23:38:50.266521] iteration 2
966 [2018-12-18 23:38:53.367216] iteration 3
967 [2018-12-18 23:38:56.505166] iteration 4
968 [2018-12-18 23:38:59.679231] training MLP [3, 4, 3] with
    n=0.1
969 [2018-12-18 23:38:59.679231] iteration 0
970 [2018-12-18 23:39:02.727821] iteration 1
971 [2018-12-18 23:39:06.024676] iteration 2
972 [2018-12-18 23:39:09.179234] iteration 3
973 [2018-12-18 23:39:12.443045] iteration 4
974 [2018-12-18 23:39:15.569587] training MLP [3, 4, 3] with
```

```
974 n=0.03
975 [2018-12-18 23:39:15.569587] iteration 0
976 [2018-12-18 23:39:18.663150] iteration 1
977 [2018-12-18 23:39:21.599048] iteration 2
978 [2018-12-18 23:39:24.677464] iteration 3
979 [2018-12-18 23:39:27.913000] iteration 4
980 [2018-12-18 23:39:30.993328] training MLP [3, 4, 3] withn
    n=0.01
981 [2018-12-18 23:39:30.993328] iteration 0
982 [2018-12-18 23:39:34.133860] iteration 1
983 [2018-12-18 23:39:37.222982] iteration 2
984 [2018-12-18 23:39:40.413733] iteration 3
985 [2018-12-18 23:39:43.553611] iteration 4
986 [2018-12-18 23:39:46.614972] training MLP [3, 4, 3] withn
    n=0.003
987 [2018-12-18 23:39:46.614972] iteration 0
988 [2018-12-18 23:39:49.818844] iteration 1
989 [2018-12-18 23:39:53.008729] iteration 2
990 [2018-12-18 23:39:56.122891] iteration 3
991 [2018-12-18 23:39:59.318017] iteration 4
992 ##### Wine Experiment - Layers [3, 4, 3]
993
994 Best n:
995 0.3
996 Confusion Matrix:
997 [[ 0 12  0]
998 [ 0 14  0]
999 [ 0 10  0]]
1000 Precision:
1001 0.3888888888888889
1002 [2018-12-18 23:40:02.537435] training MLP [3, 4, 4] withn
    n=0.3
1003 [2018-12-18 23:40:02.537435] iteration 0
1004 [2018-12-18 23:40:05.695979] iteration 1
1005 [2018-12-18 23:40:08.820334] iteration 2
1006 [2018-12-18 23:40:11.898784] iteration 3
1007 [2018-12-18 23:40:15.018390] iteration 4
1008 [2018-12-18 23:40:18.208342] training MLP [3, 4, 4] withn
    n=0.1
1009 [2018-12-18 23:40:18.208342] iteration 0
1010 [2018-12-18 23:40:21.249409] iteration 1
1011 [2018-12-18 23:40:24.460694] iteration 2
1012 [2018-12-18 23:40:27.538229] iteration 3
1013 [2018-12-18 23:40:30.787154] iteration 4
1014 [2018-12-18 23:40:33.961590] training MLP [3, 4, 4] withn
```

```

1014 n=0.03
1015 [2018-12-18 23:40:33.961590] iteration 0
1016 [2018-12-18 23:40:37.084152] iteration 1
1017 [2018-12-18 23:40:40.104514] iteration 2
1018 [2018-12-18 23:40:43.321256] iteration 3
1019 [2018-12-18 23:40:46.568726] iteration 4
1020 [2018-12-18 23:40:49.770945] training MLP [3, 4, 4] withn
    n=0.01
1021 [2018-12-18 23:40:49.770945] iteration 0
1022 [2018-12-18 23:40:52.774446] iteration 1
1023 [2018-12-18 23:40:56.024293] iteration 2
1024 [2018-12-18 23:40:59.094067] iteration 3
1025 [2018-12-18 23:41:02.396958] iteration 4
1026 [2018-12-18 23:41:05.460625] training MLP [3, 4, 4] withn
    n=0.003
1027 [2018-12-18 23:41:05.460625] iteration 0
1028 [2018-12-18 23:41:08.672336] iteration 1
1029 [2018-12-18 23:41:11.930458] iteration 2
1030 [2018-12-18 23:41:15.155955] iteration 3
1031 [2018-12-18 23:41:18.609490] iteration 4
1032 ##### Wine Experiment - Layers [3, 4, 4]
1033
1034 Best n:
1035 0.3
1036 Confusion Matrix:
1037 [[10  2  0]
1038 [ 1 13  0]
1039 [ 0 10  0]]
1040 Precision:
1041 0.6388888888888888
1042 [2018-12-18 23:41:21.949881] training MLP [3, 4, 5] withn
    n=0.3
1043 [2018-12-18 23:41:21.949881] iteration 0
1044 [2018-12-18 23:41:25.170873] iteration 1
1045 [2018-12-18 23:41:28.461847] iteration 2
1046 [2018-12-18 23:41:31.537198] iteration 3
1047 [2018-12-18 23:41:34.552245] iteration 4
1048 [2018-12-18 23:41:37.912657] training MLP [3, 4, 5] withn
    n=0.1
1049 [2018-12-18 23:41:37.912657] iteration 0
1050 [2018-12-18 23:41:40.911373] iteration 1
1051 [2018-12-18 23:41:44.156161] iteration 2
1052 [2018-12-18 23:41:47.397185] iteration 3
1053 [2018-12-18 23:41:50.569811] iteration 4
1054 [2018-12-18 23:41:53.678091] training MLP [3, 4, 5] withn

```

```
1054 n=0.03
1055 [2018-12-18 23:41:53.678091] iteration 0
1056 [2018-12-18 23:41:56.896976] iteration 1
1057 [2018-12-18 23:42:00.413129] iteration 2
1058 [2018-12-18 23:42:03.568370] iteration 3
1059 [2018-12-18 23:42:06.693901] iteration 4
1060 [2018-12-18 23:42:09.866201] training MLP [3, 4, 5] withn
    n=0.01
1061 [2018-12-18 23:42:09.866201] iteration 0
1062 [2018-12-18 23:42:13.108283] iteration 1
1063 [2018-12-18 23:42:16.383472] iteration 2
1064 [2018-12-18 23:42:19.663192] iteration 3
1065 [2018-12-18 23:42:22.722294] iteration 4
1066 [2018-12-18 23:42:25.899722] training MLP [3, 4, 5] withn
    n=0.003
1067 [2018-12-18 23:42:25.899722] iteration 0
1068 [2018-12-18 23:42:28.957880] iteration 1
1069 [2018-12-18 23:42:32.163479] iteration 2
1070 [2018-12-18 23:42:35.334765] iteration 3
1071 [2018-12-18 23:42:38.521526] iteration 4
1072 ##### Wine Experiment - Layers [3, 4, 5]
1073
1074 Best n:
1075 0.3
1076 Confusion Matrix:
1077 [[ 9  3  0]
1078 [ 1 13  0]
1079 [ 0 10  0]]
1080 Precision:
1081 0.6111111111111112
1082 [2018-12-18 23:42:41.852942] training MLP [3, 4, 6] withn
    n=0.3
1083 [2018-12-18 23:42:41.852942] iteration 0
1084 [2018-12-18 23:42:44.882020] iteration 1
1085 [2018-12-18 23:42:48.038097] iteration 2
1086 [2018-12-18 23:42:51.286490] iteration 3
1087 [2018-12-18 23:42:54.521159] iteration 4
1088 [2018-12-18 23:42:57.679739] training MLP [3, 4, 6] withn
    n=0.1
1089 [2018-12-18 23:42:57.679739] iteration 0
1090 [2018-12-18 23:43:00.899752] iteration 1
1091 [2018-12-18 23:43:04.115285] iteration 2
1092 [2018-12-18 23:43:07.278045] iteration 3
1093 [2018-12-18 23:43:10.680343] iteration 4
1094 [2018-12-18 23:43:13.866595] training MLP [3, 4, 6] withn
```

```
1094 n=0.03
1095 [2018-12-18 23:43:13.866595] iteration 0
1096 [2018-12-18 23:43:16.896154] iteration 1
1097 [2018-12-18 23:43:19.958754] iteration 2
1098 [2018-12-18 23:43:22.945160] iteration 3
1099 [2018-12-18 23:43:26.239518] iteration 4
1100 [2018-12-18 23:43:29.553370] training MLP [3, 4, 6] withn
    n=0.01
1101 [2018-12-18 23:43:29.553370] iteration 0
1102 [2018-12-18 23:43:32.833559] iteration 1
1103 [2018-12-18 23:43:36.007838] iteration 2
1104 [2018-12-18 23:43:39.071277] iteration 3
1105 [2018-12-18 23:43:42.250260] iteration 4
1106 [2018-12-18 23:43:45.413956] training MLP [3, 4, 6] withn
    n=0.003
1107 [2018-12-18 23:43:45.413956] iteration 0
1108 [2018-12-18 23:43:48.571574] iteration 1
1109 [2018-12-18 23:43:51.788324] iteration 2
1110 [2018-12-18 23:43:54.992522] iteration 3
1111 [2018-12-18 23:43:58.087130] iteration 4
1112 ##### Wine Experiment - Layers [3, 4, 6]
1113
1114 Best n:
1115 0.3
1116 Confusion Matrix:
1117 [[ 3   9   0]
1118 [ 0  14   0]
1119 [ 0  10   0]]
1120 Precision:
1121 0.4722222222222222
1122 [2018-12-18 23:44:01.507468] training MLP [3, 5, 3] withn
    n=0.3
1123 [2018-12-18 23:44:01.507468] iteration 0
1124 [2018-12-18 23:44:04.927722] iteration 1
1125 [2018-12-18 23:44:08.071036] iteration 2
1126 [2018-12-18 23:44:11.461301] iteration 3
1127 [2018-12-18 23:44:14.709518] iteration 4
1128 [2018-12-18 23:44:17.864647] training MLP [3, 5, 3] withn
    n=0.1
1129 [2018-12-18 23:44:17.864647] iteration 0
1130 [2018-12-18 23:44:21.117626] iteration 1
1131 [2018-12-18 23:44:24.272423] iteration 2
1132 [2018-12-18 23:44:27.442750] iteration 3
1133 [2018-12-18 23:44:30.555746] iteration 4
1134 [2018-12-18 23:44:33.741745] training MLP [3, 5, 3] withn
```

```
1134 n=0.03
1135 [2018-12-18 23:44:33.741745] iteration 0
1136 [2018-12-18 23:44:36.803278] iteration 1
1137 [2018-12-18 23:44:39.899592] iteration 2
1138 [2018-12-18 23:44:43.008428] iteration 3
1139 [2018-12-18 23:44:46.068519] iteration 4
1140 [2018-12-18 23:44:49.274160] training MLP [3, 5, 3] withn
    n=0.01
1141 [2018-12-18 23:44:49.274160] iteration 0
1142 [2018-12-18 23:44:52.315630] iteration 1
1143 [2018-12-18 23:44:55.521110] iteration 2
1144 [2018-12-18 23:44:58.555312] iteration 3
1145 [2018-12-18 23:45:01.677342] iteration 4
1146 [2018-12-18 23:45:04.787593] training MLP [3, 5, 3] withn
    n=0.003
1147 [2018-12-18 23:45:04.787593] iteration 0
1148 [2018-12-18 23:45:07.999859] iteration 1
1149 [2018-12-18 23:45:11.095870] iteration 2
1150 [2018-12-18 23:45:14.307917] iteration 3
1151 [2018-12-18 23:45:17.427494] iteration 4
1152 ##### Wine Experiment - Layers [3, 5, 3]
1153
1154 Best n:
1155 0.3
1156 Confusion Matrix:
1157 [[12  0  0]
1158 [ 1 13  0]
1159 [ 5  5  0]]
1160 Precision:
1161 0.6944444444444444
1162 [2018-12-18 23:45:20.493346] training MLP [3, 5, 4] withn
    n=0.3
1163 [2018-12-18 23:45:20.493346] iteration 0
1164 [2018-12-18 23:45:23.570684] iteration 1
1165 [2018-12-18 23:45:26.679767] iteration 2
1166 [2018-12-18 23:45:29.807462] iteration 3
1167 [2018-12-18 23:45:32.927147] iteration 4
1168 [2018-12-18 23:45:36.056867] training MLP [3, 5, 4] withn
    n=0.1
1169 [2018-12-18 23:45:36.056867] iteration 0
1170 [2018-12-18 23:45:39.185635] iteration 1
1171 [2018-12-18 23:45:42.334102] iteration 2
1172 [2018-12-18 23:45:45.522959] iteration 3
1173 [2018-12-18 23:45:48.725528] iteration 4
1174 [2018-12-18 23:45:51.880137] training MLP [3, 5, 4] withn
```

```
1174 n=0.03
1175 [2018-12-18 23:45:51.880137] iteration 0
1176 [2018-12-18 23:45:55.256846] iteration 1
1177 [2018-12-18 23:45:58.413235] iteration 2
1178 [2018-12-18 23:46:01.633256] iteration 3
1179 [2018-12-18 23:46:04.883637] iteration 4
1180 [2018-12-18 23:46:08.102121] training MLP [3, 5, 4] withn
    n=0.01
1181 [2018-12-18 23:46:08.102121] iteration 0
1182 [2018-12-18 23:46:11.131765] iteration 1
1183 [2018-12-18 23:46:14.320016] iteration 2
1184 [2018-12-18 23:46:17.603396] iteration 3
1185 [2018-12-18 23:46:20.883783] iteration 4
1186 [2018-12-18 23:46:24.090907] training MLP [3, 5, 4] withn
    n=0.003
1187 [2018-12-18 23:46:24.090907] iteration 0
1188 [2018-12-18 23:46:27.247590] iteration 1
1189 [2018-12-18 23:46:30.429210] iteration 2
1190 [2018-12-18 23:46:33.614891] iteration 3
1191 [2018-12-18 23:46:36.726740] iteration 4
1192 ##### Wine Experiment - Layers [3, 5, 4]
1193
1194 Best n:
1195 0.3
1196 Confusion Matrix:
1197 [[ 0 12  0]
1198 [ 0 14  0]
1199 [ 0 10  0]]
1200 Precision:
1201 0.3888888888888889
1202 [2018-12-18 23:46:39.960257] training MLP [3, 5, 5] withn
    n=0.3
1203 [2018-12-18 23:46:39.960257] iteration 0
1204 [2018-12-18 23:46:43.248195] iteration 1
1205 [2018-12-18 23:46:46.633142] iteration 2
1206 [2018-12-18 23:46:49.771147] iteration 3
1207 [2018-12-18 23:46:52.874927] iteration 4
1208 [2018-12-18 23:46:55.973864] training MLP [3, 5, 5] withn
    n=0.1
1209 [2018-12-18 23:46:55.973864] iteration 0
1210 [2018-12-18 23:46:59.149686] iteration 1
1211 [2018-12-18 23:47:02.192690] iteration 2
1212 [2018-12-18 23:47:05.217548] iteration 3
1213 [2018-12-18 23:47:08.235699] iteration 4
1214 [2018-12-18 23:47:11.333912] training MLP [3, 5, 5] withn
```

```
1214 n=0.03
1215 [2018-12-18 23:47:11.333912] iteration 0
1216 [2018-12-18 23:47:14.554013] iteration 1
1217 [2018-12-18 23:47:17.690289] iteration 2
1218 [2018-12-18 23:47:20.789789] iteration 3
1219 [2018-12-18 23:47:23.977668] iteration 4
1220 [2018-12-18 23:47:27.270246] training MLP [3, 5, 5] withn
    n=0.01
1221 [2018-12-18 23:47:27.270246] iteration 0
1222 [2018-12-18 23:47:30.428478] iteration 1
1223 [2018-12-18 23:47:33.634155] iteration 2
1224 [2018-12-18 23:47:36.695411] iteration 3
1225 [2018-12-18 23:47:39.850813] iteration 4
1226 [2018-12-18 23:47:43.025222] training MLP [3, 5, 5] withn
    n=0.003
1227 [2018-12-18 23:47:43.025222] iteration 0
1228 [2018-12-18 23:47:46.180350] iteration 1
1229 [2018-12-18 23:47:49.263296] iteration 2
1230 [2018-12-18 23:47:52.372559] iteration 3
1231 [2018-12-18 23:47:55.570155] iteration 4
1232 ##### Wine Experiment - Layers [3, 5, 5]
1233
1234 Best n:
1235 0.3
1236 Confusion Matrix:
1237 [[ 6  6  0]
1238 [ 1 13  0]
1239 [ 0 10  0]]
1240 Precision:
1241 0.5277777777777778
1242 [2018-12-18 23:47:58.835887] training MLP [3, 5, 6] withn
    n=0.3
1243 [2018-12-18 23:47:58.835887] iteration 0
1244 [2018-12-18 23:48:02.067922] iteration 1
1245 [2018-12-18 23:48:05.367306] iteration 2
1246 [2018-12-18 23:48:08.632253] iteration 3
1247 [2018-12-18 23:48:11.942979] iteration 4
1248 [2018-12-18 23:48:15.232766] training MLP [3, 5, 6] withn
    n=0.1
1249 [2018-12-18 23:48:15.232766] iteration 0
1250 [2018-12-18 23:48:18.461190] iteration 1
1251 [2018-12-18 23:48:21.583739] iteration 2
1252 [2018-12-18 23:48:24.818072] iteration 3
1253 [2018-12-18 23:48:28.024087] iteration 4
1254 [2018-12-18 23:48:31.214170] training MLP [3, 5, 6] withn
```

