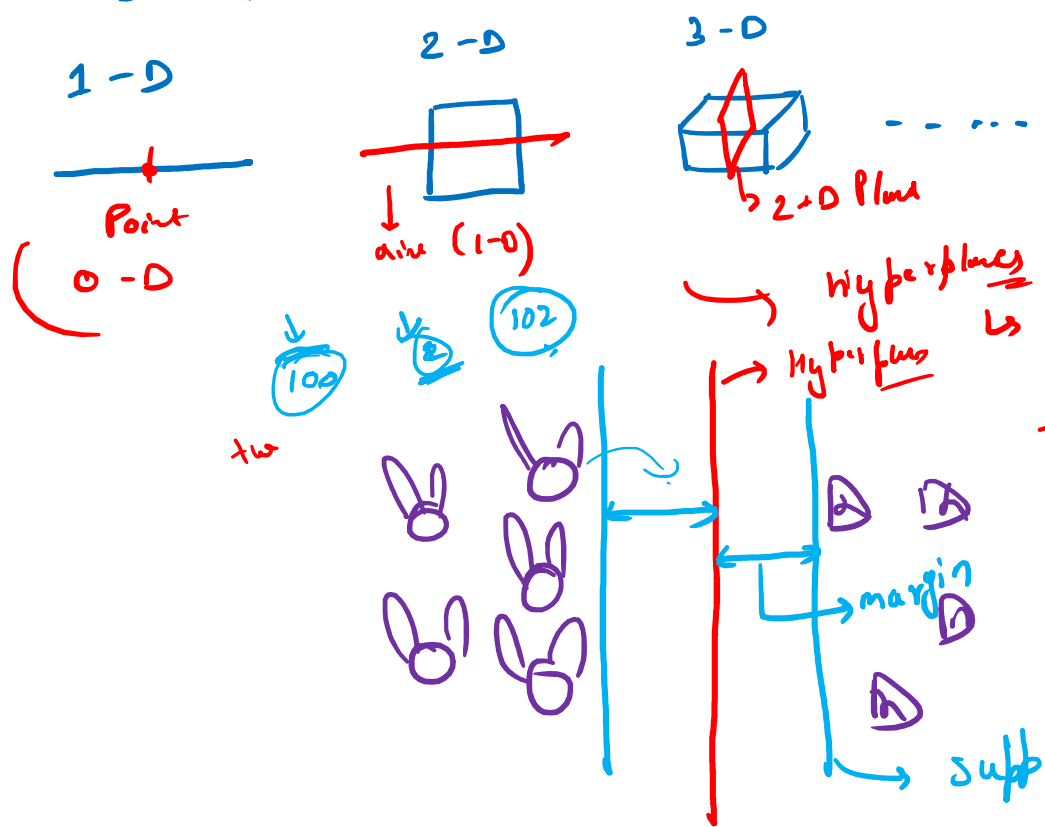


→ SVM (Support Vector Machines)

- Supervised Algo
- Classification ML Algo / Regression ML Algo
- Vectors & Hyperplanes to draw boundaries within your data to separate the Target



4-D 5-D

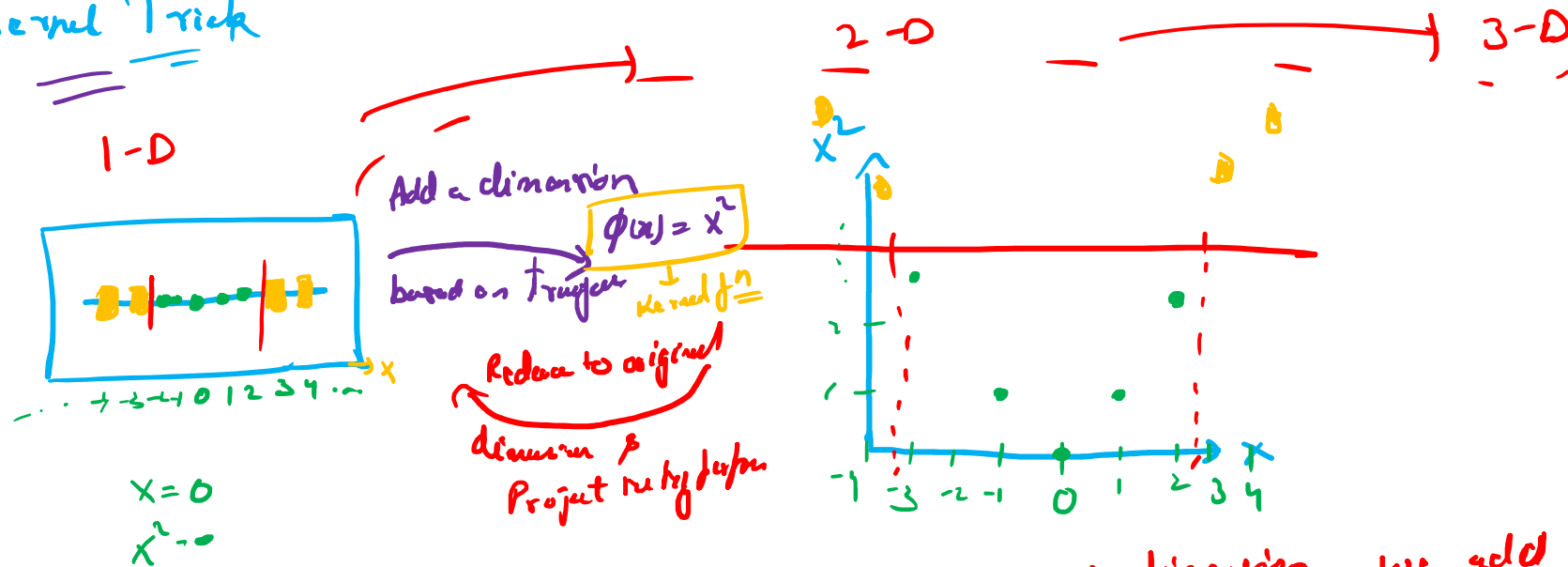
Hyperplanes → The object used for division of data

