

## EXERCISE 6

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### 1. MIXTURE OF GAUSSIANS

- (1) Define the parameters of 3 Gaussian distribution functions in two dimensions.
- (2) Generate 300 points in total, 100 points from each of the 3 Gaussians.
- (3) Implement the EM algorithm to solve the Mixture of Gaussians problem using the artificial data you just created.
- (4) Plot the data points using one color for each Gaussian.
- (5) Include in your plot the contours of the final Gaussians estimated by your algorithm.
- (6) Implement also the K-means algorithm and cluster the same data set that you created.
- (7) Prepare a report containing your final models' parameters and the graph of the clustering generated by both algorithms: Mixture of Gaussians and K-means.

### 2. EXERCISE SUBMISSION

- Deadline: 17.06.2019/19.06.2019
- Note: Do not forget to include your names in the report!