2.4.1 Regression approaches  
The mood of a participant can be predicted by a variety of regression techniques  
using the provided measurements. The Random Forest classifier is one of many  
and was chosen primarily because it is a non-parametric algorithm and can  
handle complex relationships between input variables and the target variable  
without making assumptions about the underlying distribution of the data,  
which in our case could be problematic for other algorithms because we do not  
have a specific data distribution.  
2.4.2 Hyperparameter optimization  
The two hyperparameters used for our Random Forest classifier were the num-  
ber of trees and the depth of the tree. Two grids were created for the setup;  
a hyperparameter grid, containing possible values for the two hyperparameters,  
and a score grid, to denote the evaluation techniques that would be used, in this  
case MAE and MSA. After denoting our grids, a GridSearchCV was performed,  
which is an exhaustive search over specified parameter values for an estimator.  
With GridSearchSV, along with a 5-fold cross validation, the best hyperparam-  
eters were chosen for our model. The results were 200 trees and None max  
depth, which means that each tree will expand until every leaf is pure.  
2.4.3 Evaluation setup  
The model was trained on the training data after the best hyperparameters  
were identified, and the outcome was evaluated using MSA and MAE. To de-  
termine whether the model is overfitting, more calculations were performed.  
Performance on the test set was compared to the MSA and MAE results on  
the training set. The idea is that if there is a significant difference between the  
training and test scores, the model may be overfitting.  
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