```
1254 n=0.03
1255 [2018-12-18 23:48:31.214170] iteration 0
1256 [2018-12-18 23:48:34.461956] iteration 1
1257 [2018-12-18 23:48:37.634784] iteration 2
1258 [2018-12-18 23:48:40.804633] iteration 3
1259 [2018-12-18 23:48:44.022748] iteration 4
1260 [2018-12-18 23:48:47.211466] training MLP [3, 5, 6] withn
    n=0.01
1261 [2018-12-18 23:48:47.211466] iteration 0
1262 [2018-12-18 23:48:50.567911] iteration 1
1263 [2018-12-18 23:48:53.617688] iteration 2
1264 [2018-12-18 23:48:56.897250] iteration 3
1265 [2018-12-18 23:49:00.092140] iteration 4
1266 [2018-12-18 23:49:03.300625] training MLP [3, 5, 6] withn
    n=0.003
1267 [2018-12-18 23:49:03.300625] iteration 0
1268 [2018-12-18 23:49:06.429986] iteration 1
1269 [2018-12-18 23:49:09.584983] iteration 2
1270 [2018-12-18 23:49:12.681507] iteration 3
1271 [2018-12-18 23:49:15.835646] iteration 4
1272 ##### Wine Experiment - Layers [3, 5, 6]
1273
1274 Best n:
1275 0.3
1276 Confusion Matrix:
1277 [[12  0  0]
1278 [ 5  9  0]
1279 [ 0 10  0]]
1280 Precision:
1281 0.5833333333333334
1282 [2018-12-18 23:49:19.054167] training MLP [3, 6, 3] withn
    n=0.3
1283 [2018-12-18 23:49:19.054167] iteration 0
1284 [2018-12-18 23:49:22.273155] iteration 1
1285 [2018-12-18 23:49:25.444257] iteration 2
1286 [2018-12-18 23:49:28.587096] iteration 3
1287 [2018-12-18 23:49:31.726559] iteration 4
1288 [2018-12-18 23:49:34.908084] training MLP [3, 6, 3] withn
    n=0.1
1289 [2018-12-18 23:49:34.908084] iteration 0
1290 [2018-12-18 23:49:38.107109] iteration 1
1291 [2018-12-18 23:49:41.210762] iteration 2
1292 [2018-12-18 23:49:44.261893] iteration 3
1293 [2018-12-18 23:49:47.317803] iteration 4
1294 [2018-12-18 23:49:50.552420] training MLP [3, 6, 3] withn
```

```
1294 n=0.03
1295 [2018-12-18 23:49:50.552420] iteration 0
1296 [2018-12-18 23:49:53.773273] iteration 1
1297 [2018-12-18 23:49:56.912383] iteration 2
1298 [2018-12-18 23:50:00.130548] iteration 3
1299 [2018-12-18 23:50:03.266106] iteration 4
1300 [2018-12-18 23:50:06.399717] training MLP [3, 6, 3] withn
    n=0.01
1301 [2018-12-18 23:50:06.399717] iteration 0
1302 [2018-12-18 23:50:09.475291] iteration 1
1303 [2018-12-18 23:50:12.720571] iteration 2
1304 [2018-12-18 23:50:15.820839] iteration 3
1305 [2018-12-18 23:50:18.928450] iteration 4
1306 [2018-12-18 23:50:21.974012] training MLP [3, 6, 3] withn
    n=0.003
1307 [2018-12-18 23:50:21.974012] iteration 0
1308 [2018-12-18 23:50:25.110487] iteration 1
1309 [2018-12-18 23:50:28.316295] iteration 2
1310 [2018-12-18 23:50:31.476704] iteration 3
1311 [2018-12-18 23:50:34.474066] iteration 4
1312 ##### Wine Experiment - Layers [3, 6, 3]
1313
1314 Best n:
1315 0.3
1316 Confusion Matrix:
1317 [[12  0  0]
1318 [ 2 12  0]
1319 [ 8  2  0]]
1320 Precision:
1321 0.6666666666666666
1322 [2018-12-18 23:50:37.692451] training MLP [3, 6, 4] withn
    n=0.3
1323 [2018-12-18 23:50:37.692451] iteration 0
1324 [2018-12-18 23:50:40.772781] iteration 1
1325 [2018-12-18 23:50:43.973983] iteration 2
1326 [2018-12-18 23:50:47.091698] iteration 3
1327 [2018-12-18 23:50:50.225090] iteration 4
1328 [2018-12-18 23:50:53.396621] training MLP [3, 6, 4] withn
    n=0.1
1329 [2018-12-18 23:50:53.396621] iteration 0
1330 [2018-12-18 23:50:56.395825] iteration 1
1331 [2018-12-18 23:50:59.395870] iteration 2
1332 [2018-12-18 23:51:02.477171] iteration 3
1333 [2018-12-18 23:51:05.702694] iteration 4
1334 [2018-12-18 23:51:08.880302] training MLP [3, 6, 4] withn
```

```
1334 n=0.03
1335 [2018-12-18 23:51:08.880302] iteration 0
1336 [2018-12-18 23:51:12.101434] iteration 1
1337 [2018-12-18 23:51:15.218628] iteration 2
1338 [2018-12-18 23:51:18.430153] iteration 3
1339 [2018-12-18 23:51:21.489452] iteration 4
1340 [2018-12-18 23:51:24.570447] training MLP [3, 6, 4] withn
    n=0.01
1341 [2018-12-18 23:51:24.570447] iteration 0
1342 [2018-12-18 23:51:27.680997] iteration 1
1343 [2018-12-18 23:51:30.740825] iteration 2
1344 [2018-12-18 23:51:34.039350] iteration 3
1345 [2018-12-18 23:51:37.178361] iteration 4
1346 [2018-12-18 23:51:40.257514] training MLP [3, 6, 4] withn
    n=0.003
1347 [2018-12-18 23:51:40.257514] iteration 0
1348 [2018-12-18 23:51:43.398671] iteration 1
1349 [2018-12-18 23:51:46.599008] iteration 2
1350 [2018-12-18 23:51:49.680966] iteration 3
1351 [2018-12-18 23:51:52.886871] iteration 4
1352 ##### Wine Experiment - Layers [3, 6, 4]
1353
1354 Best n:
1355 0.3
1356 Confusion Matrix:
1357 [[ 0 12  0]
1358 [ 0 14  0]
1359 [ 0 10  0]]
1360 Precision:
1361 0.3888888888888889
1362 [2018-12-18 23:51:56.232163] training MLP [3, 6, 5] withn
    n=0.3
1363 [2018-12-18 23:51:56.232163] iteration 0
1364 [2018-12-18 23:51:59.313361] iteration 1
1365 [2018-12-18 23:52:02.396349] iteration 2
1366 [2018-12-18 23:52:05.507445] iteration 3
1367 [2018-12-18 23:52:08.771681] iteration 4
1368 [2018-12-18 23:52:11.770811] training MLP [3, 6, 5] withn
    n=0.1
1369 [2018-12-18 23:52:11.770811] iteration 0
1370 [2018-12-18 23:52:15.098860] iteration 1
1371 [2018-12-18 23:52:18.319321] iteration 2
1372 [2018-12-18 23:52:21.555357] iteration 3
1373 [2018-12-18 23:52:24.820413] iteration 4
1374 [2018-12-18 23:52:27.906081] training MLP [3, 6, 5] withn
```

```
1374 n=0.03
1375 [2018-12-18 23:52:27.906081] iteration 0
1376 [2018-12-18 23:52:30.914159] iteration 1
1377 [2018-12-18 23:52:34.039562] iteration 2
1378 [2018-12-18 23:52:37.287948] iteration 3
1379 [2018-12-18 23:52:40.486080] iteration 4
1380 [2018-12-18 23:52:43.507729] training MLP [3, 6, 5] withn
    n=0.01
1381 [2018-12-18 23:52:43.507729] iteration 0
1382 [2018-12-18 23:52:46.820856] iteration 1
1383 [2018-12-18 23:52:50.073824] iteration 2
1384 [2018-12-18 23:52:53.366537] iteration 3
1385 [2018-12-18 23:52:56.475206] iteration 4
1386 [2018-12-18 23:52:59.618061] training MLP [3, 6, 5] withn
    n=0.003
1387 [2018-12-18 23:52:59.618061] iteration 0
1388 [2018-12-18 23:53:02.688110] iteration 1
1389 [2018-12-18 23:53:06.021925] iteration 2
1390 [2018-12-18 23:53:09.271168] iteration 3
1391 [2018-12-18 23:53:12.442783] iteration 4
1392 ##### Wine Experiment - Layers [3, 6, 5]
1393
1394 Best n:
1395 0.3
1396 Confusion Matrix:
1397 [[12  0  0]
1398 [ 1 13  0]
1399 [ 2  1  7]]
1400 Precision:
1401 0.8888888888888888
1402 [2018-12-18 23:53:15.789234] training MLP [3, 6, 6] withn
    n=0.3
1403 [2018-12-18 23:53:15.789234] iteration 0
1404 [2018-12-18 23:53:19.199975] iteration 1
1405 [2018-12-18 23:53:22.264479] iteration 2
1406 [2018-12-18 23:53:25.475508] iteration 3
1407 [2018-12-18 23:53:28.817435] iteration 4
1408 [2018-12-18 23:53:32.086728] training MLP [3, 6, 6] withn
    n=0.1
1409 [2018-12-18 23:53:32.086728] iteration 0
1410 [2018-12-18 23:53:35.304252] iteration 1
1411 [2018-12-18 23:53:38.475459] iteration 2
1412 [2018-12-18 23:53:41.677894] iteration 3
1413 [2018-12-18 23:53:44.945341] iteration 4
1414 [2018-12-18 23:53:48.054663] training MLP [3, 6, 6] withn
```

```
1414 n=0.03
1415 [2018-12-18 23:53:48.054663] iteration 0
1416 [2018-12-18 23:53:51.071930] iteration 1
1417 [2018-12-18 23:53:54.349452] iteration 2
1418 [2018-12-18 23:53:57.508780] iteration 3
1419 [2018-12-18 23:54:00.648376] iteration 4
1420 [2018-12-18 23:54:03.784644] training MLP [3, 6, 6] withn
    n=0.01
1421 [2018-12-18 23:54:03.784644] iteration 0
1422 [2018-12-18 23:54:07.133307] iteration 1
1423 [2018-12-18 23:54:10.302188] iteration 2
1424 [2018-12-18 23:54:13.398816] iteration 3
1425 [2018-12-18 23:54:16.666410] iteration 4
1426 [2018-12-18 23:54:19.771167] training MLP [3, 6, 6] withn
    n=0.003
1427 [2018-12-18 23:54:19.771167] iteration 0
1428 [2018-12-18 23:54:23.109400] iteration 1
1429 [2018-12-18 23:54:26.287296] iteration 2
1430 [2018-12-18 23:54:29.427361] iteration 3
1431 [2018-12-18 23:54:32.689109] iteration 4
1432 ##### Wine Experiment - Layers [3, 6, 6]
1433
1434 Best n:
1435 0.3
1436 Confusion Matrix:
1437 [[12  0  0]
1438 [ 0 12  2]
1439 [ 2  0  8]]
1440 Precision:
1441 0.8888888888888888
1442 [2018-12-18 23:54:35.943457] training MLP [4, 3, 3] withn
    n=0.3
1443 [2018-12-18 23:54:35.943457] iteration 0
1444 [2018-12-18 23:54:39.038126] iteration 1
1445 [2018-12-18 23:54:42.145653] iteration 2
1446 [2018-12-18 23:54:45.274061] iteration 3
1447 [2018-12-18 23:54:48.399162] iteration 4
1448 [2018-12-18 23:54:51.756774] training MLP [4, 3, 3] withn
    n=0.1
1449 [2018-12-18 23:54:51.756774] iteration 0
1450 [2018-12-18 23:54:55.197639] iteration 1
1451 [2018-12-18 23:54:58.334374] iteration 2
1452 [2018-12-18 23:55:01.349847] iteration 3
1453 [2018-12-18 23:55:04.474784] iteration 4
1454 [2018-12-18 23:55:07.602398] training MLP [4, 3, 3] withn
```

```
1454 n=0.03
1455 [2018-12-18 23:55:07.602398] iteration 0
1456 [2018-12-18 23:55:10.804572] iteration 1
1457 [2018-12-18 23:55:14.177584] iteration 2
1458 [2018-12-18 23:55:17.286598] iteration 3
1459 [2018-12-18 23:55:20.415224] iteration 4
1460 [2018-12-18 23:55:23.264646] training MLP [4, 3, 3] withn
    n=0.01
1461 [2018-12-18 23:55:23.264646] iteration 0
1462 [2018-12-18 23:55:26.383529] iteration 1
1463 [2018-12-18 23:55:29.398740] iteration 2
1464 [2018-12-18 23:55:32.574050] iteration 3
1465 [2018-12-18 23:55:35.630533] iteration 4
1466 [2018-12-18 23:55:38.758903] training MLP [4, 3, 3] withn
    n=0.003
1467 [2018-12-18 23:55:38.758903] iteration 0
1468 [2018-12-18 23:55:41.961979] iteration 1
1469 [2018-12-18 23:55:45.092034] iteration 2
1470 [2018-12-18 23:55:48.312412] iteration 3
1471 [2018-12-18 23:55:51.428915] iteration 4
1472 ##### Wine Experiment - Layers [4, 3, 3]
1473
1474 Best n:
1475 0.3
1476 Confusion Matrix:
1477 [[ 7  5  0]
1478 [ 1 13  0]
1479 [ 0 10  0]]
1480 Precision:
1481 0.5555555555555556
1482 [2018-12-18 23:55:54.649114] training MLP [4, 3, 4] withn
    n=0.3
1483 [2018-12-18 23:55:54.649114] iteration 0
1484 [2018-12-18 23:55:57.593718] iteration 1
1485 [2018-12-18 23:56:00.740606] iteration 2
1486 [2018-12-18 23:56:03.865707] iteration 3
1487 [2018-12-18 23:56:07.083871] iteration 4
1488 [2018-12-18 23:56:10.225671] training MLP [4, 3, 4] withn
    n=0.1
1489 [2018-12-18 23:56:10.225671] iteration 0
1490 [2018-12-18 23:56:13.298655] iteration 1
1491 [2018-12-18 23:56:16.524585] iteration 2
1492 [2018-12-18 23:56:19.679079] iteration 3
1493 [2018-12-18 23:56:22.800082] iteration 4
1494 [2018-12-18 23:56:26.066306] training MLP [4, 3, 4] withn
```

```
1494 n=0.03
1495 [2018-12-18 23:56:26.066306] iteration 0
1496 [2018-12-18 23:56:29.301958] iteration 1
1497 [2018-12-18 23:56:32.493055] iteration 2
1498 [2018-12-18 23:56:35.614763] iteration 3
1499 [2018-12-18 23:56:38.835965] iteration 4
1500 [2018-12-18 23:56:41.912250] training MLP [4, 3, 4] withn
    n=0.01
1501 [2018-12-18 23:56:41.912250] iteration 0
1502 [2018-12-18 23:56:45.162686] iteration 1
1503 [2018-12-18 23:56:48.212081] iteration 2
1504 [2018-12-18 23:56:51.383790] iteration 3
1505 [2018-12-18 23:56:54.647804] iteration 4
1506 [2018-12-18 23:56:57.838316] training MLP [4, 3, 4] withn
    n=0.003
1507 [2018-12-18 23:56:57.838316] iteration 0
1508 [2018-12-18 23:57:01.008611] iteration 1
1509 [2018-12-18 23:57:04.273198] iteration 2
1510 [2018-12-18 23:57:07.262797] iteration 3
1511 [2018-12-18 23:57:10.365431] iteration 4
1512 ##### Wine Experiment - Layers [4, 3, 4]
1513
1514 Best n:
1515 0.3
1516 Confusion Matrix:
1517 [[12  0  0]
1518 [ 1 13  0]
1519 [ 7  3  0]]
1520 Precision:
1521 0.6944444444444444
1522 [2018-12-18 23:57:13.646076] training MLP [4, 3, 5] withn
    n=0.3
1523 [2018-12-18 23:57:13.646076] iteration 0
1524 [2018-12-18 23:57:16.973979] iteration 1
1525 [2018-12-18 23:57:20.038379] iteration 2
1526 [2018-12-18 23:57:23.218224] iteration 3
1527 [2018-12-18 23:57:26.584176] iteration 4
1528 [2018-12-18 23:57:29.867767] training MLP [4, 3, 5] withn
    n=0.1
1529 [2018-12-18 23:57:29.867767] iteration 0
1530 [2018-12-18 23:57:33.125392] iteration 1
1531 [2018-12-18 23:57:36.226708] iteration 2
1532 [2018-12-18 23:57:39.380270] iteration 3
1533 [2018-12-18 23:57:42.491726] iteration 4
1534 [2018-12-18 23:57:45.613035] training MLP [4, 3, 5] withn
```

```
1534 n=0.03
1535 [2018-12-18 23:57:45.613035] iteration 0
1536 [2018-12-18 23:57:48.724618] iteration 1
1537 [2018-12-18 23:57:51.867736] iteration 2
1538 [2018-12-18 23:57:54.960952] iteration 3
1539 [2018-12-18 23:57:57.909345] iteration 4
1540 [2018-12-18 23:58:01.071050] training MLP [4, 3, 5] withn
    n=0.01
1541 [2018-12-18 23:58:01.071050] iteration 0
1542 [2018-12-18 23:58:04.242502] iteration 1
1543 [2018-12-18 23:58:07.351391] iteration 2
1544 [2018-12-18 23:58:10.474192] iteration 3
1545 [2018-12-18 23:58:13.552028] iteration 4
1546 [2018-12-18 23:58:16.570752] training MLP [4, 3, 5] withn
    n=0.003
1547 [2018-12-18 23:58:16.570752] iteration 0
1548 [2018-12-18 23:58:19.679405] iteration 1
1549 [2018-12-18 23:58:22.771211] iteration 2
1550 [2018-12-18 23:58:26.063987] iteration 3
1551 [2018-12-18 23:58:29.571607] iteration 4
1552 ##### Wine Experiment - Layers [4, 3, 5]
1553
1554 Best n:
1555 0.3
1556 Confusion Matrix:
1557 [[ 0 12  0]
1558 [ 0 14  0]
1559 [ 0 10  0]]
1560 Precision:
1561 0.3888888888888889
1562 [2018-12-18 23:58:34.131985] training MLP [4, 3, 6] withn
    n=0.3
1563 [2018-12-18 23:58:34.131985] iteration 0
1564 [2018-12-18 23:58:37.632376] iteration 1
1565 [2018-12-18 23:58:40.897321] iteration 2
1566 [2018-12-18 23:58:44.100924] iteration 3
1567 [2018-12-18 23:58:47.241748] iteration 4
1568 [2018-12-18 23:58:50.521701] training MLP [4, 3, 6] withn
    n=0.1
1569 [2018-12-18 23:58:50.521701] iteration 0
1570 [2018-12-18 23:58:53.772188] iteration 1
1571 [2018-12-18 23:58:57.020945] iteration 2
1572 [2018-12-18 23:59:00.215777] iteration 3
1573 [2018-12-18 23:59:03.508488] iteration 4
1574 [2018-12-18 23:59:06.755737] training MLP [4, 3, 6] withn
```

