

```
range(50, 400, 50)
```

```
n_splits=5
```

```
Best: -1.100342 using {'n_estimators': 50}
```

```
-1.100342 (0.002228) with: {'n_estimators': 50}
```

```
-1.112120 (0.002707) with: {'n_estimators': 100}
```

```
-1.123898 (0.003198) with: {'n_estimators': 150}
```

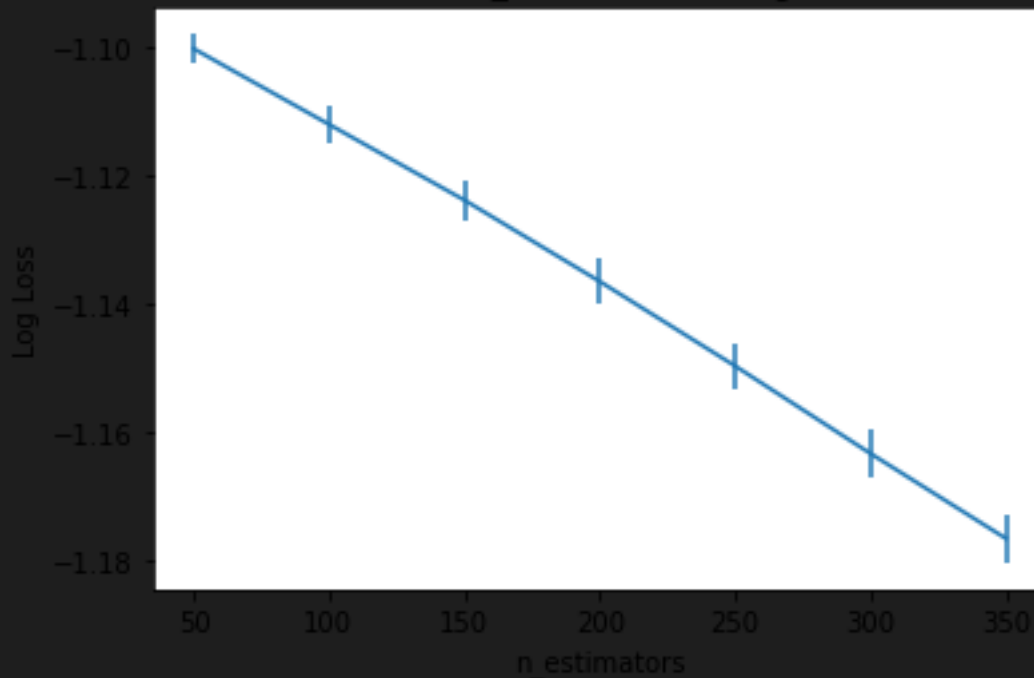
```
-1.136555 (0.003456) with: {'n_estimators': 200}
```

```
-1.149706 (0.003570) with: {'n_estimators': 250}
```

```
-1.163323 (0.003785) with: {'n_estimators': 300}
```

```
-1.176534 (0.003839) with: {'n_estimators': 350}
```

XGBoost n_estimators vs Log Loss



```
range(10, 50, 10)
```

```
n_splits=5
```

```
Best: -1.096355 using {'n_estimators': 30}
```

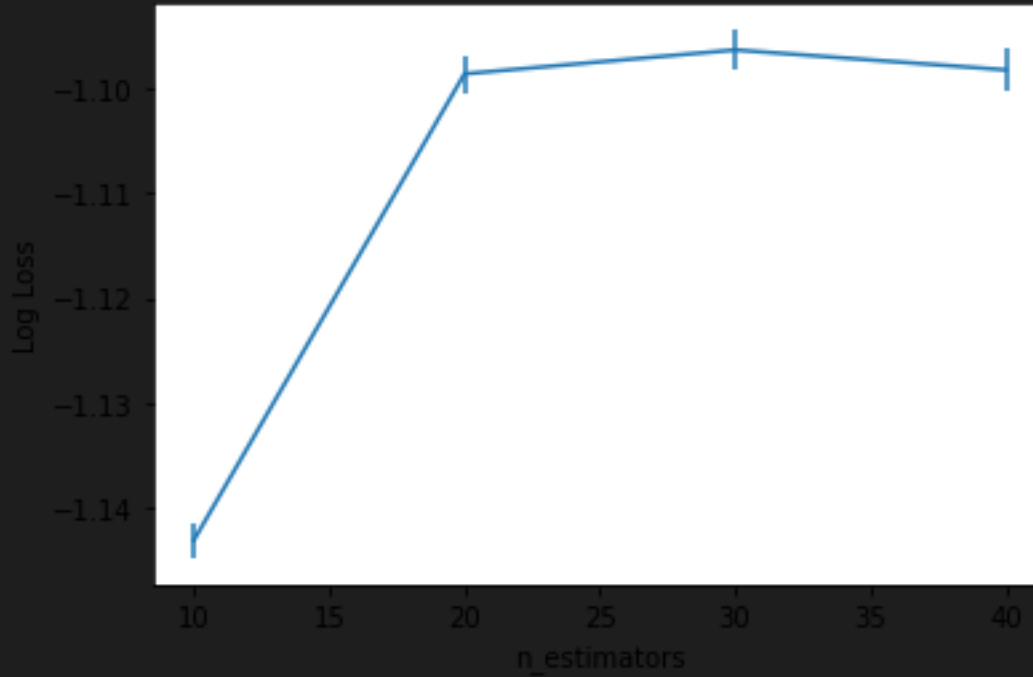
```
-1.143042 (0.001708) with: {'n_estimators': 10}