Margin is high (not thick)
↓
down margin (thick) → over-fitting
↳ thick

Zoo!
↓
dion & Rabbits

Run parallel to Hyperplane to solidify boundary b/w classes

→ Kernel Trick



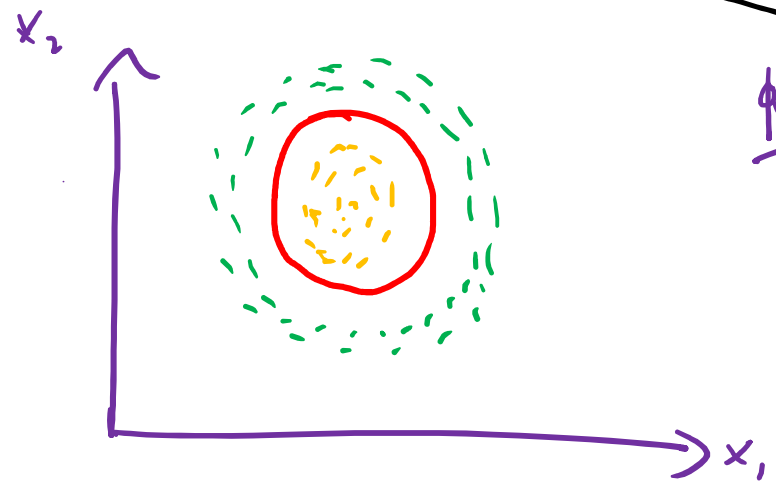
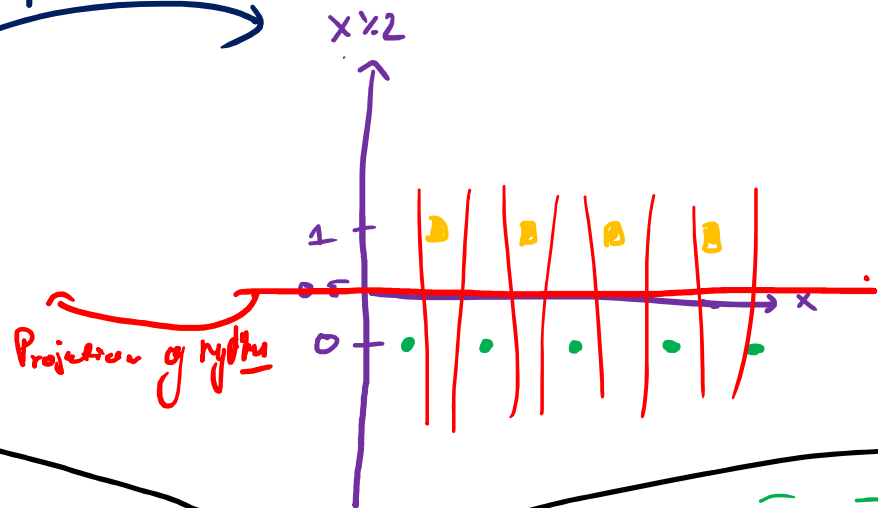
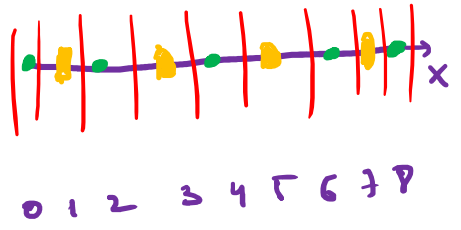
Since, the data is not linearly separable in the original dimension, we add dimension based on ILATE Transformations and try to find a boundary, when found we will reduce it back to the original dimension & Project the Hyperplane acc.

