DS-630 Week 4 Discussion

In the Week 4 Discussion Forum, take a moment to discuss the question below. Post your answers briefly and precisely and contribute to the discussion by responding to another post.

What do you see as the advantage of support vector machines compared to regular regression?

Post your response by Friday of Week 4 (11:59 p.m.), then respond to at least one peer’s post by Sunday of Week 4 (11:59 p.m.). Please list reference pages that helped you answer the questions so fellow students can learn from these as well.

Support Vector Machine and Regression both are supervised machine learning. It depends on data which Model is suitable for the data.

Support Vector Machine is Used for both Regression and Classification though it mostly uses for classification problems. we can use a support vector machine to solve problems like Image Classification, Cancer Detection, and Handwriting Recognition. The main advantage of SVM is, SVM tries to find the best margin that separates the classes to reduce the errors in the data over the logistic regression. SVM works well with unstructured and semi-structured data like text and images while logistic regression works with already identified independent variables. SVM is based on the geometrical properties of the data while logistic regression is based on statistical approaches. The risk of overfitting is less in SVM, while Logistic regression is vulnerable to overfitting.

Support Vector Machines and Regression are both examples of supervised machine learning. Which model is appropriate for the data depends on the data.

Although it is mostly used for classification issues, support vector machines are also used for regression. To handle issues like image classification, cancer detection, and handwriting recognition, we can utilize a support vector machine. The key benefit of SVM over logistic regression is that SVM seeks the optimal margin between classes to minimize data mistakes. SVM is effective with unstructured and semi-structured data, such as text and images, while logistic regression is effective with variables that have already been determined to be independent. Unlike logistic regression, which is based on statistical methods, SVM is based on the geometrical features of the data.

Replay

Topic to discuss: What do you see as the advantage of support vector machines compared to regular regression?

Below are some key advantages of using support vector machines compared to regular regression (Logistic regression).

1. SVM is a model that can used for both classification and regression whereas Logistic regression is used only for solving classification problems.

2. SVM tries to find the “best” margin (distance between the line and the support vectors) that separates the classes and thus reduces the risk of error on the data. On the other hand, logistic regression is not used to find the best margin, instead, it can have different decision boundaries with different weights that are near the optimal point.

3. The risk of overfitting is less in SVM compared to LR.

4. SVM is more effective in high dimensional spaces.

5. SVM is based on geometrical properties of the data while logistic regression is based on statistical approaches.

Thanks,

Sakshi

Hello, Sakshi

Good explanation of the advantages of SVM over logistic regression. The model selection also depends on the amount of data. SVM is best for a small amount of data for solving a Classification problem. Thanks for the details.