1. Develop an intersection algorithm for two planar Bézier curves

\[ P(t) := \sum_{i=0}^{n} P_i B_i^n(t), \quad t \in [0, 1] \]

and

\[ O(s) := \sum_{i=0}^{m} Q_i B_i^m(s), \quad s \in [0, 1] \]

Hint 1: Use convex hull property combined with subdivision.
Hint 2: Instead of checking for intersecting convex hulls of two curves, you may look for overlapping axis-parallel bounding boxes. Endpoints of diagonal of such bounding box are \((\min P_{ix}, \min P_{iy}), (\max P_{ix}, \max P_{iy})\).
2. Using the recursive definition of B-splines, generate and graph the spline $N_0^2$ with knots $y_0 = y_1 = 0, y_2 = 1, y_3 = 2$. How many times is this spline differentiable at its knots? Find the control points of the spline in planar case.

2. Using the recursive definition of B-splines, generate the full spline system of degree 3 for the following distribution of knots: $y_0 = y_1 = y_2 = y_3 = 0, y_4 = 1, y_5 = 2, y_6 = 3, y_7 = 4, y_8 = 5, y_9 = y_{10} = y_{11} = y_{12} = 6$. 