```
1574 n=0.03
1575 [2018-12-18 23:59:06.755737] iteration 0
1576 [2018-12-18 23:59:10.059407] iteration 1
1577 [2018-12-18 23:59:13.190744] iteration 2
1578 [2018-12-18 23:59:16.352690] iteration 3
1579 [2018-12-18 23:59:19.616243] iteration 4
1580 [2018-12-18 23:59:22.788265] training MLP [4, 3, 6] withn
    n=0.01
1581 [2018-12-18 23:59:22.788265] iteration 0
1582 [2018-12-18 23:59:25.991209] iteration 1
1583 [2018-12-18 23:59:29.192736] iteration 2
1584 [2018-12-18 23:59:32.395889] iteration 3
1585 [2018-12-18 23:59:35.616073] iteration 4
1586 [2018-12-18 23:59:38.680926] training MLP [4, 3, 6] withn
    n=0.003
1587 [2018-12-18 23:59:38.680926] iteration 0
1588 [2018-12-18 23:59:41.803360] iteration 1
1589 [2018-12-18 23:59:44.960015] iteration 2
1590 [2018-12-18 23:59:48.026210] iteration 3
1591 [2018-12-18 23:59:51.144553] iteration 4
1592 ##### Wine Experiment - Layers [4, 3, 6]
1593
1594 Best n:
1595 0.3
1596 Confusion Matrix:
1597 [[12  0  0]
1598 [11  3  0]
1599 [10  0  0]]
1600 Precision:
1601 0.4166666666666667
1602 [2018-12-18 23:59:54.364930] training MLP [4, 4, 3] withn
    n=0.3
1603 [2018-12-18 23:59:54.364930] iteration 0
1604 [2018-12-18 23:59:57.458469] iteration 1
1605 [2018-12-19 00:00:00.708497] iteration 2
1606 [2018-12-19 00:00:03.897245] iteration 3
1607 [2018-12-19 00:00:07.099607] iteration 4
1608 [2018-12-19 00:00:10.289629] training MLP [4, 4, 3] withn
    n=0.1
1609 [2018-12-19 00:00:10.289629] iteration 0
1610 [2018-12-19 00:00:13.539217] iteration 1
1611 [2018-12-19 00:00:16.774147] iteration 2
1612 [2018-12-19 00:00:19.946434] iteration 3
1613 [2018-12-19 00:00:23.015935] iteration 4
1614 [2018-12-19 00:00:26.381034] training MLP [4, 4, 3] withn
```

```
1614 n=0.03
1615 [2018-12-19 00:00:26.381034] iteration 0
1616 [2018-12-19 00:00:29.365890] iteration 1
1617 [2018-12-19 00:00:32.601865] iteration 2
1618 [2018-12-19 00:00:35.726290] iteration 3
1619 [2018-12-19 00:00:38.851036] iteration 4
1620 [2018-12-19 00:00:41.991088] training MLP [4, 4, 3] withn
    n=0.01
1621 [2018-12-19 00:00:41.991088] iteration 0
1622 [2018-12-19 00:00:44.977347] iteration 1
1623 [2018-12-19 00:00:48.222652] iteration 2
1624 [2018-12-19 00:00:51.474377] iteration 3
1625 [2018-12-19 00:00:54.712307] iteration 4
1626 [2018-12-19 00:00:57.848141] training MLP [4, 4, 3] withn
    n=0.003
1627 [2018-12-19 00:00:57.848141] iteration 0
1628 [2018-12-19 00:01:01.054210] iteration 1
1629 [2018-12-19 00:01:04.194281] iteration 2
1630 [2018-12-19 00:01:07.195234] iteration 3
1631 [2018-12-19 00:01:10.168740] iteration 4
1632 ##### Wine Experiment - Layers [4, 4, 3]
1633
1634 Best n:
1635 0.3
1636 Confusion Matrix:
1637 [[ 0 12  0]
1638 [ 0 14  0]
1639 [ 0 10  0]]
1640 Precision:
1641 0.3888888888888889
1642 [2018-12-19 00:01:13.443268] training MLP [4, 4, 4] withn
    n=0.3
1643 [2018-12-19 00:01:13.443268] iteration 0
1644 [2018-12-19 00:01:16.598999] iteration 1
1645 [2018-12-19 00:01:19.600578] iteration 2
1646 [2018-12-19 00:01:22.775745] iteration 3
1647 [2018-12-19 00:01:25.993293] iteration 4
1648 [2018-12-19 00:01:29.124663] training MLP [4, 4, 4] withn
    n=0.1
1649 [2018-12-19 00:01:29.124663] iteration 0
1650 [2018-12-19 00:01:32.149560] iteration 1
1651 [2018-12-19 00:01:35.335047] iteration 2
1652 [2018-12-19 00:01:38.493117] iteration 3
1653 [2018-12-19 00:01:41.726701] iteration 4
1654 [2018-12-19 00:01:44.850168] training MLP [4, 4, 4] withn
```

```
1654 n=0.03
1655 [2018-12-19 00:01:44.850168] iteration 0
1656 [2018-12-19 00:01:47.982205] iteration 1
1657 [2018-12-19 00:01:51.082781] iteration 2
1658 [2018-12-19 00:01:54.194794] iteration 3
1659 [2018-12-19 00:01:57.271316] iteration 4
1660 [2018-12-19 00:02:00.321081] training MLP [4, 4, 4] withn
    n=0.01
1661 [2018-12-19 00:02:00.321081] iteration 0
1662 [2018-12-19 00:02:03.430105] iteration 1
1663 [2018-12-19 00:02:06.460555] iteration 2
1664 [2018-12-19 00:02:09.615160] iteration 3
1665 [2018-12-19 00:02:12.782742] iteration 4
1666 [2018-12-19 00:02:16.021209] training MLP [4, 4, 4] withn
    n=0.003
1667 [2018-12-19 00:02:16.021209] iteration 0
1668 [2018-12-19 00:02:19.194151] iteration 1
1669 [2018-12-19 00:02:22.364751] iteration 2
1670 [2018-12-19 00:02:25.446410] iteration 3
1671 [2018-12-19 00:02:28.758356] iteration 4
1672 ##### Wine Experiment - Layers [4, 4, 4]
1673
1674 Best n:
1675 0.3
1676 Confusion Matrix:
1677 [[12  0  0]
1678 [ 4 10  0]
1679 [ 5  5  0]]
1680 Precision:
1681 0.6111111111111112
1682 [2018-12-19 00:02:32.037232] training MLP [4, 4, 5] withn
    n=0.3
1683 [2018-12-19 00:02:32.037232] iteration 0
1684 [2018-12-19 00:02:35.311395] iteration 1
1685 [2018-12-19 00:02:38.412430] iteration 2
1686 [2018-12-19 00:02:41.648985] iteration 3
1687 [2018-12-19 00:02:44.726519] iteration 4
1688 [2018-12-19 00:02:47.803597] training MLP [4, 4, 5] withn
    n=0.1
1689 [2018-12-19 00:02:47.803597] iteration 0
1690 [2018-12-19 00:02:50.993547] iteration 1
1691 [2018-12-19 00:02:54.146054] iteration 2
1692 [2018-12-19 00:02:57.273575] iteration 3
1693 [2018-12-19 00:03:00.351272] iteration 4
1694 [2018-12-19 00:03:03.647375] training MLP [4, 4, 5] withn
```

```
1694 n=0.03
1695 [2018-12-19 00:03:03.647375] iteration 0
1696 [2018-12-19 00:03:06.898523] iteration 1
1697 [2018-12-19 00:03:10.178780] iteration 2
1698 [2018-12-19 00:03:13.320902] iteration 3
1699 [2018-12-19 00:03:16.365837] iteration 4
1700 [2018-12-19 00:03:19.382450] training MLP [4, 4, 5] withn
    n=0.01
1701 [2018-12-19 00:03:19.382450] iteration 0
1702 [2018-12-19 00:03:22.276244] iteration 1
1703 [2018-12-19 00:03:25.320448] iteration 2
1704 [2018-12-19 00:03:28.300743] iteration 3
1705 [2018-12-19 00:03:31.252897] iteration 4
1706 [2018-12-19 00:03:34.077480] training MLP [4, 4, 5] withn
    n=0.003
1707 [2018-12-19 00:03:34.077480] iteration 0
1708 [2018-12-19 00:03:36.788486] iteration 1
1709 [2018-12-19 00:03:39.476387] iteration 2
1710 [2018-12-19 00:03:42.200018] iteration 3
1711 [2018-12-19 00:03:44.920763] iteration 4
1712 ##### Wine Experiment - Layers [4, 4, 5]
1713
1714 Best n:
1715 0.3
1716 Confusion Matrix:
1717 [[12  0  0]
1718 [ 2 12  0]
1719 [ 3  7  0]]
1720 Precision:
1721 0.6666666666666666
1722 [2018-12-19 00:03:47.951512] training MLP [4, 4, 6] withn
    n=0.3
1723 [2018-12-19 00:03:47.951512] iteration 0
1724 [2018-12-19 00:03:50.924802] iteration 1
1725 [2018-12-19 00:03:53.855285] iteration 2
1726 [2018-12-19 00:03:56.709504] iteration 3
1727 [2018-12-19 00:03:59.536745] iteration 4
1728 [2018-12-19 00:04:02.337139] training MLP [4, 4, 6] withn
    n=0.1
1729 [2018-12-19 00:04:02.337139] iteration 0
1730 [2018-12-19 00:04:05.137071] iteration 1
1731 [2018-12-19 00:04:07.870508] iteration 2
1732 [2018-12-19 00:04:10.681026] iteration 3
1733 [2018-12-19 00:04:13.569230] iteration 4
1734 [2018-12-19 00:04:16.648073] training MLP [4, 4, 6] withn
```

```
1734 n=0.03
1735 [2018-12-19 00:04:16.648073] iteration 0
1736 [2018-12-19 00:04:19.617436] iteration 1
1737 [2018-12-19 00:04:22.428840] iteration 2
1738 [2018-12-19 00:04:25.206742] iteration 3
1739 [2018-12-19 00:04:28.008548] iteration 4
1740 [2018-12-19 00:04:30.741807] training MLP [4, 4, 6] withn
    n=0.01
1741 [2018-12-19 00:04:30.741807] iteration 0
1742 [2018-12-19 00:04:33.444622] iteration 1
1743 [2018-12-19 00:04:36.337298] iteration 2
1744 [2018-12-19 00:04:39.286717] iteration 3
1745 [2018-12-19 00:04:42.251197] iteration 4
1746 [2018-12-19 00:04:45.162208] training MLP [4, 4, 6] withn
    n=0.003
1747 [2018-12-19 00:04:45.162208] iteration 0
1748 [2018-12-19 00:04:47.885985] iteration 1
1749 [2018-12-19 00:04:50.600653] iteration 2
1750 [2018-12-19 00:04:53.333908] iteration 3
1751 [2018-12-19 00:04:56.038481] iteration 4
1752 ##### Wine Experiment - Layers [4, 4, 6]
1753
1754 Best n:
1755 0.3
1756 Confusion Matrix:
1757 [[12  0  0]
1758 [10  4  0]
1759 [10  0  0]]
1760 Precision:
1761 0.4444444444444444
1762 [2018-12-19 00:04:58.928294] training MLP [4, 5, 3] withn
    n=0.3
1763 [2018-12-19 00:04:58.928294] iteration 0
1764 [2018-12-19 00:05:01.880663] iteration 1
1765 [2018-12-19 00:05:04.876517] iteration 2
1766 [2018-12-19 00:05:07.878514] iteration 3
1767 [2018-12-19 00:05:10.585465] iteration 4
1768 [2018-12-19 00:05:13.285548] training MLP [4, 5, 3] withn
    n=0.1
1769 [2018-12-19 00:05:13.285548] iteration 0
1770 [2018-12-19 00:05:16.036371] iteration 1
1771 [2018-12-19 00:05:18.743304] iteration 2
1772 [2018-12-19 00:05:21.492134] iteration 3
1773 [2018-12-19 00:05:24.256011] iteration 4
1774 [2018-12-19 00:05:27.148072] training MLP [4, 5, 3] withn
```

```
1774 n=0.03
1775 [2018-12-19 00:05:27.148072] iteration 0
1776 [2018-12-19 00:05:30.060389] iteration 1
1777 [2018-12-19 00:05:32.977070] iteration 2
1778 [2018-12-19 00:05:35.661369] iteration 3
1779 [2018-12-19 00:05:38.319872] iteration 4
1780 [2018-12-19 00:05:41.632974] training MLP [4, 5, 3] withn
    n=0.01
1781 [2018-12-19 00:05:41.632974] iteration 0
1782 [2018-12-19 00:05:44.511343] iteration 1
1783 [2018-12-19 06:56:08.109874] iteration 2
1784 [2018-12-19 06:56:13.600104] iteration 3
1785 [2018-12-19 06:56:17.895777] iteration 4
1786 [2018-12-19 06:56:22.436139] training MLP [4, 5, 3] withn
    n=0.003
1787 [2018-12-19 06:56:22.436139] iteration 0
1788 [2018-12-19 06:56:26.333869] iteration 1
1789 [2018-12-19 06:56:29.420662] iteration 2
1790 [2018-12-19 06:56:32.020619] iteration 3
1791 [2018-12-19 06:56:34.428507] iteration 4
1792 ##### Wine Experiment - Layers [4, 5, 3]
1793
1794 Best n:
1795 0.3
1796 Confusion Matrix:
1797 [[12  0  0]
1798 [ 1 13  0]
1799 [ 3  7  0]]
1800 Precision:
1801 0.6944444444444444
1802 [2018-12-19 06:56:36.882888] training MLP [4, 5, 4] withn
    n=0.3
1803 [2018-12-19 06:56:36.882888] iteration 0
1804 [2018-12-19 06:56:39.116214] iteration 1
1805 [2018-12-19 06:56:41.600631] iteration 2
1806 [2018-12-19 06:56:44.177041] iteration 3
1807 [2018-12-19 06:56:46.663749] iteration 4
1808 [2018-12-19 06:56:49.065990] training MLP [4, 5, 4] withn
    n=0.1
1809 [2018-12-19 06:56:49.065990] iteration 0
1810 [2018-12-19 06:56:51.391342] iteration 1
1811 [2018-12-19 06:56:53.832916] iteration 2
1812 [2018-12-19 06:56:56.032743] iteration 3
1813 [2018-12-19 06:56:58.240937] iteration 4
1814 [2018-12-19 06:57:00.503984] training MLP [4, 5, 4] withn
```

```
1814 n=0.03
1815 [2018-12-19 06:57:00.503984] iteration 0
1816 [2018-12-19 06:57:02.755845] iteration 1
1817 [2018-12-19 06:57:05.081524] iteration 2
1818 [2018-12-19 06:57:07.476034] iteration 3
1819 [2018-12-19 06:57:09.938789] iteration 4
1820 [2018-12-19 06:57:12.304951] training MLP [4, 5, 4] with
    n=0.01
1821 [2018-12-19 06:57:12.304951] iteration 0
1822 [2018-12-19 06:57:14.844697] iteration 1
1823 [2018-12-19 06:57:17.153884] iteration 2
1824 [2018-12-19 06:57:19.402331] iteration 3
1825 [2018-12-19 06:57:21.634388] iteration 4
1826 [2018-12-19 06:57:23.912444] training MLP [4, 5, 4] with
    n=0.003
1827 [2018-12-19 06:57:23.912444] iteration 0
1828 [2018-12-19 06:57:26.240544] iteration 1
1829 [2018-12-19 06:57:29.115807] iteration 2
1830 [2018-12-19 06:57:31.733575] iteration 3
1831 [2018-12-19 06:57:34.247817] iteration 4
1832 ##### Wine Experiment - Layers [4, 5, 4]
1833
1834 Best n:
1835 0.3
1836 Confusion Matrix:
1837 [[ 0 12  0]
1838 [ 0 14  0]
1839 [ 0 10  0]]
1840 Precision:
1841 0.3888888888888889
1842 [2018-12-19 06:57:36.927459] training MLP [4, 5, 5] with
    n=0.3
1843 [2018-12-19 06:57:36.927459] iteration 0
1844 [2018-12-19 06:57:39.380490] iteration 1
1845
1846 [2018-12-19 06:57:41.643731] iteration 2
1847 [2018-12-19 06:57:43.913256] iteration 3
1848 [2018-12-19 06:57:46.254034] iteration 4
1849 [2018-12-19 06:57:48.573691] training MLP [4, 5, 5] with
    n=0.1
1850 [2018-12-19 06:57:48.573691] iteration 0
1851 [2018-12-19 06:57:50.896680] iteration 1
1852 [2018-12-19 06:57:53.356851] iteration 2
1853 [2018-12-19 06:57:55.989901] iteration 3
1854 [2018-12-19 06:57:58.467687] iteration 4
```

```
1855 [2018-12-19 06:58:01.041856] training MLP [4, 5, 5] withn  
    n=0.03  
1856 [2018-12-19 06:58:01.041856] iteration 0  
1857 [2018-12-19 06:58:03.445556] iteration 1  
1858 [2018-12-19 06:58:05.697895] iteration 2  
1859 [2018-12-19 06:58:07.990157] iteration 3  
1860 [2018-12-19 06:58:10.350050] iteration 4  
1861 [2018-12-19 06:58:12.605669] training MLP [4, 5, 5] withn  
    n=0.01  
1862 [2018-12-19 06:58:12.605669] iteration 0  
1863 [2018-12-19 06:58:15.193679] iteration 1  
1864 [2018-12-19 06:58:17.805505] iteration 2  
1865 [2018-12-19 06:58:20.648605] iteration 3  
1866 [2018-12-19 06:58:23.411143] iteration 4  
1867 [2018-12-19 06:58:26.216421] training MLP [4, 5, 5] withn  
    n=0.003  
1868 [2018-12-19 06:58:26.216421] iteration 0  
1869 [2018-12-19 06:58:28.944023] iteration 1  
1870 [2018-12-19 06:58:31.623114] iteration 2  
1871 [2018-12-19 06:58:34.255295] iteration 3  
1872 [2018-12-19 06:58:36.879904] iteration 4  
1873 ##### Wine Experiment - Layers [4, 5, 5]  
1874  
1875 Best n:  
1876 0.3  
1877 Confusion Matrix:  
1878 [[12  0  0]  
1879 [ 3 11  0]  
1880 [ 1  9  0]]  
1881 Precision:  
1882 0.6388888888888888  
1883 [2018-12-19 06:58:39.333729] training MLP [4, 5, 6] withn  
    n=0.3  
1884 [2018-12-19 06:58:39.333729] iteration 0  
1885 [2018-12-19 06:58:41.759859] iteration 1  
1886 [2018-12-19 06:58:44.084707] iteration 2  
1887 [2018-12-19 06:58:46.446600] iteration 3  
1888 [2018-12-19 06:58:48.774634] iteration 4  
1889 [2018-12-19 06:58:51.188090] training MLP [4, 5, 6] withn  
    n=0.1  
1890 [2018-12-19 06:58:51.188090] iteration 0  
1891 [2018-12-19 06:58:53.662206] iteration 1  
1892 [2018-12-19 06:58:56.221098] iteration 2  
1893 [2018-12-19 06:58:58.724537] iteration 3  
1894 [2018-12-19 06:59:01.174697] iteration 4
```

