Machine learning from scratch

Lecture 7: Classification

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Extension to multiclass classification

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Several possible extensions. Some of the most popular ones:

- One against one classification
- One against all classification

Note: These strategies apply to any binary classifier (including SVMs).

One against one classification

Idea:

- Compute a classifier **for all pairs** of classes.
- **Apply all these classifiers** to the new point. Store the predicted classes.
- **Majority vote**: Return the class with the highest number of votes

One against all classification

Note: It is also called *one against rest classification*.

Idea: For each class, split the set of classes into two meta classes

- The considered class
- The union of all the other classes

and compute a classifier for all these possibilities. Apply all these classifiers to a (new) given point.

Final decision based on the value of $\theta^T x$.

Thank you! Questions?