Algorithm Design

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Solution of Exercise C-12.13

By a sorting step on the segment endpoints, we can determine that each endpoint exists exactly twice. If this condition holds, then every endpoint forms a polygon vertex. If the condition does not hold, then S cannot form a polygon. So, if this condition is true, we then connect the edges of S according to their adjacencies and peform a traversal of these edges starting at some vertex v. If this traversal visits all the edges, then they form a polygon. If this traversal misses some edges, then the segments in S form at least two polygons.