```
1895 [2018-12-19 06:59:03.458095] training MLP [4, 5, 6] withn  
    n=0.03  
1896 [2018-12-19 06:59:03.458095] iteration 0  
1897 [2018-12-19 06:59:06.315777] iteration 1  
1898 [2018-12-19 06:59:09.130945] iteration 2  
1899 [2018-12-19 06:59:11.785218] iteration 3  
1900 [2018-12-19 06:59:15.990210] iteration 4  
1901 [2018-12-19 06:59:20.348777] training MLP [4, 5, 6] withn  
    n=0.01  
1902 [2018-12-19 06:59:20.348777] iteration 0  
1903 [2018-12-19 06:59:24.192780] iteration 1  
1904 [2018-12-19 06:59:27.411837] iteration 2  
1905 [2018-12-19 06:59:30.567816] iteration 3  
1906 [2018-12-19 06:59:33.942805] iteration 4  
1907 [2018-12-19 06:59:37.055010] training MLP [4, 5, 6] withn  
    n=0.003  
1908 [2018-12-19 06:59:37.055010] iteration 0  
1909 [2018-12-19 06:59:40.302185] iteration 1  
1910 [2018-12-19 06:59:43.348964] iteration 2  
1911 [2018-12-19 06:59:46.565408] iteration 3  
1912 [2018-12-19 06:59:49.475002] iteration 4  
1913 ##### Wine Experiment - Layers [4, 5, 6]  
1914  
1915 Best n:  
1916 0.3  
1917 Confusion Matrix:  
1918 [[12  0  0]  
1919 [ 4 10  0]  
1920 [ 3  7  0]]  
1921 Precision:  
1922 0.611111111111112  
1923 [2018-12-19 06:59:52.272294] training MLP [4, 6, 3] withn  
    n=0.3  
1924 [2018-12-19 06:59:52.272294] iteration 0  
1925 [2018-12-19 06:59:54.974613] iteration 1  
1926 [2018-12-19 06:59:57.567977] iteration 2  
1927 [2018-12-19 07:00:00.896726] iteration 3  
1928 [2018-12-19 07:00:03.833758] iteration 4  
1929 [2018-12-19 07:00:06.807424] training MLP [4, 6, 3] withn  
    n=0.1  
1930 [2018-12-19 07:00:06.807424] iteration 0  
1931 [2018-12-19 07:00:09.645966] iteration 1  
1932 [2018-12-19 07:00:12.537555] iteration 2  
1933 [2018-12-19 07:00:15.130566] iteration 3  
1934 [2018-12-19 07:00:17.692634] iteration 4
```

```
1935 [2018-12-19 07:00:20.256502] training MLP [4, 6, 3] withn  
    n=0.03  
1936 [2018-12-19 07:00:20.256502] iteration 0  
1937 [2018-12-19 07:00:22.879387] iteration 1  
1938 [2018-12-19 07:00:25.536719] iteration 2  
1939 [2018-12-19 07:00:28.396001] iteration 3  
1940 [2018-12-19 07:00:31.174784] iteration 4  
1941 [2018-12-19 07:00:33.973801] training MLP [4, 6, 3] withn  
    n=0.01  
1942 [2018-12-19 07:00:33.973801] iteration 0  
1943 [2018-12-19 07:00:36.753297] iteration 1  
1944 [2018-12-19 07:00:39.380947] iteration 2  
1945 [2018-12-19 07:00:41.989949] iteration 3  
1946 [2018-12-19 07:00:44.623945] iteration 4  
1947 [2018-12-19 07:00:47.115358] training MLP [4, 6, 3] withn  
    n=0.003  
1948 [2018-12-19 07:00:47.115358] iteration 0  
1949 [2018-12-19 07:00:49.707925] iteration 1  
1950 [2018-12-19 07:00:52.536485] iteration 2  
1951 [2018-12-19 07:00:55.474780] iteration 3  
1952 [2018-12-19 07:00:58.411628] iteration 4  
1953 ##### Wine Experiment - Layers [4, 6, 3]  
1954  
1955 Best n:  
1956 0.3  
1957 Confusion Matrix:  
1958 [[12  0  0]  
1959  [ 2 12  0]  
1960  [ 7  3  0]]  
1961 Precision:  
1962 0.6666666666666666  
1963 [2018-12-19 07:01:01.359068] training MLP [4, 6, 4] withn  
    n=0.3  
1964 [2018-12-19 07:01:01.359068] iteration 0  
1965 [2018-12-19 07:01:04.333270] iteration 1  
1966 [2018-12-19 07:01:08.232976] iteration 2  
1967 [2018-12-19 07:01:13.021341] iteration 3  
1968 [2018-12-19 07:01:15.911894] iteration 4  
1969 [2018-12-19 07:01:18.836637] training MLP [4, 6, 4] withn  
    n=0.1  
1970 [2018-12-19 07:01:18.836637] iteration 0  
1971 [2018-12-19 07:01:21.311828] iteration 1  
1972 [2018-12-19 07:01:23.927648] iteration 2  
1973 [2018-12-19 07:01:26.331319] iteration 3  
1974 [2018-12-19 07:01:28.806488] iteration 4
```

```
1975 [2018-12-19 07:01:31.192903] training MLP [4, 6, 4] withn  
    n=0.03  
1976 [2018-12-19 07:01:31.192903] iteration 0  
1977 [2018-12-19 07:01:33.583263] iteration 1  
1978 [2018-12-19 07:01:35.959807] iteration 2  
1979 [2018-12-19 07:01:38.365485] iteration 3  
1980 [2018-12-19 07:01:40.958883] iteration 4  
1981 [2018-12-19 07:01:43.428018] training MLP [4, 6, 4] withn  
    n=0.01  
1982 [2018-12-19 07:01:43.428018] iteration 0  
1983 [2018-12-19 07:01:45.803421] iteration 1  
1984 [2018-12-19 07:01:48.194107] iteration 2  
1985 [2018-12-19 07:01:50.506304] iteration 3  
1986 [2018-12-19 07:01:52.926948] iteration 4  
1987 [2018-12-19 07:01:55.288159] training MLP [4, 6, 4] withn  
    n=0.003  
1988 [2018-12-19 07:01:55.288159] iteration 0  
1989 [2018-12-19 07:01:57.771050] iteration 1  
1990 [2018-12-19 07:02:00.131412] iteration 2  
1991 [2018-12-19 07:02:02.505898] iteration 3  
1992 [2018-12-19 07:02:04.895909] iteration 4  
1993 ##### Wine Experiment - Layers [4, 6, 4]  
1994  
1995 Best n:  
1996 0.3  
1997 Confusion Matrix:  
1998 [[ 0 12  0]  
1999 [ 0 14  0]  
2000 [ 0 10  0]]  
2001 Precision:  
2002 0.3888888888888889  
2003 [2018-12-19 07:02:07.388686] training MLP [4, 6, 5] withn  
    n=0.3  
2004 [2018-12-19 07:02:07.388686] iteration 0  
2005 [2018-12-19 07:02:09.880572] iteration 1  
2006 [2018-12-19 07:02:12.286564] iteration 2  
2007 [2018-12-19 07:02:14.803648] iteration 3  
2008 [2018-12-19 07:02:17.301723] iteration 4  
2009 [2018-12-19 07:02:19.725010] training MLP [4, 6, 5] withn  
    n=0.1  
2010 [2018-12-19 07:02:19.725010] iteration 0  
2011 [2018-12-19 07:02:22.146634] iteration 1  
2012 [2018-12-19 07:02:24.584598] iteration 2  
2013 [2018-12-19 07:02:26.942939] iteration 3  
2014 [2018-12-19 07:02:29.366242] iteration 4
```

```
2015 [2018-12-19 07:02:31.794520] training MLP [4, 6, 5] withn  
      n=0.03  
2016 [2018-12-19 07:02:31.794520] iteration 0  
2017 [2018-12-19 07:02:34.255354] iteration 1  
2018 [2018-12-19 07:02:36.763992] iteration 2  
2019 [2018-12-19 07:02:39.130021] iteration 3  
2020 [2018-12-19 07:02:41.587245] iteration 4  
2021 [2018-12-19 07:02:44.098891] training MLP [4, 6, 5] withn  
      n=0.01  
2022 [2018-12-19 07:02:44.098891] iteration 0  
2023 [2018-12-19 07:02:46.499584] iteration 1  
2024 [2018-12-19 07:02:48.912504] iteration 2  
2025 [2018-12-19 07:02:51.343795] iteration 3  
2026 [2018-12-19 07:02:53.833233] iteration 4  
2027 [2018-12-19 07:02:56.282385] training MLP [4, 6, 5] withn  
      n=0.003  
2028 [2018-12-19 07:02:56.282385] iteration 0  
2029 [2018-12-19 07:02:58.669454] iteration 1  
2030 [2018-12-19 07:03:01.098800] iteration 2  
2031 [2018-12-19 07:03:03.521993] iteration 3  
2032 [2018-12-19 07:03:05.944353] iteration 4  
2033 ##### Wine Experiment - Layers [4, 6, 5]  
2034  
2035 Best n:  
2036 0.3  
2037 Confusion Matrix:  
2038 [[ 0 12  0]  
2039 [ 0 14  0]  
2040 [ 0 10  0]]  
2041 Precision:  
2042 0.3888888888888889  
2043 [2018-12-19 07:03:08.428177] training MLP [4, 6, 6] withn  
      n=0.3  
2044 [2018-12-19 07:03:08.428177] iteration 0  
2045 [2018-12-19 07:03:10.942528] iteration 1  
2046 [2018-12-19 07:03:13.396909] iteration 2  
2047 [2018-12-19 07:03:15.791419] iteration 3  
2048 [2018-12-19 07:03:18.145957] iteration 4  
2049 [2018-12-19 07:03:20.598852] training MLP [4, 6, 6] withn  
      n=0.1  
2050 [2018-12-19 07:03:20.598852] iteration 0  
2051 [2018-12-19 07:03:23.099412] iteration 1  
2052 [2018-12-19 07:03:25.450468] iteration 2  
2053 [2018-12-19 07:03:28.036093] iteration 3  
2054 [2018-12-19 07:03:30.332789] iteration 4
```

```
2055 [2018-12-19 07:03:32.589932] training MLP [4, 6, 6] withn  
      n=0.03  
2056 [2018-12-19 07:03:32.589932] iteration 0  
2057 [2018-12-19 07:03:34.832459] iteration 1  
2058 [2018-12-19 07:03:37.118663] iteration 2  
2059 [2018-12-19 07:03:39.320576] iteration 3  
2060 [2018-12-19 07:03:41.820314] iteration 4  
2061 [2018-12-19 07:03:44.489541] training MLP [4, 6, 6] withn  
      n=0.01  
2062 [2018-12-19 07:03:44.489541] iteration 0  
2063 [2018-12-19 07:03:47.839143] iteration 1  
2064 [2018-12-19 07:03:51.057572] iteration 2  
2065 [2018-12-19 07:03:53.857388] iteration 3  
2066 [2018-12-19 07:03:56.654882] iteration 4  
2067 [2018-12-19 07:03:59.528539] training MLP [4, 6, 6] withn  
      n=0.003  
2068 [2018-12-19 07:03:59.528539] iteration 0  
2069 [2018-12-19 07:04:02.340117] iteration 1  
2070 [2018-12-19 07:04:05.067774] iteration 2  
2071 [2018-12-19 07:04:07.921174] iteration 3  
2072 [2018-12-19 07:04:10.707587] iteration 4  
2073 ##### Wine Experiment - Layers [4, 6, 6]  
2074  
2075 Best n:  
2076 0.3  
2077 Confusion Matrix:  
2078 [[12  0  0]  
2079 [ 3 11  0]  
2080 [ 0 10  0]]  
2081 Precision:  
2082 0.6388888888888888  
2083 [2018-12-19 07:04:13.818225] training MLP [5, 3, 3] withn  
      n=0.3  
2084 [2018-12-19 07:04:13.818225] iteration 0  
2085 [2018-12-19 07:04:16.665586] iteration 1  
2086 [2018-12-19 07:04:19.323076] iteration 2  
2087 [2018-12-19 07:04:21.895637] iteration 3  
2088 [2018-12-19 07:04:24.379685] iteration 4  
2089 [2018-12-19 07:04:26.876990] training MLP [5, 3, 3] withn  
      n=0.1  
2090 [2018-12-19 07:04:26.876990] iteration 0  
2091 [2018-12-19 07:04:29.386879] iteration 1  
2092 [2018-12-19 07:04:31.563787] iteration 2  
2093 [2018-12-19 07:04:33.749998] iteration 3  
2094 [2018-12-19 07:04:35.959651] iteration 4
```

```
2095 [2018-12-19 07:04:38.185097] training MLP [5, 3, 3] withn  
      n=0.03  
2096 [2018-12-19 07:04:38.185097] iteration 0  
2097 [2018-12-19 07:04:40.383785] iteration 1  
2098 [2018-12-19 07:04:42.583954] iteration 2  
2099 [2018-12-19 07:04:44.772849] iteration 3  
2100 [2018-12-19 07:04:46.958965] iteration 4  
2101 [2018-12-19 07:04:49.115995] training MLP [5, 3, 3] withn  
      n=0.01  
2102 [2018-12-19 07:04:49.115995] iteration 0  
2103 [2018-12-19 07:04:51.315676] iteration 1  
2104 [2018-12-19 07:04:53.472046] iteration 2  
2105 [2018-12-19 07:04:55.670940] iteration 3  
2106 [2018-12-19 07:04:57.846029] iteration 4  
2107 [2018-12-19 07:05:00.046926] training MLP [5, 3, 3] withn  
      n=0.003  
2108 [2018-12-19 07:05:00.046926] iteration 0  
2109 [2018-12-19 07:05:02.239278] iteration 1  
2110 [2018-12-19 07:05:04.453699] iteration 2  
2111 [2018-12-19 07:05:06.691492] iteration 3  
2112 [2018-12-19 07:05:08.880336] iteration 4  
2113 ##### Wine Experiment - Layers [5, 3, 3]  
2114  
2115 Best n:  
2116 0.3  
2117 Confusion Matrix:  
2118 [[ 5  7  0]  
2119 [ 1 13  0]  
2120 [ 0 10  0]]  
2121 Precision:  
2122 0.5  
2123 [2018-12-19 07:05:11.172086] training MLP [5, 3, 4] withn  
      n=0.3  
2124 [2018-12-19 07:05:11.172086] iteration 0  
2125 [2018-12-19 07:05:13.360808] iteration 1  
2126 [2018-12-19 07:05:15.584071] iteration 2  
2127 [2018-12-19 07:05:17.814176] iteration 3  
2128 [2018-12-19 07:05:20.075835] iteration 4  
2129 [2018-12-19 07:05:22.348208] training MLP [5, 3, 4] withn  
      n=0.1  
2130 [2018-12-19 07:05:22.348208] iteration 0  
2131 [2018-12-19 07:05:24.581321] iteration 1  
2132 [2018-12-19 07:05:26.801643] iteration 2  
2133 [2018-12-19 07:05:29.020140] iteration 3  
2134 [2018-12-19 07:05:31.443731] iteration 4
```

```
2135 [2018-12-19 07:05:34.161734] training MLP [5, 3, 4] withn  
    n=0.03  
2136 [2018-12-19 07:05:34.161734] iteration 0  
2137 [2018-12-19 07:05:36.526590] iteration 1  
2138 [2018-12-19 07:05:38.729884] iteration 2  
2139 [2018-12-19 07:05:41.011502] iteration 3  
2140 [2018-12-19 07:05:43.304081] iteration 4  
2141 [2018-12-19 07:05:45.646783] training MLP [5, 3, 4] withn  
    n=0.01  
2142 [2018-12-19 07:05:45.646783] iteration 0  
2143 [2018-12-19 07:05:47.855907] iteration 1  
2144 [2018-12-19 07:05:50.072488] iteration 2  
2145 [2018-12-19 07:05:52.309170] iteration 3  
2146 [2018-12-19 07:05:54.505715] iteration 4  
2147 [2018-12-19 07:05:56.726739] training MLP [5, 3, 4] withn  
    n=0.003  
2148 [2018-12-19 07:05:56.726739] iteration 0  
2149 [2018-12-19 07:05:58.974903] iteration 1  
2150 [2018-12-19 07:06:01.278861] iteration 2  
2151 [2018-12-19 07:06:03.471300] iteration 3  
2152 [2018-12-19 07:06:05.717869] iteration 4  
2153 ##### Wine Experiment - Layers [5, 3, 4]  
2154  
2155 Best n:  
2156 0.3  
2157 Confusion Matrix:  
2158 [[ 6  6  0]  
2159  [ 1 13  0]  
2160  [ 0 10  0]]  
2161 Precision:  
2162 0.5277777777777778  
2163 [2018-12-19 07:06:08.090593] training MLP [5, 3, 5] withn  
    n=0.3  
2164 [2018-12-19 07:06:08.091593] iteration 0  
2165 [2018-12-19 07:06:10.384155] iteration 1  
2166 [2018-12-19 07:06:12.615388] iteration 2  
2167 [2018-12-19 07:06:15.264374] iteration 3  
2168 [2018-12-19 07:06:17.457820] iteration 4  
2169 [2018-12-19 07:06:19.704367] training MLP [5, 3, 5] withn  
    n=0.1  
2170 [2018-12-19 07:06:19.704367] iteration 0  
2171 [2018-12-19 07:06:22.018246] iteration 1  
2172 [2018-12-19 07:06:24.223975] iteration 2  
2173 [2018-12-19 07:06:26.450682] iteration 3  
2174 [2018-12-19 07:06:28.770763] iteration 4
```

