

# Support Vector Machines-2

## Assignment Questions



**Q1. What is the relationship between polynomial functions and kernel functions in machine learning algorithms?**

**Q2. How can we implement an SVM with a polynomial kernel in Python using Scikit-learn?**

**Q3. How does increasing the value of epsilon affect the number of support vectors in SVR?**

**Q4. How does the choice of kernel function, C parameter, epsilon parameter, and gamma parameter affect the performance of Support Vector Regression (SVR)? Can you explain how each parameter works and provide examples of when you might want to increase or decrease its value?**

**Q5. Assignment:**

- Import the necessary libraries and load the dataset
- Split the dataset into training and testing sets
- Preprocess the data using any technique of your choice (e.g. scaling, normalization)
- Create an instance of the SVC classifier and train it on the training data
- Use the trained classifier to predict the labels of the testing data
- Evaluate the performance of the classifier using any metric of your choice (e.g. accuracy, precision, recall, F1-score)
- Tune the hyperparameters of the SVC classifier using GridSearchCV or RandomizedSearchCV to improve its performance
- Train the tuned classifier on the entire dataset
- Save the trained classifier to a file for future use.

**Note:** You can use any dataset of your choice for this assignment, but make sure it is suitable for classification and has a sufficient number of features and samples.

**Note:** Create your assignment in Jupyter notebook and upload it to GitHub & share that github repository link through your dashboard. Make sure the repository is public.