```

```
-1.098631 (0.001797) with: {'n_estimators': 20}
```

```
-1.096355 (0.001867) with: {'n_estimators': 30}
```

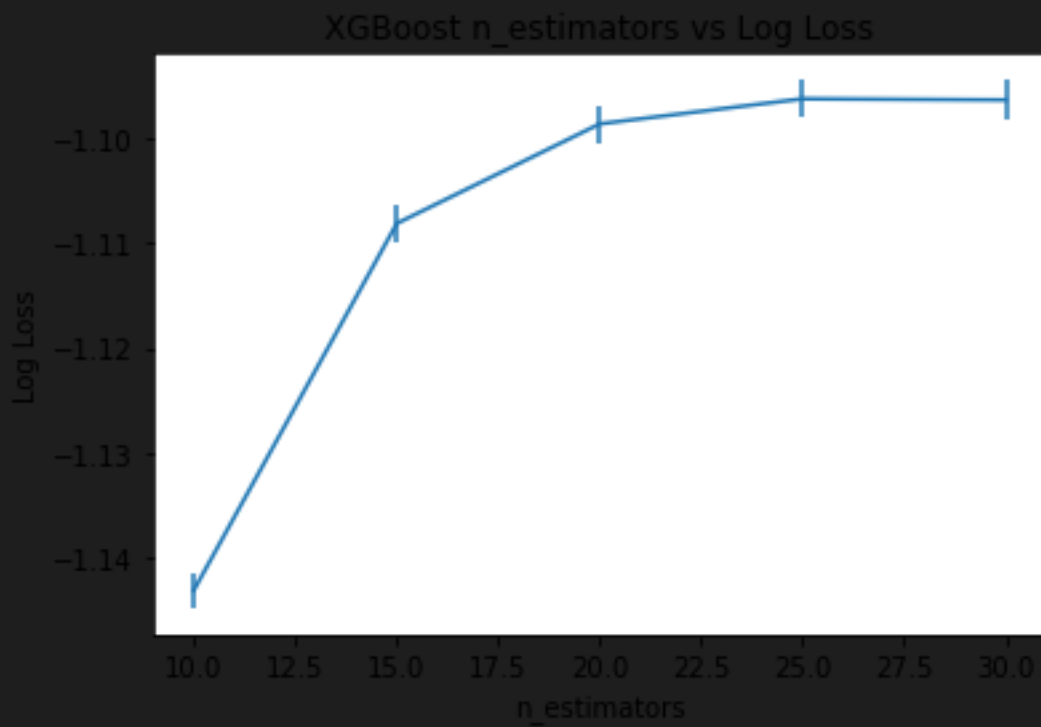
```
-1.098251 (0.002034) with: {'n_estimators': 40}
```

XGBoost n_estimators vs Log Loss



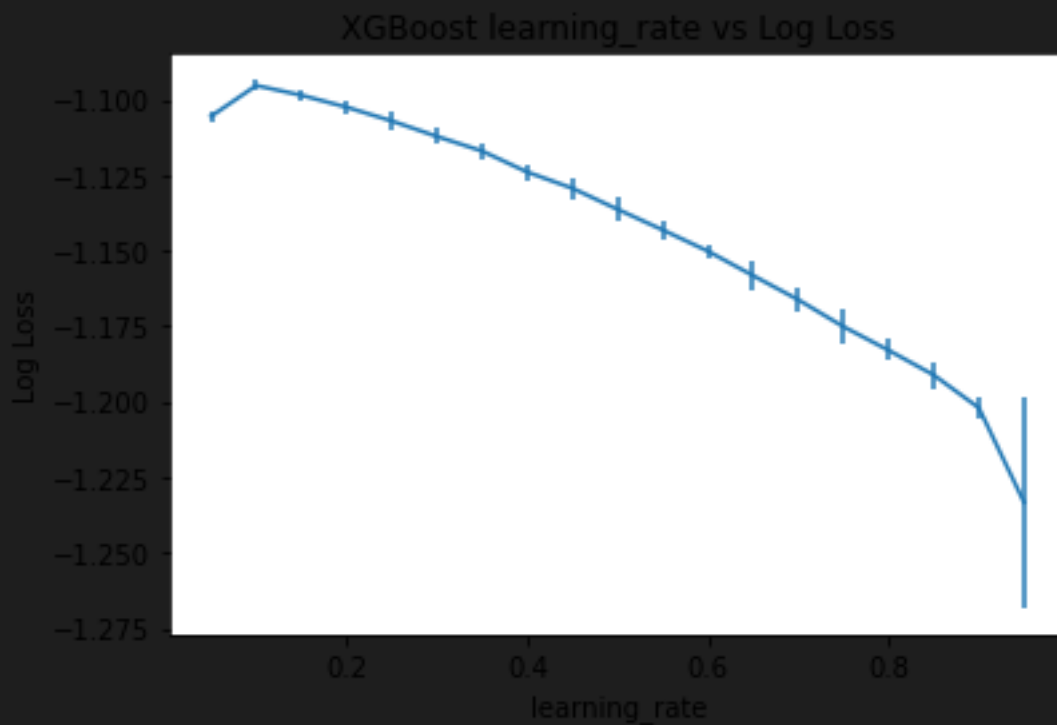
```
range(10, 35, 5)  
n_splits=5
```

```
Best: -1.096243 using {'n_estimators': 25}  
-1.143042 (0.001708) with: {'n_estimators': 10}  
-1.108116 (0.001704) with: {'n_estimators': 15}  
-1.098631 (0.001797) with: {'n_estimators': 20}  
-1.096243 (0.001734) with: {'n_estimators': 25}  
-1.096355 (0.001867) with: {'n_estimators': 30}
```



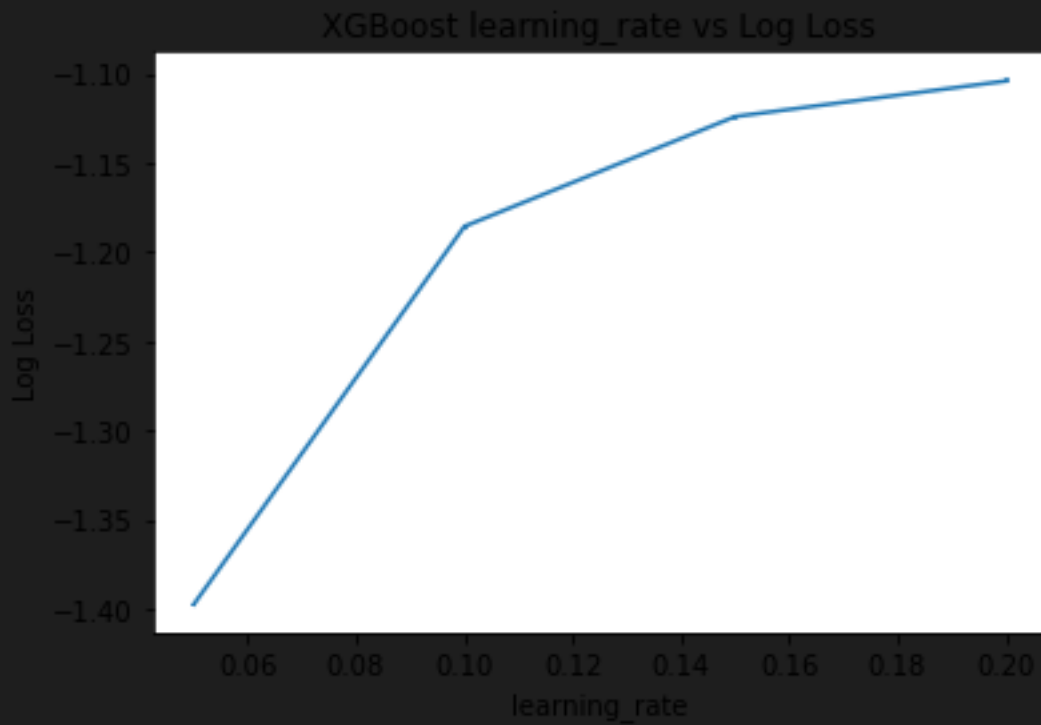
```
np.arange(0.05, 1.0, 0.05)  
n_splits=5
```

```
Best: -1.095263 using {'learning_rate': 0.1}  