I L A T E R → Radial
 Inverse / Mapping ← logarithm Algebra Trig → Exponential

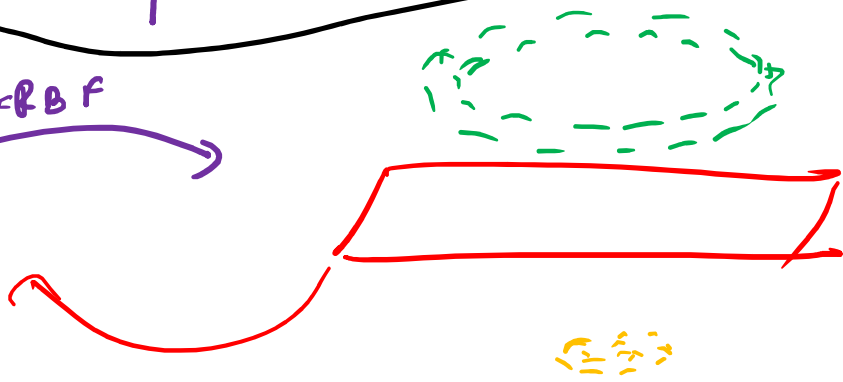
Modeler

$$\phi(x) = x \times 2$$

hyperparameters \rightarrow Scale down \rightarrow Cap

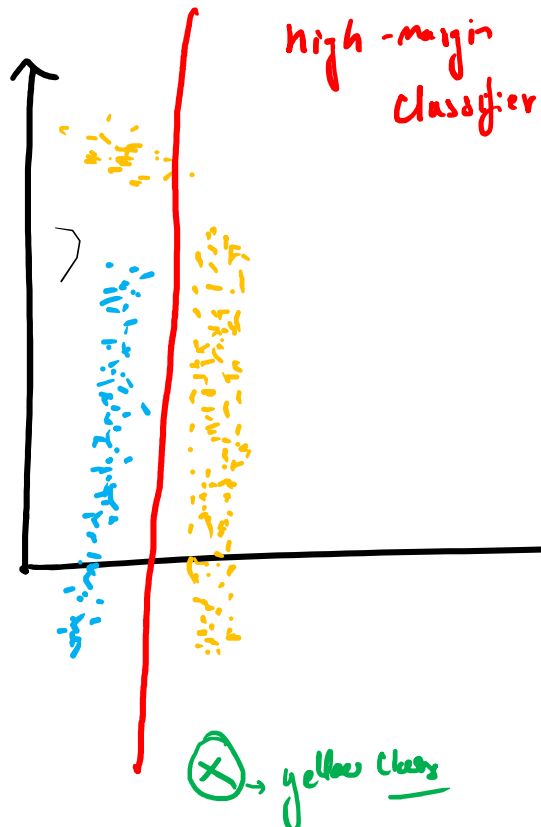


$$\phi(x) = BBF$$



Hyperparameters

Training SVM
takes time
↓
Compute Expense
↓
local computers X
⇓
Please use Google Colab to practice
SVM



high-margin classifier

Right Balance of the margin

2 hyperparameters

Regularization (C)

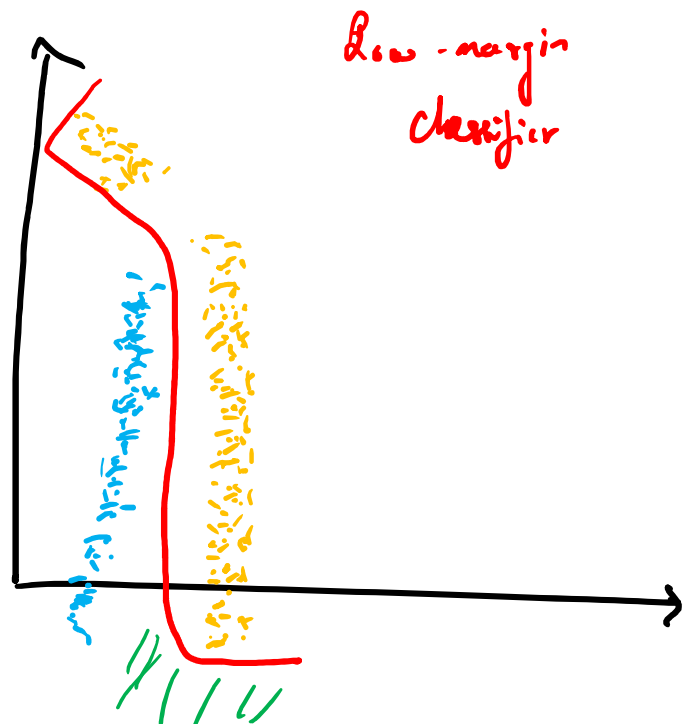
Gamma (γ)

↓ C → Some tolerance for outliers
↑ γ → Include only nearby pts

Based on the performance of SVM on your data

You can Tune these Parameters

⇓
using gridsearch CV



low-margin classifier

↑ C → No tolerance for outliers
↓ γ → Include far points as well

⊗ Error