1. Select the TRUE statement regarding the cost function for SVMs: 1 / 1 point

- (●) SVMs use the Hinge Loss function as a cost function
- ( ) SVMs use a loss function that penalizes vectors prone to misclassification
- ( ) SVMs do not use a cost function. They use regularization instead of a cost function.
- ( ) SVMs use same loss function as logistic regression

✓ Correct
Correct! You can find more information in the lesson *The Support Vector Machines Cost Function*.

2. Which statement about Support Vector Machines is TRUE? 1 / 1 point

- ( ) Support Vector Machine models can be used for classification but not for regression.
- ( ) Support Vector Machine models can be used for regression but not for classification.
- ( ) Support Vector Machine models are non-linear.
- (●) Support Vector Machine models rarely overfit on training data.

✓ Correct
Correct! You can find more information in the lesson *Regularization in Support Vector Machines*.

3. (True/False) A large *c* term will penalize the SVM coefficients more heavily. 1 / 1 point

- ( ) True
- (●) False

✓ Correct
Correct! You can find more information in the lesson Regularization in Support Vector Machines.

4. Regularization in the context of support vector machine (SVM) learning is meant to _____. 1 / 1 point

- ( ) bring all features to a common scale to ensure they have equal weight
- (●) lessen the impact that some minor misclassifications have on the cost function
- ( ) encourage the model to ignore outliers during training
- ( ) smooth the input data to reduce the chance of overfitting

✓ Correct
Correct. In SVM, you have to come up with a way of optimizing to allow for some points to be misclassified within the process. This is where the regularization in SVM comes into play.

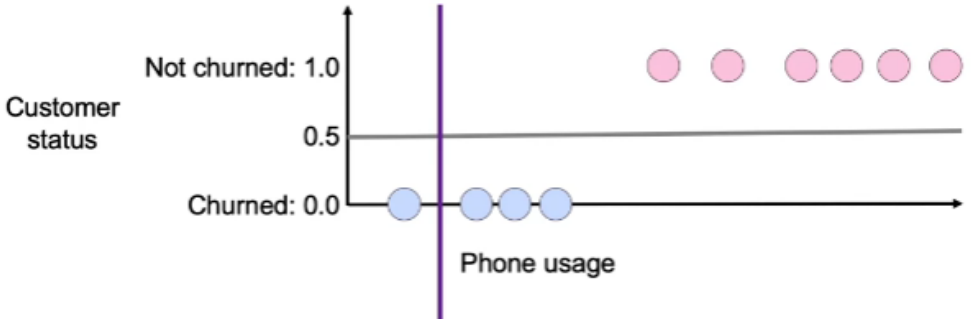
5. Support vector machines can be extended to work with nonlinear classification boundaries by _____. 1 / 1 point

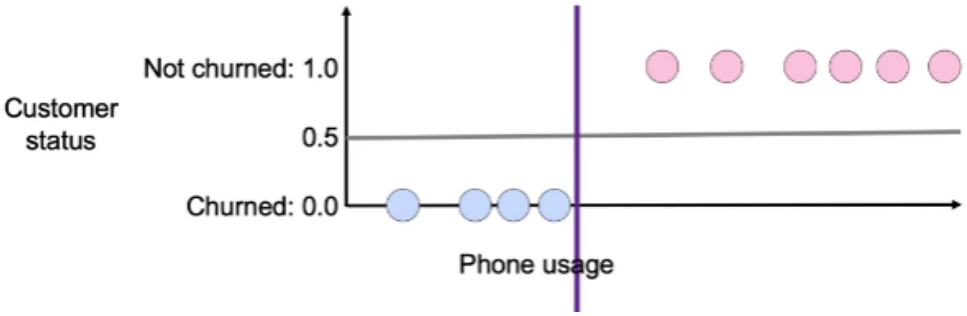
- (●) using the kernel trick

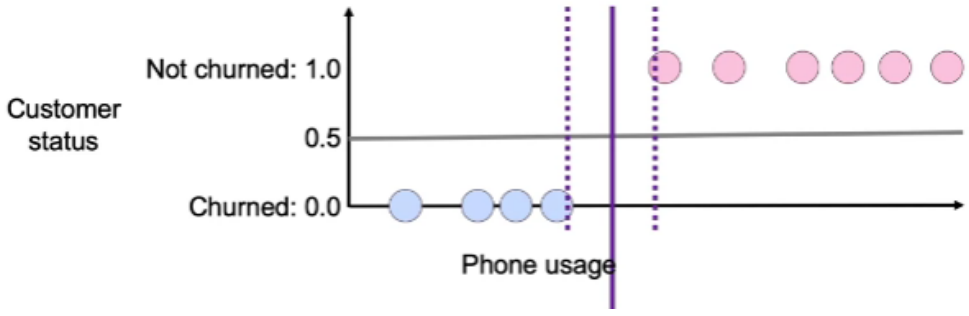
- incorporating polynomial regression
- modifying the standard sigmoid function
- projecting the feature space onto a lower dimensional space

