Configure The Learning Process

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• The compilation is the final step in creating a model. Once the compilation is done, we can move on to the training phase. The loss function is used to find errors or deviations in the learning process. Keras requires loss function during the model compilation process.

• Optimization is an important process that optimizes the input weights by comparing the prediction and the loss function. Here we are using adam optimizer

• Metrics are used to evaluate the performance of your model. It is similar to the loss function, but not used in the training process

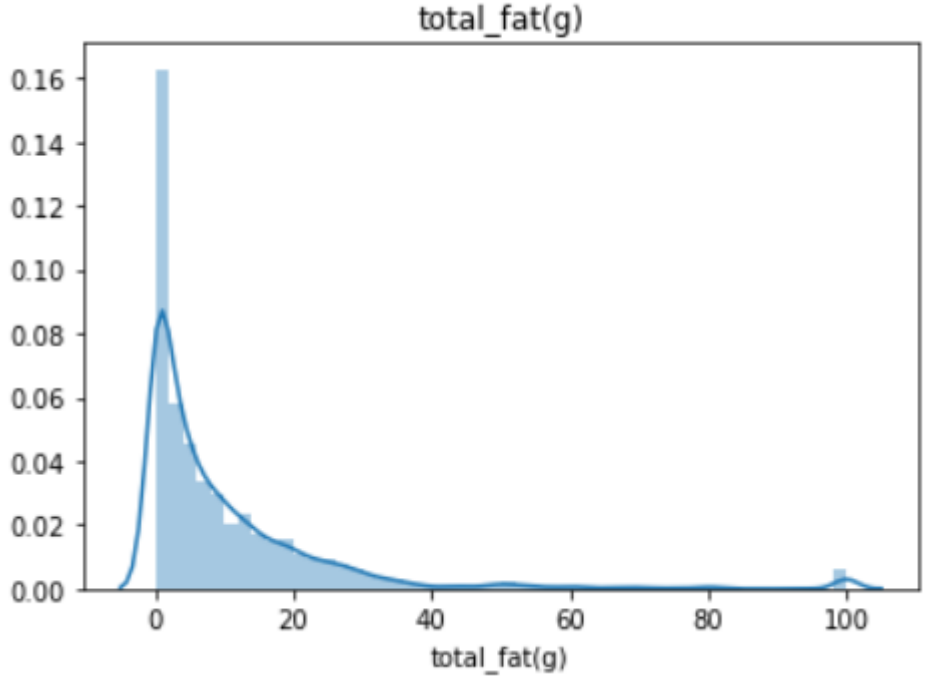
```
# Compiling the CNN
# categorical_crossentropy for more than 2
classifier.compile(optimizer='adam', loss='sparse_categorical_crossentropy', metrics=['accur
```

	name	serving_size	calories	total_fat	saturated_fat	cholesterol	sodium	choline	folate	folic_acid	...	fat
0	Cornstarch	100 g	381	0.1g	NaN	0	9.00 mg	0.4 mg	0.00 mcg	0.00 mcg	...	0.05 g
1	Nuts, pecans	100 g	691	72g	6.2g	0	0.00 mg	40.5 mg	22.00 mcg	0.00 mcg	...	71.97 g
2	Eggplant, raw	100 g	25	0.2g	NaN	0	2.00 mg	6.9 mg	22.00 mcg	0.00 mcg	...	0.18 g
3	Teff, uncooked	100 g	367	2.4g	0.4g	0	12.00 mg	13.1 mg	0	0	...	2.38 g
4	Sherbet, orange	100 g	144	2g	1.2g	1mg	46.00 mg	7.7 mg	4.00 mcg	0.00 mcg	...	2.00 g

As we know mean is the average of the data. Multiple features could have the same mean, but different in how they are spread around the mean and it signifies by the standard deviation (std). There is a rule called an empirical rule where we could get the probability of the data spreads via standard deviation. The empirical rule stated that:

- 68% of our data falls under mean±1*std
- 95% of our data falls under mean±2*std
- 99.7% of our data falls under mean±3*std

Empirical rule or some also say 68–95–99.7 rule are often used to analyzing the data outlier. The main problem with this statistic is that they are affected by outlier or extreme value(s) and often causing the data to be skewed. I show you with an image what is skewed data.



Above is the plot of the total_fat(g) feature. It is skewed right as the tail is on the right. But, how skewed is the skewness? It is the purpose of the skew statistic. Some rule we could remember about **skewness** are:

- If the skewness is between -0.5 and 0.5, the data are fairly symmetrical
- If the skewness is between -1 and — 0.5 or between 0.5 and 1, the data are moderately skewed
- If the skewness is less than -1 or greater than 1, the data are highly skewed

So we could see that if our data above is highly skewed, which actually most of the data that you would encounter is like that. Now, what about kurtosis? What is this statistic tell us? **Kurtosis** is a measure of whether the data are heavy-tailed or light-tailed relative to a normal distribution. The analysis could be summarized below: