

2.

Cross-validation aims to split the data into 5 groups: 4 training and 1 testing sets. We will iterate through the dataset and use each index as the testing set while training the rest of the index values. The training will produce a more accurate training and testing error parameter. Cross-validation allows us to use multiple predictions for a more accurate data prediction compared to traditional prediction methods that uses singular training values. Although cross-validation may result in extra computational steps than the traditional train-test split.

```
Degree, Test Error
0, 0.10256410256410253
1, 0.1282051282051282
2, 0.08333333333333337
3, 0.10897435897435892
4, 0.08012820512820518
5, 0.09294871794871795
6, 0.09294871794871795
7, 0.11538461538461542
8, 0.13782051282051277
9, 0.07371794871794868
10, 0.08653846153846156
11, 0.09935897435897434
12, 0.08653846153846156
13, 0.13782051282051277
14, 0.08974358974358976
15, 0.10576923076923073
16, 0.1217948717948718
17, 0.1217948717948718
18, 0.08653846153846156
19, 0.08653846153846156
```

Runs, Degree

```
0,2.0
1,3.0
2,4.0
3,3.0
4,3.0
5,3.0
6,4.0
7,4.0
8,2.0
9,4.0
10,5.0
11,3.0
12,5.0
13,3.0
14,3.0
15,4.0
16,4.0
17,3.0
18,3.0
19,4.0
```