

Binary classification task – Data Processing:

- The digits.images have the corresponding 8*8 matrix of the digit, and digits.target has the corresponding label (0-9). The label corresponding to the prime numbers – 2,3,5,7 were stored as belonging to class 1 and the for the other digits were classified as belonging to class 0.
- The 8*8 matrix was converted to 1*64 vector using ravel method. The statistic metrics – mean and standard deviation were also added to the vector. The values of digits.images belonging to class 1 were added to an arrayPrimeNumber array and the others added to arrayNotPrimeNumber array.
- The corresponding array length of arrayPrimeNumber was used to set the arrayLabelPrimeNumbers array to have value of 1, which correspond to hold the labels for the class of prime numbers (2,3,5,7)–and array length of arrayNotPrimeNumber was used to set the arrayLabelNotPrimeNumbers array to have 0 values.

Feature Engineering

```
Total length of array of prime numbers and labels of prime numbers
721 721
Length of 5 split arrays of prime numbers and corresponding labels array
145 145
144 144
144 144
144 144
144 144
Total length of array of not prime numbers and labels of not prime numbers
1076 1076
Length of 5 split arrays of not prime numbers and corresponding labels array
216 216
215 215
215 215
215 215
215 215
Length of combined arrays of prime and not prime numbers ; and their labels
361 361
359 359
359 359
359 359
359 359
Length of shuffled combined arrays of prime and not prime numbers ; and their labels
361 361
359 359
359 359
359 359
359 359
1077
1077
1077
1077
```

Without Feature Engineering

```
Total length of array of prime numbers and labels of prime numbers
721 721
Length of 5 split arrays of prime numbers and corresponding labels array
145 145
144 144
144 144
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Total length of array of not prime numbers and labels of not prime numbers
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