

## Module 9: Supervised Learning- II

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### Case Study – 3

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### Objective:

- Employ SVM from scikit learn for binary classification.
- Impact of preprocessing data and hyper parameter search using grid search.

### Questions:

1. Load the data from “college.csv” that has attributes collected about private and public colleges for a particular year. We will try to predict the private/public status of the college from other attributes.
2. Use LabelEncoder to encode the target variable into numerical form and split the data such that 20% of the data is set aside for testing.
3. Fit a linear SVM from scikit learn and observe the accuracy.  
[Hint: Use Linear SVC]
4. Preprocess the data using StandardScaler and fit the same model again and observe the change in accuracy.  
[Hint: Refer to scikitlearn’s preprocessing methods]
5. Use scikit learns grid search to select the best hyperparameter for a non-linear SVM, and identify the model with the best score and its parameters.  
[Hint: Refer to model\_selection module of Scikit learn]