```
2175 [2018-12-19 07:06:31.244769] training MLP [5, 3, 5] withn  
    n=0.03  
2176 [2018-12-19 07:06:31.244769] iteration 0  
2177 [2018-12-19 07:06:33.533663] iteration 1  
2178 [2018-12-19 07:06:35.762652] iteration 2  
2179 [2018-12-19 07:06:38.125290] iteration 3  
2180 [2018-12-19 07:06:40.409256] iteration 4  
2181 [2018-12-19 07:06:42.740652] training MLP [5, 3, 5] withn  
    n=0.01  
2182 [2018-12-19 07:06:42.740652] iteration 0  
2183 [2018-12-19 07:06:45.021913] iteration 1  
2184 [2018-12-19 07:06:47.239264] iteration 2  
2185 [2018-12-19 07:06:49.588401] iteration 3  
2186 [2018-12-19 07:06:51.884419] iteration 4  
2187 [2018-12-19 07:06:54.114536] training MLP [5, 3, 5] withn  
    n=0.003  
2188 [2018-12-19 07:06:54.114536] iteration 0  
2189 [2018-12-19 07:06:56.313211] iteration 1  
2190 [2018-12-19 07:06:58.467864] iteration 2  
2191 [2018-12-19 07:07:00.783521] iteration 3  
2192 [2018-12-19 07:07:03.322395] iteration 4  
2193 ##### Wine Experiment - Layers [5, 3, 5]  
2194  
2195 Best n:  
2196 0.3  
2197 Confusion Matrix:  
2198 [[ 0 12  0]  
2199 [ 0 14  0]  
2200 [ 0 10  0]]  
2201 Precision:  
2202 0.3888888888888889  
2203 [2018-12-19 07:07:05.650227] training MLP [5, 3, 6] withn  
    n=0.3  
2204 [2018-12-19 07:07:05.650227] iteration 0  
2205 [2018-12-19 07:07:07.938048] iteration 1  
2206 [2018-12-19 07:07:10.199370] iteration 2  
2207 [2018-12-19 07:07:12.881773] iteration 3  
2208 [2018-12-19 07:07:15.118994] iteration 4  
2209 [2018-12-19 07:07:17.427902] training MLP [5, 3, 6] withn  
    n=0.1  
2210 [2018-12-19 07:07:17.427902] iteration 0  
2211 [2018-12-19 07:07:19.715823] iteration 1  
2212 [2018-12-19 07:07:22.000394] iteration 2  
2213 [2018-12-19 07:07:24.206304] iteration 3  
2214 [2018-12-19 07:07:26.416382] iteration 4
```

```
2215 [2018-12-19 07:07:28.675096] training MLP [5, 3, 6] withn  
    n=0.03  
2216 [2018-12-19 07:07:28.675096] iteration 0  
2217 [2018-12-19 07:07:30.996013] iteration 1  
2218 [2018-12-19 07:07:33.241197] iteration 2  
2219 [2018-12-19 07:07:35.540372] iteration 3  
2220 [2018-12-19 07:07:37.774682] iteration 4  
2221 [2018-12-19 07:07:39.974554] training MLP [5, 3, 6] withn  
    n=0.01  
2222 [2018-12-19 07:07:39.974554] iteration 0  
2223 [2018-12-19 07:07:42.193069] iteration 1  
2224 [2018-12-19 07:07:44.435316] iteration 2  
2225 [2018-12-19 07:07:46.698113] iteration 3  
2226 [2018-12-19 07:07:49.015757] iteration 4  
2227 [2018-12-19 07:07:51.298532] training MLP [5, 3, 6] withn  
    n=0.003  
2228 [2018-12-19 07:07:51.298532] iteration 0  
2229 [2018-12-19 07:07:53.464552] iteration 1  
2230 [2018-12-19 07:07:55.705895] iteration 2  
2231 [2018-12-19 07:07:57.949863] iteration 3  
2232 [2018-12-19 07:08:00.274014] iteration 4  
2233 ##### Wine Experiment - Layers [5, 3, 6]  
2234  
2235 Best n:  
2236 0.3  
2237 Confusion Matrix:  
2238 [[ 0 12  0]  
2239 [ 0 14  0]  
2240 [ 0 10  0]]  
2241 Precision:  
2242 0.3888888888888889  
2243 [2018-12-19 07:08:02.590119] training MLP [5, 4, 3] withn  
    n=0.3  
2244 [2018-12-19 07:08:02.590119] iteration 0  
2245 [2018-12-19 07:08:04.824891] iteration 1  
2246 [2018-12-19 07:08:07.085909] iteration 2  
2247 [2018-12-19 07:08:09.357461] iteration 3  
2248 [2018-12-19 07:08:11.686439] iteration 4  
2249 [2018-12-19 07:08:13.927247] training MLP [5, 4, 3] withn  
    n=0.1  
2250 [2018-12-19 07:08:13.927247] iteration 0  
2251 [2018-12-19 07:08:16.190032] iteration 1  
2252 [2018-12-19 07:08:18.459694] iteration 2  
2253 [2018-12-19 07:08:20.675956] iteration 3  
2254 [2018-12-19 07:08:22.990438] iteration 4
```

```
2255 [2018-12-19 07:08:25.228538] training MLP [5, 4, 3] withn  
    n=0.03  
2256 [2018-12-19 07:08:25.228538] iteration 0  
2257 [2018-12-19 07:08:27.575933] iteration 1  
2258 [2018-12-19 07:08:29.841097] iteration 2  
2259 [2018-12-19 07:08:32.167696] iteration 3  
2260 [2018-12-19 07:08:34.388404] iteration 4  
2261 [2018-12-19 07:08:36.589241] training MLP [5, 4, 3] withn  
    n=0.01  
2262 [2018-12-19 07:08:36.589241] iteration 0  
2263 [2018-12-19 07:08:38.912326] iteration 1  
2264 [2018-12-19 07:08:41.100494] iteration 2  
2265 [2018-12-19 07:08:43.393956] iteration 3  
2266 [2018-12-19 07:08:45.663721] iteration 4  
2267 [2018-12-19 07:08:47.950118] training MLP [5, 4, 3] withn  
    n=0.003  
2268 [2018-12-19 07:08:47.950118] iteration 0  
2269 [2018-12-19 07:08:50.157465] iteration 1  
2270 [2018-12-19 07:08:52.394056] iteration 2  
2271 [2018-12-19 07:08:54.745430] iteration 3  
2272 [2018-12-19 07:08:56.959631] iteration 4  
2273 ##### Wine Experiment - Layers [5, 4, 3]  
2274  
2275 Best n:  
2276 0.3  
2277 Confusion Matrix:  
2278 [[ 0 12  0]  
2279 [ 0 14  0]  
2280 [ 0 10  0]]  
2281 Precision:  
2282 0.3888888888888889  
2283 [2018-12-19 07:08:59.318788] training MLP [5, 4, 4] withn  
    n=0.3  
2284 [2018-12-19 07:08:59.318788] iteration 0  
2285 [2018-12-19 07:09:01.686136] iteration 1  
2286 [2018-12-19 07:09:03.972649] iteration 2  
2287 [2018-12-19 07:09:06.207190] iteration 3  
2288 [2018-12-19 07:09:08.422287] iteration 4  
2289 [2018-12-19 07:09:10.754071] training MLP [5, 4, 4] withn  
    n=0.1  
2290 [2018-12-19 07:09:10.754071] iteration 0  
2291 [2018-12-19 07:09:13.026695] iteration 1  
2292 [2018-12-19 07:09:15.243119] iteration 2  
2293 [2018-12-19 07:09:17.457947] iteration 3  
2294 [2018-12-19 07:09:19.659581] iteration 4
```

```
2295 [2018-12-19 07:09:21.852729] training MLP [5, 4, 4] withn  
    n=0.03  
2296 [2018-12-19 07:09:21.852729] iteration 0  
2297 [2018-12-19 07:09:24.051959] iteration 1  
2298 [2018-12-19 07:09:26.256358] iteration 2  
2299 [2018-12-19 07:09:28.519691] iteration 3  
2300 [2018-12-19 07:09:30.749960] iteration 4  
2301 [2018-12-19 07:09:33.037523] training MLP [5, 4, 4] withn  
    n=0.01  
2302 [2018-12-19 07:09:33.037523] iteration 0  
2303 [2018-12-19 07:09:35.287230] iteration 1  
2304 [2018-12-19 07:09:37.521728] iteration 2  
2305 [2018-12-19 07:09:39.757250] iteration 3  
2306 [2018-12-19 07:09:42.100423] iteration 4  
2307 [2018-12-19 07:09:44.413415] training MLP [5, 4, 4] withn  
    n=0.003  
2308 [2018-12-19 07:09:44.413415] iteration 0  
2309 [2018-12-19 07:09:46.660121] iteration 1  
2310 [2018-12-19 07:09:48.849481] iteration 2  
2311 [2018-12-19 07:09:51.053882] iteration 3  
2312 [2018-12-19 07:09:53.279064] iteration 4  
2313 ##### Wine Experiment - Layers [5, 4, 4]  
2314  
2315 Best n:  
2316 0.3  
2317 Confusion Matrix:  
2318 [[12  0  0]  
2319  [10  4  0]  
2320  [ 9  1  0]]  
2321 Precision:  
2322 0.4444444444444444  
2323 [2018-12-19 07:09:55.665761] training MLP [5, 4, 5] withn  
    n=0.3  
2324 [2018-12-19 07:09:55.665761] iteration 0  
2325 [2018-12-19 07:09:57.964045] iteration 1  
2326 [2018-12-19 07:10:00.185009] iteration 2  
2327 [2018-12-19 07:10:02.372515] iteration 3  
2328 [2018-12-19 07:10:04.604055] iteration 4  
2329 [2018-12-19 07:10:06.815758] training MLP [5, 4, 5] withn  
    n=0.1  
2330 [2018-12-19 07:10:06.815758] iteration 0  
2331 [2018-12-19 07:10:09.050312] iteration 1  
2332 [2018-12-19 07:10:11.373663] iteration 2  
2333 [2018-12-19 07:10:13.621340] iteration 3  
2334 [2018-12-19 07:10:15.805050] iteration 4
```

```
2335 [2018-12-19 07:10:17.977701] training MLP [5, 4, 5] withn  
    n=0.03  
2336 [2018-12-19 07:10:17.977701] iteration 0  
2337 [2018-12-19 07:10:20.166584] iteration 1  
2338 [2018-12-19 07:10:22.434747] iteration 2  
2339 [2018-12-19 07:10:24.617860] iteration 3  
2340 [2018-12-19 07:10:26.801211] iteration 4  
2341 [2018-12-19 07:10:29.016777] training MLP [5, 4, 5] withn  
    n=0.01  
2342 [2018-12-19 07:10:29.016777] iteration 0  
2343 [2018-12-19 07:10:31.190697] iteration 1  
2344 [2018-12-19 07:10:33.416176] iteration 2  
2345 [2018-12-19 07:10:35.646548] iteration 3  
2346 [2018-12-19 07:10:37.928764] iteration 4  
2347 [2018-12-19 07:10:40.114542] training MLP [5, 4, 5] withn  
    n=0.003  
2348 [2018-12-19 07:10:40.114542] iteration 0  
2349 [2018-12-19 07:10:42.307586] iteration 1  
2350 [2018-12-19 07:10:44.553702] iteration 2  
2351 [2018-12-19 07:10:46.782713] iteration 3  
2352 [2018-12-19 07:10:49.068853] iteration 4  
2353 ##### Wine Experiment - Layers [5, 4, 5]  
2354  
2355 Best n:  
2356 0.3  
2357 Confusion Matrix:  
2358 [[ 4  8  0]  
2359 [ 1 13  0]  
2360 [ 0 10  0]]  
2361 Precision:  
2362 0.4722222222222222  
2363 [2018-12-19 07:10:51.532472] training MLP [5, 4, 6] withn  
    n=0.3  
2364 [2018-12-19 07:10:51.532472] iteration 0  
2365 [2018-12-19 07:10:53.752327] iteration 1  
2366 [2018-12-19 07:10:55.990199] iteration 2  
2367 [2018-12-19 07:10:58.390202] iteration 3  
2368 [2018-12-19 07:11:00.621278] iteration 4  
2369 [2018-12-19 07:11:02.826697] training MLP [5, 4, 6] withn  
    n=0.1  
2370 [2018-12-19 07:11:02.826697] iteration 0  
2371 [2018-12-19 07:11:05.068373] iteration 1  
2372 [2018-12-19 07:11:07.312607] iteration 2  
2373 [2018-12-19 07:11:09.605973] iteration 3  
2374 [2018-12-19 07:11:11.841788] iteration 4
```

```
2375 [2018-12-19 07:11:14.084463] training MLP [5, 4, 6] withn  
    n=0.03  
2376 [2018-12-19 07:11:14.084463] iteration 0  
2377 [2018-12-19 07:11:16.281627] iteration 1  
2378 [2018-12-19 07:11:18.560623] iteration 2  
2379 [2018-12-19 07:11:20.827094] iteration 3  
2380 [2018-12-19 07:11:23.037310] iteration 4  
2381 [2018-12-19 07:11:25.267659] training MLP [5, 4, 6] withn  
    n=0.01  
2382 [2018-12-19 07:11:25.267659] iteration 0  
2383 [2018-12-19 07:11:27.450995] iteration 1  
2384 [2018-12-19 07:11:29.830385] iteration 2  
2385 [2018-12-19 07:11:32.021244] iteration 3  
2386 [2018-12-19 07:11:34.346077] iteration 4  
2387 [2018-12-19 07:11:36.581771] training MLP [5, 4, 6] withn  
    n=0.003  
2388 [2018-12-19 07:11:36.581771] iteration 0  
2389 [2018-12-19 07:11:38.802538] iteration 1  
2390 [2018-12-19 07:11:41.099673] iteration 2  
2391 [2018-12-19 07:11:43.425346] iteration 3  
2392 [2018-12-19 07:11:45.655829] iteration 4  
2393 ##### Wine Experiment - Layers [5, 4, 6]  
2394  
2395 Best n:  
2396 0.3  
2397 Confusion Matrix:  
2398 [[12  0  0]  
2399 [ 2 12  0]  
2400 [ 9  1  0]]  
2401 Precision:  
2402 0.6666666666666666  
2403 [2018-12-19 07:11:48.053709] training MLP [5, 5, 3] withn  
    n=0.3  
2404 [2018-12-19 07:11:48.053709] iteration 0  
2405 [2018-12-19 07:11:50.247427] iteration 1  
2406 [2018-12-19 07:11:52.490061] iteration 2  
2407 [2018-12-19 07:11:54.677371] iteration 3  
2408 [2018-12-19 07:11:56.975632] iteration 4  
2409 [2018-12-19 07:11:59.302197] training MLP [5, 5, 3] withn  
    n=0.1  
2410 [2018-12-19 07:11:59.302197] iteration 0  
2411 [2018-12-19 07:12:01.565774] iteration 1  
2412 [2018-12-19 07:12:03.876419] iteration 2  
2413 [2018-12-19 07:12:06.170315] iteration 3  
2414 [2018-12-19 07:12:08.506188] iteration 4
```

```
2415 [2018-12-19 07:12:11.083410] training MLP [5, 5, 3] withn  
    n=0.03  
2416 [2018-12-19 07:12:11.083410] iteration 0  
2417 [2018-12-19 07:12:13.431545] iteration 1  
2418 [2018-12-19 07:12:15.689846] iteration 2  
2419 [2018-12-19 07:12:17.884610] iteration 3  
2420 [2018-12-19 07:12:20.240126] iteration 4  
2421 [2018-12-19 07:12:22.457686] training MLP [5, 5, 3] withn  
    n=0.01  
2422 [2018-12-19 07:12:22.457686] iteration 0  
2423 [2018-12-19 07:12:24.834959] iteration 1  
2424 [2018-12-19 07:12:27.052398] iteration 2  
2425 [2018-12-19 07:12:29.427235] iteration 3  
2426 [2018-12-19 07:12:31.676710] iteration 4  
2427 [2018-12-19 07:12:33.848330] training MLP [5, 5, 3] withn  
    n=0.003  
2428 [2018-12-19 07:12:33.848330] iteration 0  
2429 [2018-12-19 07:12:36.053794] iteration 1  
2430 [2018-12-19 07:12:38.334213] iteration 2  
2431 [2018-12-19 07:12:40.664642] iteration 3  
2432 [2018-12-19 07:12:42.880506] iteration 4  
2433 ##### Wine Experiment - Layers [5, 5, 3]  
2434  
2435 Best n:  
2436 0.3  
2437 Confusion Matrix:  
2438 [[ 0 12  0]  
2439 [ 0 14  0]  
2440 [ 0 10  0]]  
2441 Precision:  
2442 0.3888888888888889  
2443 [2018-12-19 07:12:45.178151] training MLP [5, 5, 4] withn  
    n=0.3  
2444 [2018-12-19 07:12:45.178151] iteration 0  
2445 [2018-12-19 07:12:47.553455] iteration 1  
2446 [2018-12-19 07:12:49.803613] iteration 2  
2447 [2018-12-19 07:12:52.006152] iteration 3  
2448 [2018-12-19 07:12:54.323844] iteration 4  
2449 [2018-12-19 07:12:56.588809] training MLP [5, 5, 4] withn  
    n=0.1  
2450 [2018-12-19 07:12:56.588809] iteration 0  
2451 [2018-12-19 07:12:58.813937] iteration 1  
2452 [2018-12-19 07:13:01.126023] iteration 2  
2453 [2018-12-19 07:13:03.340623] iteration 3  
2454 [2018-12-19 07:13:05.575024] iteration 4
```

```
2455 [2018-12-19 07:13:07.810297] training MLP [5, 5, 4] withn  
    n=0.03  
2456 [2018-12-19 07:13:07.810297] iteration 0  
2457 [2018-12-19 07:13:10.091310] iteration 1  
2458 [2018-12-19 07:13:12.356330] iteration 2  
2459 [2018-12-19 07:13:14.630853] iteration 3  
2460 [2018-12-19 07:13:16.835097] iteration 4  
2461 [2018-12-19 07:13:19.140820] training MLP [5, 5, 4] withn  
    n=0.01  
2462 [2018-12-19 07:13:19.140820] iteration 0  
2463 [2018-12-19 07:13:21.412200] iteration 1  
2464 [2018-12-19 07:13:23.616239] iteration 2  
2465 [2018-12-19 07:13:25.880571] iteration 3  
2466 [2018-12-19 07:13:28.146171] iteration 4  
2467 [2018-12-19 07:13:30.489703] training MLP [5, 5, 4] withn  
    n=0.003  
2468 [2018-12-19 07:13:30.489703] iteration 0  
2469 [2018-12-19 07:13:32.706201] iteration 1  
2470 [2018-12-19 07:13:34.927046] iteration 2  
2471 [2018-12-19 07:13:37.169266] iteration 3  
2472 [2018-12-19 07:13:39.442286] iteration 4  
2473 ##### Wine Experiment - Layers [5, 5, 4]  
2474  
2475 Best n:  
2476 0.3  
2477 Confusion Matrix:  
2478 [[ 8  4  0]  
2479 [ 1 13  0]  
2480 [ 2  8  0]]  
2481 Precision:  
2482 0.5833333333333334  
2483 [2018-12-19 07:13:41.745852] training MLP [5, 5, 5] withn  
    n=0.3  
2484 [2018-12-19 07:13:41.745852] iteration 0  
2485 [2018-12-19 07:13:44.001526] iteration 1  
2486 [2018-12-19 07:13:46.431669] iteration 2  
2487 [2018-12-19 07:13:48.688204] iteration 3  
2488 [2018-12-19 07:13:50.990489] iteration 4  
2489 [2018-12-19 07:13:53.302014] training MLP [5, 5, 5] withn  
    n=0.1  
2490 [2018-12-19 07:13:53.302014] iteration 0  
2491 [2018-12-19 07:13:55.545187] iteration 1  
2492 [2018-12-19 07:13:57.847170] iteration 2  
2493 [2018-12-19 07:14:00.063888] iteration 3  
2494 [2018-12-19 07:14:02.371443] iteration 4
```

