1. Standard Scalar:
   1. Standard scalar is done to resize the distribution so that the mean becomes 0 and SD becomes 1.
   2. The idea behind the StandardScaler is that variables that are measured at different scales do not contribute equally to the fit of the model and the learning function of the model and could end up creating a bias.
   3. So, to deal with this potential problem, we need to standardize the data (μ = 0, σ = 1) that is typically used before we integrate it into the machine learning model.
2. Different methods for time series: https://davidbetancourt.net/deep-learning-for-high-dimensional-time-series/
3. The features are highly correlated as seen this result. It shows the correlations where |correlation between features|>0.3.
4. Although PCA yielded good results, it doesn't matter if the columns will be jumbled, we will get the same result.
5. A bias has to be added to the columns towards the previous columns as they are dependent (time series).
6. LSTMs are a type of recurrent neural network that specifically addresses the issue of vanishing gradients and is designed to capture long-term dependencies in sequential data. They have a more complex architecture with memory cells and gating mechanisms, making them well-suited for tasks involving long-term dependencies. Traditional RNNs, on the other hand, are more flexible in terms of architecture but can struggle with long-term dependencies due to the vanishing gradient problem.
7. Loss function for multiclass classification: sparse\_categorical\_crossentropy [**FILL IN DETAILS**]
8. softmax as an activation function.
   1. The sigmoid activation function gives the value between 0 and 1. The probability that the data point belongs to class 1 does not take into account the probability of the other classes.
   2. Similar to the sigmoid activation function the SoftMax function returns the probability of each class. Here is the equation for the SoftMax activation function. 