-1.105450 (0.001559) with: {'learning_rate': 0.05}  
-1.095263 (0.001713) with: {'learning_rate': 0.1}  
-1.098482 (0.002098) with: {'learning_rate': 0.15}  
-1.102429 (0.002032) with: {'learning_rate': 0.2}  
-1.106996 (0.002807) with: {'learning_rate': 0.25}  
-1.112120 (0.002707) with: {'learning_rate': 0.3}  
-1.116954 (0.002883) with: {'learning_rate': 0.35}  
-1.123909 (0.002748) with: {'learning_rate': 0.4}  
-1.129275 (0.003600) with: {'learning_rate': 0.45}  
-1.136240 (0.003832) with: {'learning_rate': 0.5}  
-1.143072 (0.003091) with: {'learning_rate': 0.55}  
-1.150093 (0.002223) with: {'learning_rate': 0.6}  
-1.158179 (0.004971) with: {'learning_rate': 0.65}  
-1.166181 (0.004109) with: {'learning_rate': 0.7}  
-1.175081 (0.005406) with: {'learning_rate': 0.75}  
-1.182909 (0.003591) with: {'learning_rate': 0.8}  
-1.191088 (0.004351) with: {'learning_rate': 0.85}  
-1.201975 (0.003522) with: {'learning_rate': 0.9}  
-1.233195 (0.035114) with: {'learning_rate': 0.95}
```



```
n_estimators=25  
np.arange(0.05, 0.2, 0.05)  
n_splits=5
```

```
Best: -1.104023 using {'learning_rate': 0.2}  
-1.397490 (0.001072) with: {'learning_rate': 0.05}  
-1.185552 (0.001383) with: {'learning_rate': 0.1}  
-1.123941 (0.001420) with: {'learning_rate': 0.15}  
-1.104023 (0.001504) with: {'learning_rate': 0.2}
```



```
n_estimators=25
```

```
learning_rate = np.arange(0.2, 0.5, 0.05)
```

```
n_splits=5
```

```
Best: -1.096243 using {'learning_rate': 0.3}
```

```
-1.104023 (0.001504) with: {'learning_rate': 0.2}
```