```
2495 [2018-12-19 07:14:04.636245] training MLP [5, 5, 5] withn  
    n=0.03  
2496 [2018-12-19 07:14:04.636245] iteration 0  
2497 [2018-12-19 07:14:06.976439] iteration 1  
2498 [2018-12-19 07:14:09.277184] iteration 2  
2499 [2018-12-19 07:14:11.607282] iteration 3  
2500 [2018-12-19 07:14:13.883535] iteration 4  
2501 [2018-12-19 07:14:16.198996] training MLP [5, 5, 5] withn  
    n=0.01  
2502 [2018-12-19 07:14:16.198996] iteration 0  
2503 [2018-12-19 07:14:18.471740] iteration 1  
2504 [2018-12-19 07:14:20.870136] iteration 2  
2505 [2018-12-19 07:14:23.118703] iteration 3  
2506 [2018-12-19 07:14:25.388947] iteration 4  
2507 [2018-12-19 07:14:27.748296] training MLP [5, 5, 5] withn  
    n=0.003  
2508 [2018-12-19 07:14:27.748296] iteration 0  
2509 [2018-12-19 07:14:30.490720] iteration 1  
2510 [2018-12-19 07:14:32.932177] iteration 2  
2511 [2018-12-19 07:14:35.286669] iteration 3  
2512 [2018-12-19 07:14:37.927743] iteration 4  
2513 ##### Wine Experiment - Layers [5, 5, 5]  
2514  
2515 Best n:  
2516 0.3  
2517 Confusion Matrix:  
2518 [[12  0  0]  
2519 [ 2 12  0]  
2520 [ 7  3  0]]  
2521 Precision:  
2522 0.6666666666666666  
2523 [2018-12-19 07:14:40.705334] training MLP [5, 5, 6] withn  
    n=0.3  
2524 [2018-12-19 07:14:40.705334] iteration 0  
2525 [2018-12-19 07:14:43.256862] iteration 1  
2526 [2018-12-19 07:14:46.052671] iteration 2  
2527 [2018-12-19 07:14:48.568189] iteration 3  
2528 [2018-12-19 07:14:51.165036] iteration 4  
2529 [2018-12-19 07:14:53.642358] training MLP [5, 5, 6] withn  
    n=0.1  
2530 [2018-12-19 07:14:53.642358] iteration 0  
2531 [2018-12-19 07:14:56.129916] iteration 1  
2532 [2018-12-19 07:14:58.630791] iteration 2  
2533 [2018-12-19 07:15:01.115687] iteration 3  
2534 [2018-12-19 07:15:03.489984] iteration 4
```

```
2535 [2018-12-19 07:15:05.896957] training MLP [5, 5, 6] withn  
    n=0.03  
2536 [2018-12-19 07:15:05.896957] iteration 0  
2537 [2018-12-19 07:15:08.364928] iteration 1  
2538 [2018-12-19 07:15:10.824158] iteration 2  
2539 [2018-12-19 07:15:13.319023] iteration 3  
2540 [2018-12-19 07:15:15.849855] iteration 4  
2541 [2018-12-19 07:15:18.364667] training MLP [5, 5, 6] withn  
    n=0.01  
2542 [2018-12-19 07:15:18.364667] iteration 0  
2543 [2018-12-19 07:15:20.786364] iteration 1  
2544 [2018-12-19 07:15:23.224978] iteration 2  
2545 [2018-12-19 07:15:25.645857] iteration 3  
2546 [2018-12-19 07:15:28.098983] iteration 4  
2547 [2018-12-19 07:15:30.520670] training MLP [5, 5, 6] withn  
    n=0.003  
2548 [2018-12-19 07:15:30.520670] iteration 0  
2549 [2018-12-19 07:15:32.913017] iteration 1  
2550 [2018-12-19 07:15:35.209013] iteration 2  
2551 [2018-12-19 07:15:37.460371] iteration 3  
2552 [2018-12-19 07:15:39.738181] iteration 4  
2553 ##### Wine Experiment - Layers [5, 5, 6]  
2554  
2555 Best n:  
2556 0.3  
2557 Confusion Matrix:  
2558 [[ 6  6  0]  
2559 [ 1 13  0]  
2560 [ 0 10  0]]  
2561 Precision:  
2562 0.5277777777777778  
2563 [2018-12-19 07:15:42.080115] training MLP [5, 6, 3] withn  
    n=0.3  
2564 [2018-12-19 07:15:42.080115] iteration 0  
2565 [2018-12-19 07:15:44.300714] iteration 1  
2566 [2018-12-19 07:15:46.601166] iteration 2  
2567 [2018-12-19 07:15:49.224675] iteration 3  
2568 [2018-12-19 07:15:51.721397] iteration 4  
2569 [2018-12-19 07:15:53.954858] training MLP [5, 6, 3] withn  
    n=0.1  
2570 [2018-12-19 07:15:53.954858] iteration 0  
2571 [2018-12-19 07:15:56.294076] iteration 1  
2572 [2018-12-19 07:15:58.633210] iteration 2  
2573 [2018-12-19 07:16:00.951878] iteration 3  
2574 [2018-12-19 07:16:03.527669] iteration 4
```

```
2575 [2018-12-19 07:16:05.881437] training MLP [5, 6, 3] withn  
    n=0.03  
2576 [2018-12-19 07:16:05.881437] iteration 0  
2577 [2018-12-19 07:16:08.114955] iteration 1  
2578 [2018-12-19 07:16:10.392928] iteration 2  
2579 [2018-12-19 07:16:12.722450] iteration 3  
2580 [2018-12-19 07:16:15.091211] iteration 4  
2581 [2018-12-19 07:16:17.382647] training MLP [5, 6, 3] withn  
    n=0.01  
2582 [2018-12-19 07:16:17.382647] iteration 0  
2583 [2018-12-19 07:16:19.717816] iteration 1  
2584 [2018-12-19 07:16:22.015913] iteration 2  
2585 [2018-12-19 07:16:24.303362] iteration 3  
2586 [2018-12-19 07:16:26.551598] iteration 4  
2587 [2018-12-19 07:16:29.193260] training MLP [5, 6, 3] withn  
    n=0.003  
2588 [2018-12-19 07:16:29.193260] iteration 0  
2589 [2018-12-19 07:16:31.661153] iteration 1  
2590 [2018-12-19 07:16:34.145852] iteration 2  
2591 [2018-12-19 07:16:36.694463] iteration 3  
2592 [2018-12-19 07:16:39.067426] iteration 4  
2593 ##### Wine Experiment - Layers [5, 6, 3]  
2594  
2595 Best n:  
2596 0.3  
2597 Confusion Matrix:  
2598 [[12  0  0]  
2599 [ 2 12  0]  
2600 [ 8  2  0]]  
2601 Precision:  
2602 0.6666666666666666  
2603 [2018-12-19 07:16:41.524473] training MLP [5, 6, 4] withn  
    n=0.3  
2604 [2018-12-19 07:16:41.524473] iteration 0  
2605 [2018-12-19 07:16:43.781923] iteration 1  
2606 [2018-12-19 07:16:46.047078] iteration 2  
2607 [2018-12-19 07:16:48.323159] iteration 3  
2608 [2018-12-19 07:16:50.608789] iteration 4  
2609 [2018-12-19 07:16:52.845753] training MLP [5, 6, 4] withn  
    n=0.1  
2610 [2018-12-19 07:16:52.845753] iteration 0  
2611 [2018-12-19 07:16:55.077710] iteration 1  
2612 [2018-12-19 07:16:57.316829] iteration 2  
2613 [2018-12-19 07:16:59.631229] iteration 3  
2614 [2018-12-19 07:17:02.088875] iteration 4
```

```
2615 [2018-12-19 07:17:04.418669] training MLP [5, 6, 4] withn  
    n=0.03  
2616 [2018-12-19 07:17:04.418669] iteration 0  
2617 [2018-12-19 07:17:06.646689] iteration 1  
2618 [2018-12-19 07:17:08.930894] iteration 2  
2619 [2018-12-19 07:17:11.170664] iteration 3  
2620 [2018-12-19 07:17:13.451902] iteration 4  
2621 [2018-12-19 07:17:15.694981] training MLP [5, 6, 4] withn  
    n=0.01  
2622 [2018-12-19 07:17:15.694981] iteration 0  
2623 [2018-12-19 07:17:18.065619] iteration 1  
2624 [2018-12-19 07:17:20.385094] iteration 2  
2625 [2018-12-19 07:17:22.677961] iteration 3  
2626 [2018-12-19 07:17:24.974271] iteration 4  
2627 [2018-12-19 07:17:27.380879] training MLP [5, 6, 4] withn  
    n=0.003  
2628 [2018-12-19 07:17:27.380879] iteration 0  
2629 [2018-12-19 07:17:29.667090] iteration 1  
2630 [2018-12-19 07:17:31.887508] iteration 2  
2631 [2018-12-19 07:17:34.133992] iteration 3  
2632 [2018-12-19 07:17:36.464080] iteration 4  
2633 ##### Wine Experiment - Layers [5, 6, 4]  
2634  
2635 Best n:  
2636 0.3  
2637 Confusion Matrix:  
2638 [[ 0 12  0]  
2639  [ 0 14  0]  
2640  [ 0 10  0]]  
2641 Precision:  
2642 0.3888888888888889  
2643 [2018-12-19 07:17:38.824203] training MLP [5, 6, 5] withn  
    n=0.3  
2644 [2018-12-19 07:17:38.824203] iteration 0  
2645 [2018-12-19 07:17:41.090732] iteration 1  
2646 [2018-12-19 07:17:43.415786] iteration 2  
2647 [2018-12-19 07:17:45.791299] iteration 3  
2648 [2018-12-19 07:17:48.020693] iteration 4  
2649 [2018-12-19 07:17:50.295364] training MLP [5, 6, 5] withn  
    n=0.1  
2650 [2018-12-19 07:17:50.295364] iteration 0  
2651 [2018-12-19 07:17:52.685352] iteration 1  
2652 [2018-12-19 07:17:54.962011] iteration 2  
2653 [2018-12-19 07:17:57.264752] iteration 3  
2654 [2018-12-19 07:17:59.638881] iteration 4
```

```
2655 [2018-12-19 07:18:01.942915] training MLP [5, 6, 5] withn  
    n=0.03  
2656 [2018-12-19 07:18:01.942915] iteration 0  
2657 [2018-12-19 07:18:04.167919] iteration 1  
2658 [2018-12-19 07:18:06.508138] iteration 2  
2659 [2018-12-19 07:18:08.729186] iteration 3  
2660 [2018-12-19 07:18:11.032607] iteration 4  
2661 [2018-12-19 07:18:13.247928] training MLP [5, 6, 5] withn  
    n=0.01  
2662 [2018-12-19 07:18:13.247928] iteration 0  
2663 [2018-12-19 07:18:15.540749] iteration 1  
2664 [2018-12-19 07:18:17.857967] iteration 2  
2665 [2018-12-19 07:18:20.563037] iteration 3  
2666 [2018-12-19 07:18:22.931316] iteration 4  
2667 [2018-12-19 07:18:25.460379] training MLP [5, 6, 5] withn  
    n=0.003  
2668 [2018-12-19 07:18:25.460379] iteration 0  
2669 [2018-12-19 07:18:27.990462] iteration 1  
2670 [2018-12-19 07:18:30.349072] iteration 2  
2671 [2018-12-19 07:18:32.824197] iteration 3  
2672 [2018-12-19 07:18:35.340087] iteration 4  
2673 ##### Wine Experiment - Layers [5, 6, 5]  
2674  
2675 Best n:  
2676 0.3  
2677 Confusion Matrix:  
2678 [[10  2  0]  
2679  [ 1 13  0]  
2680  [ 1  9  0]]  
2681 Precision:  
2682 0.6388888888888888  
2683 [2018-12-19 07:18:37.755175] training MLP [5, 6, 6] withn  
    n=0.3  
2684 [2018-12-19 07:18:37.755175] iteration 0  
2685 [2018-12-19 07:18:40.032306] iteration 1  
2686 [2018-12-19 07:18:42.351998] iteration 2  
2687 [2018-12-19 07:18:44.611863] iteration 3  
2688 [2018-12-19 07:18:47.068011] iteration 4  
2689 [2018-12-19 07:18:49.407127] training MLP [5, 6, 6] withn  
    n=0.1  
2690 [2018-12-19 07:18:49.407127] iteration 0  
2691 [2018-12-19 07:18:52.067316] iteration 1  
2692 [2018-12-19 07:18:54.430547] iteration 2  
2693 [2018-12-19 07:18:56.825473] iteration 3  
2694 [2018-12-19 07:18:59.179499] iteration 4
```

```
2695 [2018-12-19 07:19:01.466349] training MLP [5, 6, 6] withn  
    n=0.03  
2696 [2018-12-19 07:19:01.466349] iteration 0  
2697 [2018-12-19 07:19:03.725707] iteration 1  
2698 [2018-12-19 07:19:06.036782] iteration 2  
2699 [2018-12-19 07:19:08.290754] iteration 3  
2700 [2018-12-19 07:19:10.530205] iteration 4  
2701 [2018-12-19 07:19:12.881179] training MLP [5, 6, 6] withn  
    n=0.01  
2702 [2018-12-19 07:19:12.881179] iteration 0  
2703 [2018-12-19 07:19:15.328724] iteration 1  
2704 [2018-12-19 07:19:17.629263] iteration 2  
2705 [2018-12-19 07:19:19.914515] iteration 3  
2706 [2018-12-19 07:19:22.157641] iteration 4  
2707 [2018-12-19 07:19:24.422841] training MLP [5, 6, 6] withn  
    n=0.003  
2708 [2018-12-19 07:19:24.422841] iteration 0  
2709 [2018-12-19 07:19:26.755322] iteration 1  
2710 [2018-12-19 07:19:29.183194] iteration 2  
2711 [2018-12-19 07:19:31.472787] iteration 3  
2712 [2018-12-19 07:19:33.694152] iteration 4  
2713 ##### Wine Experiment - Layers [5, 6, 6]  
2714  
2715 Best n:  
2716 0.3  
2717 Confusion Matrix:  
2718 [[12  0  0]  
2719 [ 2 12  0]  
2720 [ 3  7  0]]  
2721 Precision:  
2722 0.6666666666666666  
2723 [2018-12-19 07:19:36.355801] training MLP [6, 3, 3] withn  
    n=0.3  
2724 [2018-12-19 07:19:36.355801] iteration 0  
2725 [2018-12-19 07:19:38.667021] iteration 1  
2726 [2018-12-19 07:19:41.115798] iteration 2  
2727 [2018-12-19 07:19:43.364970] iteration 3  
2728 [2018-12-19 07:19:45.641618] iteration 4  
2729 [2018-12-19 07:19:47.825904] training MLP [6, 3, 3] withn  
    n=0.1  
2730 [2018-12-19 07:19:47.825904] iteration 0  
2731 [2018-12-19 07:19:50.100430] iteration 1  
2732 [2018-12-19 07:19:52.350188] iteration 2  
2733 [2018-12-19 07:19:54.579392] iteration 3  
2734 [2018-12-19 07:19:56.779286] iteration 4
```

```
2735 [2018-12-19 07:19:59.007000] training MLP [6, 3, 3] withn  
    n=0.03  
2736 [2018-12-19 07:19:59.007000] iteration 0  
2737 [2018-12-19 07:20:01.361199] iteration 1  
2738 [2018-12-19 07:20:03.955800] iteration 2  
2739 [2018-12-19 07:20:06.309473] iteration 3  
2740 [2018-12-19 07:20:08.459686] iteration 4  
2741 [2018-12-19 07:20:10.722138] training MLP [6, 3, 3] withn  
    n=0.01  
2742 [2018-12-19 07:20:10.722138] iteration 0  
2743 [2018-12-19 07:20:13.007868] iteration 1  
2744 [2018-12-19 07:20:15.228744] iteration 2  
2745 [2018-12-19 07:20:17.596860] iteration 3  
2746 [2018-12-19 07:20:19.920575] iteration 4  
2747 [2018-12-19 07:20:22.120788] training MLP [6, 3, 3] withn  
    n=0.003  
2748 [2018-12-19 07:20:22.120788] iteration 0  
2749 [2018-12-19 07:20:24.435163] iteration 1  
2750 [2018-12-19 07:20:26.697344] iteration 2  
2751 [2018-12-19 07:20:28.928788] iteration 3  
2752 [2018-12-19 07:20:31.317173] iteration 4  
2753 ##### Wine Experiment - Layers [6, 3, 3]  
2754  
2755 Best n:  
2756 0.3  
2757 Confusion Matrix:  
2758 [[ 7  5  0]  
2759  [ 1 13  0]  
2760  [ 0 10  0]]  
2761 Precision:  
2762 0.5555555555555556  
2763 [2018-12-19 07:20:33.677622] training MLP [6, 3, 4] withn  
    n=0.3  
2764 [2018-12-19 07:20:33.677622] iteration 0  
2765 [2018-12-19 07:20:36.111885] iteration 1  
2766 [2018-12-19 07:20:38.692532] iteration 2  
2767 [2018-12-19 07:20:40.953442] iteration 3  
2768 [2018-12-19 07:20:43.275411] iteration 4  
2769 [2018-12-19 07:20:45.692695] training MLP [6, 3, 4] withn  
    n=0.1  
2770 [2018-12-19 07:20:45.692695] iteration 0  
2771 [2018-12-19 07:20:48.146876] iteration 1  
2772 [2018-12-19 07:20:50.600226] iteration 2  
2773 [2018-12-19 07:20:53.083400] iteration 3  
2774 [2018-12-19 07:20:55.443229] iteration 4
```

