New Package Introduction - Model Evaluation, Cross-Validation and Bootstrapping

Some of the common functions used from the Scikit-learn library in the case studies related to the second lecture are listed below:

1) from sklearn.linear_model import Ridge

In order to reduce the overfitting of linear models, ridge regression is a form of linear regression approach used in machine learning. The Ridge module in Sklearn is used to solve a regression model where the regularisation is L2 and the loss function is the linear least squares function.

```
sklearn.linear_model.Ridge(alpha=1.0, *, fit_intercept=True, normalize='deprecated', copy_X=True, max_iter=None
```

Example

```
from sklearn.linear_model import Ridge
model = Ridge()
model.fit(xtrain, ytrain)
```

You can refer to the ridge algorithm available in sklearn documentation for a better understanding of the parameters and attributes here.

2) from sklearn.linear_model import Lasso

L1 regularisation is carried out using the regularisation method LASSO. By adding the penalty (shrinkage quantity) equal to the tally of the absolute values of the coefficients, it alters the loss function.

```
sklearn.linear_model.Lasso(alpha=1.0, *, fit_intercept=True, normalize='deprecated', precompute=False, copy_X=T
```

Example

```
from sklearn.linear_model import Lasso
model = Lasso()
model.fit(xtrain, ytrain)
```

You can refer to the lasso algorithm available in sklearn documentation for a better understanding of the parameters and attributes here.

3) from sklearn.preprocessing import StandardScaler

sklearn.preprocessing.**StandardScaler**(*, copy=True, with_mean=True, with_std=True)

The distribution of data is scaled using StandardScaler so that the mean of the observed values is 0 and the standard deviation is 1.

Example

```
from sklearn.preprocessing import StandardScaler
scaler = StandardScaler()
# scaling the training data
scaled_train = scaler.fit_transform(x_train)
```

You can refer to the standard scaler sklearn documentation for a better understanding of the parameters and attributes here.

Help