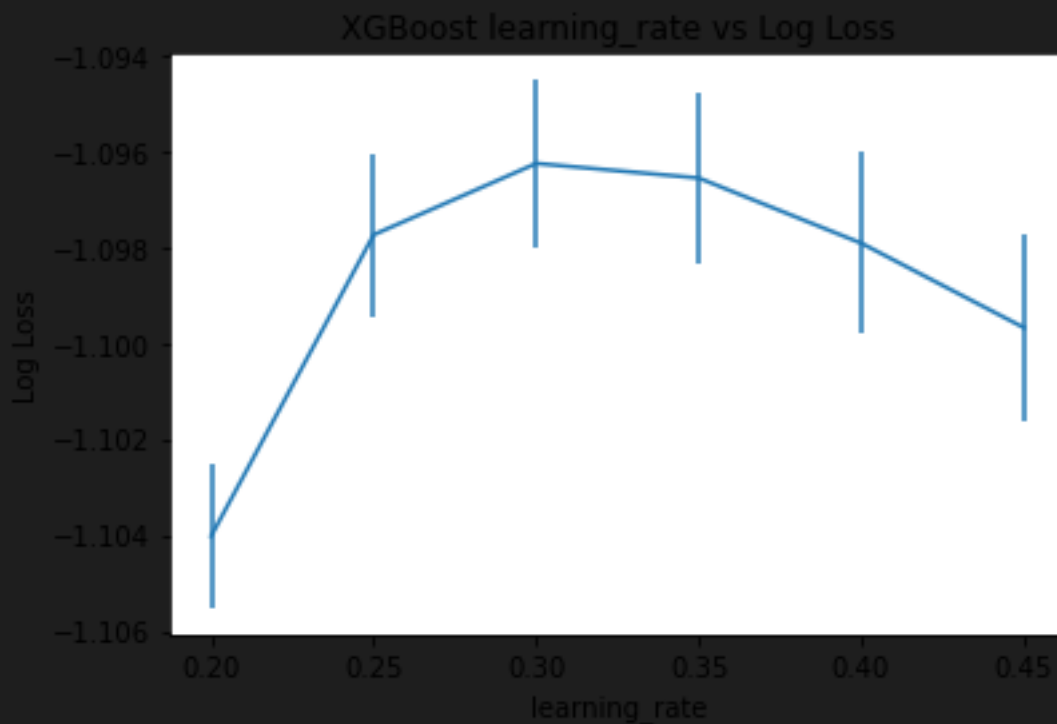
```
-1.097732 (0.001693) with: {'learning_rate': 0.25}
```

```
-1.096243 (0.001734) with: {'learning_rate': 0.3}
```

```
-1.096548 (0.001803) with: {'learning_rate': 0.35}
```

```
-1.097909 (0.001890) with: {'learning_rate': 0.399}
```

```
-1.099671 (0.001967) with: {'learning_rate': 0.449}
```



```
n_estimators=25, learning_rate=0.3  
range(3, 10, 1)  
n_splits=5
```

```
Best: -1.095799 using {'max_depth': 5}  
-1.099366 (0.001394) with: {'max_depth': 3}  
-1.096756 (0.001397) with: {'max_depth': 4}  
-1.095799 (0.001794) with: {'max_depth': 5}  
-1.096243 (0.001734) with: {'max_depth': 6}  
-1.098127 (0.001800) with: {'max_depth': 7}  
-1.101614 (0.001675) with: {'max_depth': 8}  
-1.106487 (0.002202) with: {'max_depth': 9}
```