```
2775 [2018-12-19 07:20:57.742755] training MLP [6, 3, 4] withn  
    n=0.03  
2776 [2018-12-19 07:20:57.742755] iteration 0  
2777 [2018-12-19 07:21:00.114617] iteration 1  
2778 [2018-12-19 07:21:02.538935] iteration 2  
2779 [2018-12-19 07:21:04.959971] iteration 3  
2780 [2018-12-19 07:21:07.475833] iteration 4  
2781 [2018-12-19 07:21:09.733036] training MLP [6, 3, 4] withn  
    n=0.01  
2782 [2018-12-19 07:21:09.733036] iteration 0  
2783 [2018-12-19 07:21:12.048256] iteration 1  
2784 [2018-12-19 07:21:14.285965] iteration 2  
2785 [2018-12-19 07:21:16.591859] iteration 3  
2786 [2018-12-19 07:21:18.835841] iteration 4  
2787 [2018-12-19 07:21:21.108398] training MLP [6, 3, 4] withn  
    n=0.003  
2788 [2018-12-19 07:21:21.108398] iteration 0  
2789 [2018-12-19 07:21:23.515898] iteration 1  
2790 [2018-12-19 07:21:25.862965] iteration 2  
2791 [2018-12-19 07:21:28.074675] iteration 3  
2792 [2018-12-19 07:21:30.312706] iteration 4  
2793 ##### Wine Experiment - Layers [6, 3, 4]  
2794  
2795 Best n:  
2796 0.3  
2797 Confusion Matrix:  
2798 [[ 0 12  0]  
2799 [ 0 14  0]  
2800 [ 0 10  0]]  
2801 Precision:  
2802 0.3888888888888889  
2803 [2018-12-19 07:21:32.763050] training MLP [6, 3, 5] withn  
    n=0.3  
2804 [2018-12-19 07:21:32.763050] iteration 0  
2805 [2018-12-19 07:21:35.034781] iteration 1  
2806 [2018-12-19 07:21:37.295907] iteration 2  
2807 [2018-12-19 07:21:39.528824] iteration 3  
2808 [2018-12-19 07:21:41.877680] iteration 4  
2809 [2018-12-19 07:21:44.194839] training MLP [6, 3, 5] withn  
    n=0.1  
2810 [2018-12-19 07:21:44.194839] iteration 0  
2811 [2018-12-19 07:21:46.548541] iteration 1  
2812 [2018-12-19 07:21:48.859820] iteration 2  
2813 [2018-12-19 07:21:51.317418] iteration 3  
2814 [2018-12-19 07:21:53.637893] iteration 4
```

```
2815 [2018-12-19 07:21:55.906863] training MLP [6, 3, 5] withn  
    n=0.03  
2816 [2018-12-19 07:21:55.906863] iteration 0  
2817 [2018-12-19 07:21:58.207300] iteration 1  
2818 [2018-12-19 07:22:00.514812] iteration 2  
2819 [2018-12-19 07:22:02.904975] iteration 3  
2820 [2018-12-19 07:22:05.212356] iteration 4  
2821 [2018-12-19 07:22:07.483545] training MLP [6, 3, 5] withn  
    n=0.01  
2822 [2018-12-19 07:22:07.483545] iteration 0  
2823 [2018-12-19 07:22:09.786351] iteration 1  
2824 [2018-12-19 07:22:12.084531] iteration 2  
2825 [2018-12-19 07:22:14.429586] iteration 3  
2826 [2018-12-19 07:22:16.762367] iteration 4  
2827 [2018-12-19 07:22:19.065340] training MLP [6, 3, 5] withn  
    n=0.003  
2828 [2018-12-19 07:22:19.065340] iteration 0  
2829 [2018-12-19 07:22:21.361589] iteration 1  
2830 [2018-12-19 07:22:23.662640] iteration 2  
2831 [2018-12-19 07:22:26.318804] iteration 3  
2832 [2018-12-19 07:22:28.787991] iteration 4  
2833 ##### Wine Experiment - Layers [6, 3, 5]  
2834  
2835 Best n:  
2836 0.3  
2837 Confusion Matrix:  
2838 [[12  0  0]  
2839  [11  3  0]  
2840  [10  0  0]]  
2841 Precision:  
2842 0.4166666666666667  
2843 [2018-12-19 07:22:31.350400] training MLP [6, 3, 6] withn  
    n=0.3  
2844 [2018-12-19 07:22:31.350400] iteration 0  
2845 [2018-12-19 07:22:33.858986] iteration 1  
2846 [2018-12-19 07:22:36.271031] iteration 2  
2847 [2018-12-19 07:22:38.702300] iteration 3  
2848 [2018-12-19 07:22:41.194099] iteration 4  
2849 [2018-12-19 07:22:43.536684] training MLP [6, 3, 6] withn  
    n=0.1  
2850 [2018-12-19 07:22:43.536684] iteration 0  
2851 [2018-12-19 07:22:46.020866] iteration 1  
2852 [2018-12-19 07:22:48.395589] iteration 2  
2853 [2018-12-19 07:22:50.833481] iteration 3  
2854 [2018-12-19 07:22:53.255069] iteration 4
```

```
2855 [2018-12-19 07:22:55.646675] training MLP [6, 3, 6] withn  
    n=0.03  
2856 [2018-12-19 07:22:55.646675] iteration 0  
2857 [2018-12-19 07:22:58.083989] iteration 1  
2858 [2018-12-19 07:23:00.553864] iteration 2  
2859 [2018-12-19 07:23:02.974853] iteration 3  
2860 [2018-12-19 07:23:05.380220] iteration 4  
2861 [2018-12-19 07:23:07.771131] training MLP [6, 3, 6] withn  
    n=0.01  
2862 [2018-12-19 07:23:07.771131] iteration 0  
2863 [2018-12-19 07:23:10.131474] iteration 1  
2864 [2018-12-19 07:23:12.506634] iteration 2  
2865 [2018-12-19 07:23:14.911363] iteration 3  
2866 [2018-12-19 07:23:17.320395] iteration 4  
2867 [2018-12-19 07:23:19.725893] training MLP [6, 3, 6] withn  
    n=0.003  
2868 [2018-12-19 07:23:19.725893] iteration 0  
2869 [2018-12-19 07:23:22.195863] iteration 1  
2870 [2018-12-19 07:23:24.506637] iteration 2  
2871 [2018-12-19 07:23:26.881183] iteration 3  
2872 [2018-12-19 07:23:29.333895] iteration 4  
2873 ##### Wine Experiment - Layers [6, 3, 6]  
2874  
2875 Best n:  
2876 0.3  
2877 Confusion Matrix:  
2878 [[ 0 12  0]  
2879 [ 0 14  0]  
2880 [ 0 10  0]]  
2881 Precision:  
2882 0.3888888888888889  
2883 [2018-12-19 07:23:31.880080] training MLP [6, 4, 3] withn  
    n=0.3  
2884 [2018-12-19 07:23:31.880080] iteration 0  
2885 [2018-12-19 07:23:34.350357] iteration 1  
2886 [2018-12-19 07:23:36.771639] iteration 2  
2887 [2018-12-19 07:23:39.224799] iteration 3  
2888 [2018-12-19 07:23:41.600604] iteration 4  
2889 [2018-12-19 07:23:43.942912] training MLP [6, 4, 3] withn  
    n=0.1  
2890 [2018-12-19 07:23:43.942912] iteration 0  
2891 [2018-12-19 07:23:46.333364] iteration 1  
2892 [2018-12-19 07:23:48.754764] iteration 2  
2893 [2018-12-19 07:23:51.015853] iteration 3  
2894 [2018-12-19 07:23:53.213654] iteration 4
```

```
2895 [2018-12-19 07:23:55.378555] training MLP [6, 4, 3] withn  
    n=0.03  
2896 [2018-12-19 07:23:55.378555] iteration 0  
2897 [2018-12-19 07:23:57.691561] iteration 1  
2898 [2018-12-19 07:23:59.972771] iteration 2  
2899 [2018-12-19 07:24:02.253436] iteration 3  
2900 [2018-12-19 07:24:04.460008] iteration 4  
2901 [2018-12-19 07:24:06.769661] training MLP [6, 4, 3] withn  
    n=0.01  
2902 [2018-12-19 07:24:06.769661] iteration 0  
2903 [2018-12-19 07:24:09.078845] iteration 1  
2904 [2018-12-19 07:24:11.364361] iteration 2  
2905 [2018-12-19 07:24:13.717730] iteration 3  
2906 [2018-12-19 07:24:15.927950] iteration 4  
2907 [2018-12-19 07:24:18.160799] training MLP [6, 4, 3] withn  
    n=0.003  
2908 [2018-12-19 07:24:18.160799] iteration 0  
2909 [2018-12-19 07:24:20.441891] iteration 1  
2910 [2018-12-19 07:24:22.703589] iteration 2  
2911 [2018-12-19 07:24:24.928817] iteration 3  
2912 [2018-12-19 07:24:27.128794] iteration 4  
2913 ##### Wine Experiment - Layers [6, 4, 3]  
2914  
2915 Best n:  
2916 0.3  
2917 Confusion Matrix:  
2918 [[12  0  0]  
2919 [ 2 12  0]  
2920 [ 7  3  0]]  
2921 Precision:  
2922 0.6666666666666666  
2923 [2018-12-19 07:24:29.534895] training MLP [6, 4, 4] withn  
    n=0.3  
2924 [2018-12-19 07:24:29.534895] iteration 0  
2925 [2018-12-19 07:24:31.892552] iteration 1  
2926 [2018-12-19 07:24:34.226900] iteration 2  
2927 [2018-12-19 07:24:36.630961] iteration 3  
2928 [2018-12-19 07:24:38.897435] iteration 4  
2929 [2018-12-19 07:24:41.125076] training MLP [6, 4, 4] withn  
    n=0.1  
2930 [2018-12-19 07:24:41.125076] iteration 0  
2931 [2018-12-19 07:24:44.154142] iteration 1  
2932 [2018-12-19 07:24:46.677292] iteration 2  
2933 [2018-12-19 07:24:49.051788] iteration 3  
2934 [2018-12-19 07:24:51.313711] iteration 4
```

```
2935 [2018-12-19 07:24:53.693152] training MLP [6, 4, 4] withn  
    n=0.03  
2936 [2018-12-19 07:24:53.693152] iteration 0  
2937 [2018-12-19 07:24:56.130383] iteration 1  
2938 [2018-12-19 07:24:58.536470] iteration 2  
2939 [2018-12-19 07:25:00.959848] iteration 3  
2940 [2018-12-19 07:25:03.427002] iteration 4  
2941 [2018-12-19 07:25:05.807059] training MLP [6, 4, 4] withn  
    n=0.01  
2942 [2018-12-19 07:25:05.807059] iteration 0  
2943 [2018-12-19 07:25:08.364567] iteration 1  
2944 [2018-12-19 07:25:10.772949] iteration 2  
2945 [2018-12-19 07:25:13.162830] iteration 3  
2946 [2018-12-19 07:25:15.551924] iteration 4  
2947 [2018-12-19 07:25:17.991275] training MLP [6, 4, 4] withn  
    n=0.003  
2948 [2018-12-19 07:25:17.991275] iteration 0  
2949 [2018-12-19 07:25:20.598960] iteration 1  
2950 [2018-12-19 07:25:22.991067] iteration 2  
2951 [2018-12-19 07:25:25.489384] iteration 3  
2952 [2018-12-19 07:25:27.975112] iteration 4  
2953 ##### Wine Experiment - Layers [6, 4, 4]  
2954  
2955 Best n:  
2956 0.3  
2957 Confusion Matrix:  
2958 [[10  2  0]  
2959 [ 1 13  0]  
2960 [ 0 10  0]]  
2961 Precision:  
2962 0.6388888888888888  
2963 [2018-12-19 07:25:30.262647] training MLP [6, 4, 5] withn  
    n=0.3  
2964 [2018-12-19 07:25:30.262647] iteration 0  
2965 [2018-12-19 07:25:32.508685] iteration 1  
2966 [2018-12-19 07:25:34.679435] iteration 2  
2967 [2018-12-19 07:25:37.073762] iteration 3  
2968 [2018-12-19 07:25:39.334304] iteration 4  
2969 [2018-12-19 07:25:41.574207] training MLP [6, 4, 5] withn  
    n=0.1  
2970 [2018-12-19 07:25:41.574207] iteration 0  
2971 [2018-12-19 07:25:43.896887] iteration 1  
2972 [2018-12-19 07:25:46.191223] iteration 2  
2973 [2018-12-19 07:25:48.562606] iteration 3  
2974 [2018-12-19 07:25:50.897122] iteration 4
```

```
2975 [2018-12-19 07:25:53.115832] training MLP [6, 4, 5] withn  
    n=0.03  
2976 [2018-12-19 07:25:53.115832] iteration 0  
2977 [2018-12-19 07:25:55.691381] iteration 1  
2978 [2018-12-19 07:25:57.960751] iteration 2  
2979 [2018-12-19 07:26:00.356187] iteration 3  
2980 [2018-12-19 07:26:02.704754] iteration 4  
2981 [2018-12-19 07:26:04.943325] training MLP [6, 4, 5] withn  
    n=0.01  
2982 [2018-12-19 07:26:04.943325] iteration 0  
2983 [2018-12-19 07:26:07.896091] iteration 1  
2984 [2018-12-19 07:26:10.453501] iteration 2  
2985 [2018-12-19 07:26:12.752669] iteration 3  
2986 [2018-12-19 07:26:15.181704] iteration 4  
2987 [2018-12-19 07:26:17.460486] training MLP [6, 4, 5] withn  
    n=0.003  
2988 [2018-12-19 07:26:17.460486] iteration 0  
2989 [2018-12-19 07:26:19.644820] iteration 1  
2990 [2018-12-19 07:26:21.907499] iteration 2  
2991 [2018-12-19 07:26:24.153647] iteration 3  
2992 [2018-12-19 07:26:26.471686] iteration 4  
2993 ##### Wine Experiment - Layers [6, 4, 5]  
2994  
2995 Best n:  
2996 0.3  
2997 Confusion Matrix:  
2998 [[ 0 12  0]  
2999 [ 0 14  0]  
3000 [ 0 10  0]]  
3001 Precision:  
3002 0.3888888888888889  
3003 [2018-12-19 07:26:28.913269] training MLP [6, 4, 6] withn  
    n=0.3  
3004 [2018-12-19 07:26:28.913269] iteration 0  
3005 [2018-12-19 07:26:31.294997] iteration 1  
3006 [2018-12-19 07:26:33.851640] iteration 2  
3007 [2018-12-19 07:26:36.226607] iteration 3  
3008 [2018-12-19 07:26:38.545474] iteration 4  
3009 [2018-12-19 07:26:40.849284] training MLP [6, 4, 6] withn  
    n=0.1  
3010 [2018-12-19 07:26:40.849284] iteration 0  
3011 [2018-12-19 07:26:43.157788] iteration 1  
3012 [2018-12-19 07:26:45.444957] iteration 2  
3013 [2018-12-19 07:26:47.708603] iteration 3  
3014 [2018-12-19 07:26:49.911933] iteration 4
```

```
3015 [2018-12-19 07:26:52.177654] training MLP [6, 4, 6] withn  
      n=0.03  
3016 [2018-12-19 07:26:52.177654] iteration 0  
3017 [2018-12-19 07:26:54.414204] iteration 1  
3018 [2018-12-19 07:26:56.629997] iteration 2  
3019 [2018-12-19 07:26:58.946881] iteration 3  
3020 [2018-12-19 07:27:01.213724] iteration 4  
3021 [2018-12-19 07:27:03.509261] training MLP [6, 4, 6] withn  
      n=0.01  
3022 [2018-12-19 07:27:03.509261] iteration 0  
3023 [2018-12-19 07:27:05.716637] iteration 1  
3024 [2018-12-19 07:27:08.046146] iteration 2  
3025 [2018-12-19 07:27:10.450338] iteration 3  
3026 [2018-12-19 07:27:12.704031] iteration 4  
3027 [2018-12-19 07:27:14.913011] training MLP [6, 4, 6] withn  
      n=0.003  
3028 [2018-12-19 07:27:14.913011] iteration 0  
3029 [2018-12-19 07:27:17.148702] iteration 1  
3030 [2018-12-19 07:27:19.389349] iteration 2  
3031 [2018-12-19 07:27:21.697663] iteration 3  
3032 [2018-12-19 07:27:24.106319] iteration 4  
3033 ##### Wine Experiment - Layers [6, 4, 6]  
3034  
3035 Best n:  
3036 0.3  
3037 Confusion Matrix:  
3038 [[ 0 12  0]  
3039 [ 0 14  0]  
3040 [ 0 10  0]]  
3041 Precision:  
3042 0.3888888888888889  
3043 [2018-12-19 07:27:26.409070] training MLP [6, 5, 3] withn  
      n=0.3  
3044 [2018-12-19 07:27:26.409070] iteration 0  
3045 [2018-12-19 07:27:28.631355] iteration 1  
3046 [2018-12-19 07:27:30.847536] iteration 2  
3047 [2018-12-19 07:27:33.065097] iteration 3  
3048 [2018-12-19 07:27:35.316127] iteration 4  
3049 [2018-12-19 07:27:37.546733] training MLP [6, 5, 3] withn  
      n=0.1  
3050 [2018-12-19 07:27:37.546733] iteration 0  
3051 [2018-12-19 07:27:39.764267] iteration 1  
3052 [2018-12-19 07:27:42.021765] iteration 2  
3053 [2018-12-19 07:27:44.209175] iteration 3  
3054 [2018-12-19 07:27:46.423088] iteration 4
```

File - wine