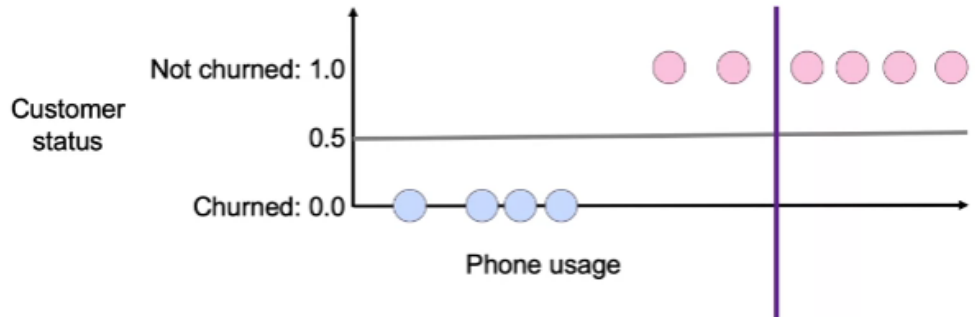
Correct
Correct. Support vector machines can be extended to non-linear classifiers using the kernel trick.

6. Select the image that displays the line at the optimal point in the phone usage that the data can be split to create a decision boundary. 1 / 1 point



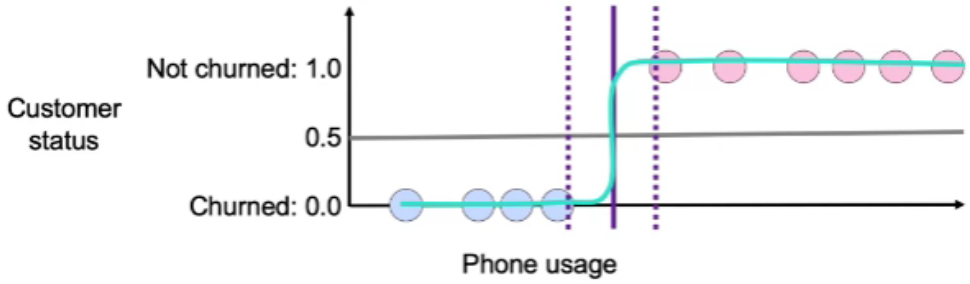






Correct
Correct. This is the optimal point in the phone usage to split the data and create a decision boundary.

7. The below image shows the decision boundary with a clear margin, such decision boundary belongs to what type machine learning model? 1 / 1 point



- Super Vector Machine
- Support Vector Machine
- Machine Learning
- Support Version Machine

Correct
Correct. This is a model of a Support Vector Machine because the blue and red samples that define the margin, the dotted lines, are called support vectors.

8. SVM with kernals can be very slow on large datasets. To speed up SVM training, which methods may you perform to map low dimensional data into high dimensional beforehand? 1 / 1 point

- [ ] Regularization
- [x] RBF Sampler

Correct
Correct. The RBF Sampler method can be used to map low dimensional data into high dimensional data.

- [x] Nystroem

Correct
Correct. The Nystroem method can be used to map low dimensional data into high dimensional data.

- [ ] Linear SVC

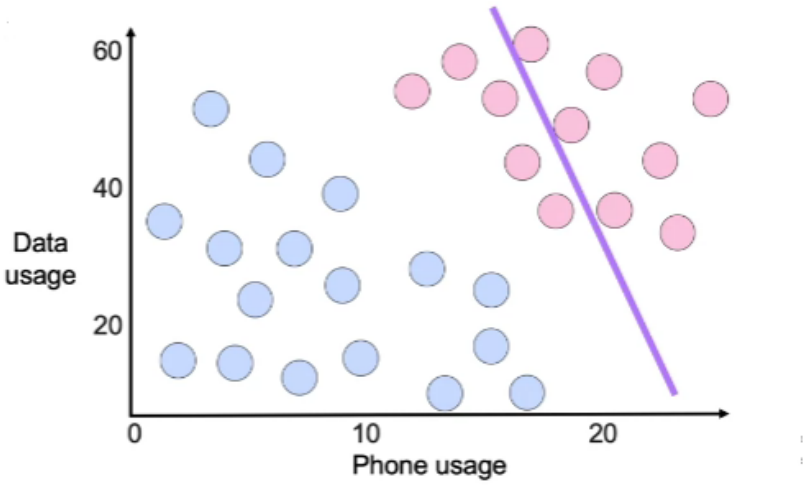
9. Concerning the Machine Learning workflow what model choice would you pick if you have "Few" features and a "Medium" amount of data? 1 / 1 point

