***LABELS in DATA*** | bt\_test\_pred6 = ***MODEL PREDICTIONS***

bt\_test\_labels | above\_avg | avg\_or\_below | Row Total |

---------------|--------------|--------------|--------------|

above\_avg | 29 | 1 | 30 |

| 0.967 | 0.033 | 0.600 |

| 0.829 | 0.067 | |

| 0.580 | 0.020 | |

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avg\_or\_below | 6 | 14 | 20 |

| 0.300 | 0.700 | 0.400 |

| 0.171 | 0.933 | |

| 0.120 | 0.280 | |

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Column Total | 35 | 15 | 50 |

| 0.700 | 0.300 | |

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The existing labels in the testing data are 30 (60% of 50) above average and 20(40% of 50) below average.

The model based on 6 neighbours predicts 35 (70% out of 50) above average and 15 (30% out of 50) below.

96.7% is the proportion of rightly predicted above avg labels (29 out of 30).

3.3% is the proportion of wrongly predicted above avg labels (1 out of 30).

30% is the proportion of wrongly predicted above when they were actually below (6 out of 20)

70% is the proportion of rightly predicted below when they were actually below (14 out of 20)

82.9% is (29/35) the proportion existing above average labels in the data set out of those predicted as such

17.1% is (6/35) the proportion existing below average labels in the data set out of those predicted as above average

0.067 or 6.7% (1 out of 15) is the proportion of existing above average labels amongst those predicted below average

0.933 or 93.3% (14 out of 15) is the proportion of existing below average labels amongst those predicted below average

**The highlights in grey are the joint distribution of all possible results– the sum of the all 4 proportions are 1, i.e. (29/50, 1/50, 6/50, 14/50), i.e. What is important is that 0.58+0.28=0.86 represents 86% the accuracy of the prediction. That is the figure which is the most important in this context.**

I have avoided using true/false positive language here as it can be confusing. You need to define what positive is (perhaps above average) but you can think in those terms too. The whole point is to understand how accurately this knn algorithm based on 6 neighbours performs on somewhat new data.