```
3055 [2018-12-19 07:27:48.653033] training MLP [6, 5, 3] withn  
    n=0.03  
3056 [2018-12-19 07:27:48.653033] iteration 0  
3057 [2018-12-19 07:27:50.928296] iteration 1  
3058 [2018-12-19 07:27:53.146753] iteration 2  
3059 [2018-12-19 07:27:55.354002] iteration 3  
3060 [2018-12-19 07:27:57.590537] iteration 4  
3061 [2018-12-19 07:27:59.783423] training MLP [6, 5, 3] withn  
    n=0.01  
3062 [2018-12-19 07:27:59.783423] iteration 0  
3063 [2018-12-19 07:28:02.053308] iteration 1  
3064 [2018-12-19 07:28:04.333684] iteration 2  
3065 [2018-12-19 07:28:06.583992] iteration 3  
3066 [2018-12-19 07:28:08.815979] iteration 4  
3067 [2018-12-19 07:28:11.069044] training MLP [6, 5, 3] withn  
    n=0.003  
3068 [2018-12-19 07:28:11.069044] iteration 0  
3069 [2018-12-19 07:28:13.272246] iteration 1  
3070 [2018-12-19 07:28:15.468180] iteration 2  
3071 [2018-12-19 07:28:17.705360] iteration 3  
3072 [2018-12-19 07:28:19.959777] iteration 4  
3073 ##### Wine Experiment - Layers [6, 5, 3]  
3074  
3075 Best n:  
3076 0.3  
3077 Confusion Matrix:  
3078 [[ 0 12  0]  
3079 [ 0 14  0]  
3080 [ 0 10  0]]  
3081 Precision:  
3082 0.3888888888888889  
3083 [2018-12-19 07:28:22.320976] training MLP [6, 5, 4] withn  
    n=0.3  
3084 [2018-12-19 07:28:22.320976] iteration 0  
3085 [2018-12-19 07:28:24.578525] iteration 1  
3086 [2018-12-19 07:28:26.817770] iteration 2  
3087 [2018-12-19 07:28:29.021953] iteration 3  
3088 [2018-12-19 07:28:31.342246] iteration 4  
3089 [2018-12-19 07:28:33.642368] training MLP [6, 5, 4] withn  
    n=0.1  
3090 [2018-12-19 07:28:33.642368] iteration 0  
3091 [2018-12-19 07:28:35.880532] iteration 1  
3092 [2018-12-19 07:28:38.100507] iteration 2  
3093 [2018-12-19 07:28:40.369071] iteration 3  
3094 [2018-12-19 07:28:42.626936] iteration 4
```

```
3095 [2018-12-19 07:28:44.876045] training MLP [6, 5, 4] withn  
    n=0.03  
3096 [2018-12-19 07:28:44.876045] iteration 0  
3097 [2018-12-19 07:28:47.131182] iteration 1  
3098 [2018-12-19 07:28:49.411780] iteration 2  
3099 [2018-12-19 07:28:51.689367] iteration 3  
3100 [2018-12-19 07:28:54.053071] iteration 4  
3101 [2018-12-19 07:28:56.400310] training MLP [6, 5, 4] withn  
    n=0.01  
3102 [2018-12-19 07:28:56.400310] iteration 0  
3103 [2018-12-19 07:28:58.677825] iteration 1  
3104 [2018-12-19 07:29:00.943777] iteration 2  
3105 [2018-12-19 07:29:03.225651] iteration 3  
3106 [2018-12-19 07:29:05.446904] iteration 4  
3107 [2018-12-19 07:29:07.775324] training MLP [6, 5, 4] withn  
    n=0.003  
3108 [2018-12-19 07:29:07.775324] iteration 0  
3109 [2018-12-19 07:29:09.975039] iteration 1  
3110 [2018-12-19 07:29:12.178735] iteration 2  
3111 [2018-12-19 07:29:14.401812] iteration 3  
3112 [2018-12-19 07:29:16.694998] iteration 4  
3113 ##### Wine Experiment - Layers [6, 5, 4]  
3114  
3115 Best n:  
3116 0.3  
3117 Confusion Matrix:  
3118 [[10  2  0]  
3119  [ 1 13  0]  
3120  [ 3  7  0]]  
3121 Precision:  
3122 0.6388888888888888  
3123 [2018-12-19 07:29:19.008633] training MLP [6, 5, 5] withn  
    n=0.3  
3124 [2018-12-19 07:29:19.008633] iteration 0  
3125 [2018-12-19 07:29:21.391151] iteration 1  
3126 [2018-12-19 07:29:23.620201] iteration 2  
3127 [2018-12-19 07:29:25.829628] iteration 3  
3128 [2018-12-19 07:29:28.146232] iteration 4  
3129 [2018-12-19 07:29:30.406065] training MLP [6, 5, 5] withn  
    n=0.1  
3130 [2018-12-19 07:29:30.406065] iteration 0  
3131 [2018-12-19 07:29:32.761614] iteration 1  
3132 [2018-12-19 07:29:35.083124] iteration 2  
3133 [2018-12-19 07:29:37.335619] iteration 3  
3134 [2018-12-19 07:29:39.643027] iteration 4
```

```
3135 [2018-12-19 07:29:41.912891] training MLP [6, 5, 5] withn  
    n=0.03  
3136 [2018-12-19 07:29:41.912891] iteration 0  
3137 [2018-12-19 07:29:44.147280] iteration 1  
3138 [2018-12-19 07:29:46.380851] iteration 2  
3139 [2018-12-19 07:29:48.585566] iteration 3  
3140 [2018-12-19 07:29:50.803790] iteration 4  
3141 [2018-12-19 07:29:53.020650] training MLP [6, 5, 5] withn  
    n=0.01  
3142 [2018-12-19 07:29:53.020650] iteration 0  
3143 [2018-12-19 07:29:55.209661] iteration 1  
3144 [2018-12-19 07:29:57.451016] iteration 2  
3145 [2018-12-19 07:29:59.670992] iteration 3  
3146 [2018-12-19 07:30:02.178396] iteration 4  
3147 [2018-12-19 07:30:04.989715] training MLP [6, 5, 5] withn  
    n=0.003  
3148 [2018-12-19 07:30:04.989715] iteration 0  
3149 [2018-12-19 07:30:07.209844] iteration 1  
3150 [2018-12-19 07:30:09.504652] iteration 2  
3151 [2018-12-19 07:30:11.798820] iteration 3  
3152 [2018-12-19 07:30:14.022062] iteration 4  
3153 ##### Wine Experiment - Layers [6, 5, 5]  
3154  
3155 Best n:  
3156 0.3  
3157 Confusion Matrix:  
3158 [[12  0  0]  
3159  [ 1 13  0]  
3160  [ 7  3  0]]  
3161 Precision:  
3162 0.6944444444444444  
3163 [2018-12-19 07:30:16.318996] training MLP [6, 5, 6] withn  
    n=0.3  
3164 [2018-12-19 07:30:16.318996] iteration 0  
3165 [2018-12-19 07:30:18.577247] iteration 1  
3166 [2018-12-19 07:30:20.801709] iteration 2  
3167 [2018-12-19 07:30:23.006819] iteration 3  
3168 [2018-12-19 07:30:25.241910] iteration 4  
3169 [2018-12-19 07:30:27.500871] training MLP [6, 5, 6] withn  
    n=0.1  
3170 [2018-12-19 07:30:27.500871] iteration 0  
3171 [2018-12-19 07:30:29.738310] iteration 1  
3172 [2018-12-19 07:30:32.038195] iteration 2  
3173 [2018-12-19 07:30:34.355724] iteration 3  
3174 [2018-12-19 07:30:36.564494] iteration 4
```

```
3175 [2018-12-19 07:30:38.897156] training MLP [6, 5, 6] withn  
    n=0.03  
3176 [2018-12-19 07:30:38.897156] iteration 0  
3177 [2018-12-19 07:30:41.146758] iteration 1  
3178 [2018-12-19 07:30:43.344522] iteration 2  
3179 [2018-12-19 07:30:45.743763] iteration 3  
3180 [2018-12-19 07:30:48.241062] iteration 4  
3181 [2018-12-19 07:30:50.844976] training MLP [6, 5, 6] withn  
    n=0.01  
3182 [2018-12-19 07:30:50.844976] iteration 0  
3183 [2018-12-19 07:30:53.334972] iteration 1  
3184 [2018-12-19 07:30:55.837663] iteration 2  
3185 [2018-12-19 07:30:58.512002] iteration 3  
3186 [2018-12-19 07:31:01.098991] iteration 4  
3187 [2018-12-19 07:31:03.534368] training MLP [6, 5, 6] withn  
    n=0.003  
3188 [2018-12-19 07:31:03.534368] iteration 0  
3189 [2018-12-19 07:31:06.099018] iteration 1  
3190 [2018-12-19 07:31:08.690213] iteration 2  
3191 [2018-12-19 07:31:11.344078] iteration 3  
3192 [2018-12-19 07:31:13.958162] iteration 4  
3193 ##### Wine Experiment - Layers [6, 5, 6]  
3194  
3195 Best n:  
3196 0.3  
3197 Confusion Matrix:  
3198 [[12  0  0]  
3199  [ 1 13  0]  
3200  [ 5  5  0]]  
3201 Precision:  
3202 0.6944444444444444  
3203 [2018-12-19 07:31:16.638133] training MLP [6, 6, 3] withn  
    n=0.3  
3204 [2018-12-19 07:31:16.638133] iteration 0  
3205 [2018-12-19 07:31:19.225613] iteration 1  
3206 [2018-12-19 07:31:21.692154] iteration 2  
3207 [2018-12-19 07:31:24.239834] iteration 3  
3208 [2018-12-19 07:31:26.802234] iteration 4  
3209 [2018-12-19 07:31:29.460327] training MLP [6, 6, 3] withn  
    n=0.1  
3210 [2018-12-19 07:31:29.460327] iteration 0  
3211 [2018-12-19 07:31:32.005654] iteration 1  
3212 [2018-12-19 07:31:34.545476] iteration 2  
3213 [2018-12-19 07:31:37.131874] iteration 3  
3214 [2018-12-19 07:31:39.767971] iteration 4
```

File - wine

```
3215 [2018-12-19 07:31:42.275743] training MLP [6, 6, 3] withn  
    n=0.03  
3216 [2018-12-19 07:31:42.275743] iteration 0  
3217 [2018-12-19 07:31:44.818660] iteration 1  
3218 [2018-12-19 07:31:47.452139] iteration 2  
3219 [2018-12-19 07:31:50.063034] iteration 3  
3220 [2018-12-19 07:31:52.625706] iteration 4  
3221 [2018-12-19 07:31:55.175646] training MLP [6, 6, 3] withn  
    n=0.01  
3222 [2018-12-19 07:31:55.175646] iteration 0  
3223 [2018-12-19 07:31:57.633000] iteration 1  
3224 [2018-12-19 07:32:00.208886] iteration 2  
3225 [2018-12-19 07:32:02.772307] iteration 3  
3226 [2018-12-19 07:32:05.356390] iteration 4  
3227 [2018-12-19 07:32:07.795764] training MLP [6, 6, 3] withn  
    n=0.003  
3228 [2018-12-19 07:32:07.795764] iteration 0  
3229 [2018-12-19 07:32:10.308998] iteration 1  
3230 [2018-12-19 07:32:12.773273] iteration 2  
3231 [2018-12-19 07:32:15.334537] iteration 3  
3232 [2018-12-19 07:32:17.795636] iteration 4  
3233 ##### Wine Experiment - Layers [6, 6, 3]  
3234  
3235 Best n:  
3236 0.3  
3237 Confusion Matrix:  
3238 [[12  0  0]  
3239 [ 3 11  0]  
3240 [ 3  7  0]]  
3241 Precision:  
3242 0.6388888888888888  
3243 [2018-12-19 07:32:20.439847] training MLP [6, 6, 4] withn  
    n=0.3  
3244 [2018-12-19 07:32:20.439847] iteration 0  
3245 [2018-12-19 07:32:22.990150] iteration 1  
3246 [2018-12-19 07:32:25.446750] iteration 2  
3247 [2018-12-19 07:32:28.100516] iteration 3  
3248 [2018-12-19 07:32:30.837315] iteration 4  
3249 [2018-12-19 07:32:33.463652] training MLP [6, 6, 4] withn  
    n=0.1  
3250 [2018-12-19 07:32:33.463652] iteration 0  
3251 [2018-12-19 07:32:36.083865] iteration 1  
3252 [2018-12-19 07:32:38.627773] iteration 2  
3253 [2018-12-19 07:32:41.255582] iteration 3  
3254 [2018-12-19 07:32:43.783731] iteration 4
```

```
3255 [2018-12-19 07:32:46.474295] training MLP [6, 6, 4] withn  
      n=0.03  
3256 [2018-12-19 07:32:46.474295] iteration 0  
3257 [2018-12-19 07:32:49.068027] iteration 1  
3258 [2018-12-19 07:32:51.742208] iteration 2  
3259 [2018-12-19 07:32:54.446591] iteration 3  
3260 [2018-12-19 07:32:56.942565] iteration 4  
3261 [2018-12-19 07:32:59.484557] training MLP [6, 6, 4] withn  
      n=0.01  
3262 [2018-12-19 07:32:59.484557] iteration 0  
3263 [2018-12-19 07:33:02.052210] iteration 1  
3264 [2018-12-19 07:33:04.584129] iteration 2  
3265 [2018-12-19 07:33:07.552840] iteration 3  
3266 [2018-12-19 07:33:10.161770] iteration 4  
3267 [2018-12-19 07:33:12.766930] training MLP [6, 6, 4] withn  
      n=0.003  
3268 [2018-12-19 07:33:12.766930] iteration 0  
3269 [2018-12-19 07:33:15.358297] iteration 1  
3270 [2018-12-19 07:33:17.943152] iteration 2  
3271 [2018-12-19 07:33:20.541338] iteration 3  
3272 [2018-12-19 07:33:23.115874] iteration 4  
3273 ##### Wine Experiment - Layers [6, 6, 4]  
3274  
3275 Best n:  
3276 0.3  
3277 Confusion Matrix:  
3278 [[ 0 12  0]  
3279 [ 0 14  0]  
3280 [ 0 10  0]]  
3281 Precision:  
3282 0.3888888888888889  
3283 [2018-12-19 07:33:25.661472] training MLP [6, 6, 5] withn  
      n=0.3  
3284 [2018-12-19 07:33:25.661472] iteration 0  
3285 [2018-12-19 07:33:28.208760] iteration 1  
3286 [2018-12-19 07:33:30.862868] iteration 2  
3287 [2018-12-19 07:33:33.505694] iteration 3  
3288 [2018-12-19 07:33:36.022670] iteration 4  
3289 [2018-12-19 07:33:38.623534] training MLP [6, 6, 5] withn  
      n=0.1  
3290 [2018-12-19 07:33:38.623534] iteration 0  
3291 [2018-12-19 07:33:41.194405] iteration 1  
3292 [2018-12-19 07:33:43.759561] iteration 2  
3293 [2018-12-19 07:33:46.239897] iteration 3  
3294 [2018-12-19 07:33:48.926656] iteration 4
```

```
3295 [2018-12-19 07:33:51.521643] training MLP [6, 6, 5] withn  
    n=0.03  
3296 [2018-12-19 07:33:51.521643] iteration 0  
3297 [2018-12-19 07:33:54.005232] iteration 1  
3298 [2018-12-19 07:33:56.500045] iteration 2  
3299 [2018-12-19 07:33:59.068023] iteration 3  
3300 [2018-12-19 07:34:01.662480] iteration 4  
3301 [2018-12-19 07:34:04.193492] training MLP [6, 6, 5] withn  
    n=0.01  
3302 [2018-12-19 07:34:04.193492] iteration 0  
3303 [2018-12-19 07:34:06.739152] iteration 1  
3304 [2018-12-19 07:34:09.462420] iteration 2  
3305 [2018-12-19 07:34:12.020924] iteration 3  
3306 [2018-12-19 07:34:14.548120] iteration 4  
3307 [2018-12-19 07:34:17.114235] training MLP [6, 6, 5] withn  
    n=0.003  
3308 [2018-12-19 07:34:17.114235] iteration 0  
3309 [2018-12-19 07:34:19.649107] iteration 1  
3310 [2018-12-19 07:34:22.286778] iteration 2  
3311 [2018-12-19 07:34:24.943116] iteration 3  
3312 [2018-12-19 07:34:27.402214] iteration 4  
3313 ##### Wine Experiment - Layers [6, 6, 5]  
3314  
3315 Best n:  
3316 0.3  
3317 Confusion Matrix:  
3318 [[11  1  0]  
3319 [ 1 13  0]  
3320 [ 2  8  0]]  
3321 Precision:  
3322 0.6666666666666666  
3323 [2018-12-19 07:34:30.145951] training MLP [6, 6, 6] withn  
    n=0.3  
3324 [2018-12-19 07:34:30.145951] iteration 0  
3325 [2018-12-19 07:34:32.690024] iteration 1  
3326 [2018-12-19 07:34:35.208926] iteration 2  
3327 [2018-12-19 07:34:37.798645] iteration 3  
3328 [2018-12-19 07:34:40.379153] iteration 4  
3329 [2018-12-19 07:34:43.021911] training MLP [6, 6, 6] withn  
    n=0.1  
3330 [2018-12-19 07:34:43.021911] iteration 0  
3331 [2018-12-19 07:34:45.613356] iteration 1  
3332 [2018-12-19 07:34:48.178440] iteration 2  
3333 [2018-12-19 07:34:50.694729] iteration 3  
3334 [2018-12-19 07:34:53.240199] iteration 4
```

File - wine

```
3335 [2018-12-19 07:34:55.768949] training MLP [6, 6, 6] withn  
      n=0.03  
3336 [2018-12-19 07:34:55.768949] iteration 0  
3337 [2018-12-19 07:34:58.373386] iteration 1  
3338 [2018-12-19 07:35:01.955016] iteration 2  
3339 [2018-12-19 07:35:06.240040] iteration 3  
3340 [2018-12-19 07:35:08.857337] iteration 4  
3341 [2018-12-19 07:35:11.131588] training MLP [6, 6, 6] withn  
      n=0.01  
3342 [2018-12-19 07:35:11.131588] iteration 0  
3343 [2018-12-19 07:35:13.428180] iteration 1  
3344 [2018-12-19 07:35:15.751462] iteration 2  
3345 [2018-12-19 07:35:18.069082] iteration 3  
3346 [2018-12-19 07:35:20.334341] iteration 4  
3347 [2018-12-19 07:35:22.661878] training MLP [6, 6, 6] withn  
      n=0.003  
3348 [2018-12-19 07:35:22.661878] iteration 0  
3349 [2018-12-19 07:35:25.255307] iteration 1  
3350 [2018-12-19 07:35:27.794932] iteration 2  
3351 [2018-12-19 07:35:30.438755] iteration 3  
3352 [2018-12-19 07:35:32.927217] iteration 4  
3353 ##### Wine Experiment - Layers [6, 6, 6]  
3354  
3355 Best n:  
3356 0.3  
3357 Confusion Matrix:  
3358 [[12  0  0]  
3359  [ 9  5  0]  
3360  [10  0  0]]  
3361 Precision:  
3362 0.4722222222222222  
3363 ##### Wine Experiment - Best Topology [3]  
3364  
3365 Best n:  
3366 0.3  
3367 Confusion Matrix:  
3368 [[12  0  0]  
3369  [ 0 13  1]  
3370  [ 0  1  8]]  
3371 Test Precision:  
3372 1.0  
3373 Validation Precision:  
3374 0.9428571428571428  
3375  
3376 Process finished with exit code 0
```