- ○ Add features, or Logistic
- ○ Simple, Logistic or LinearSVC
- ◉ SVC with RBF
- ○ LinearSVC, or Kernal Approximation

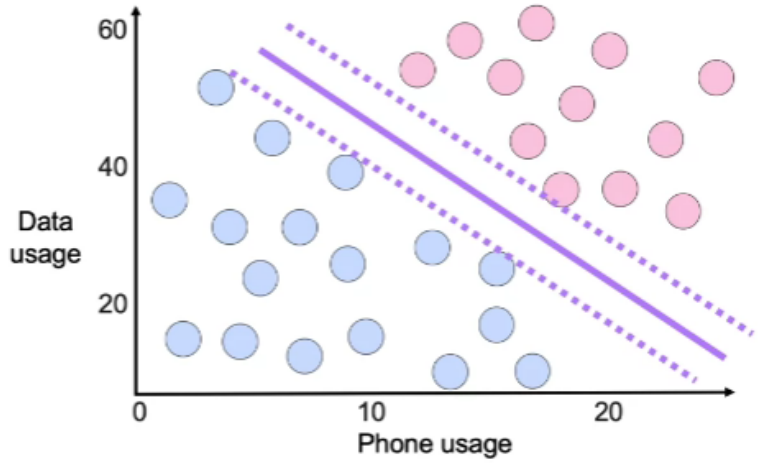
Correct
Correct. You would use SVC with RBF as your model with “Few” features and a “Medium” amount of data.

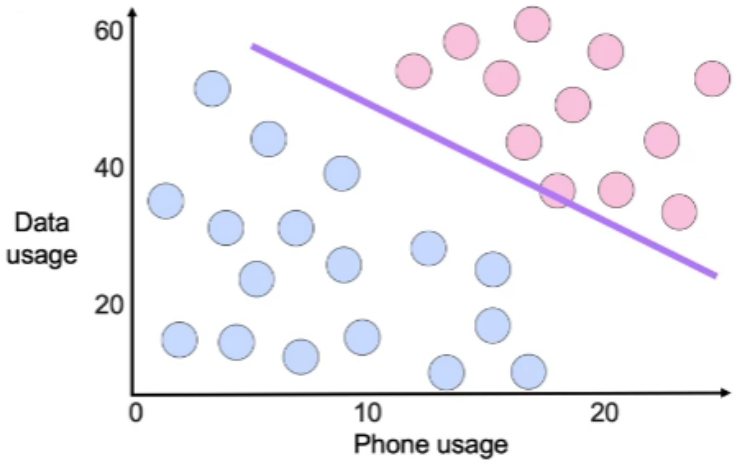
10. Select the image that best displays the line that separates the classes. 1 / 1 point

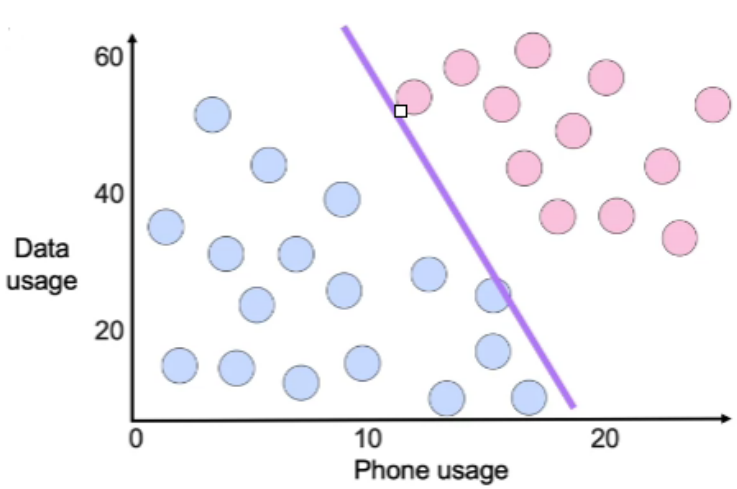
○



◉







Correct
Correct. This image displays the line that best separates the classes.