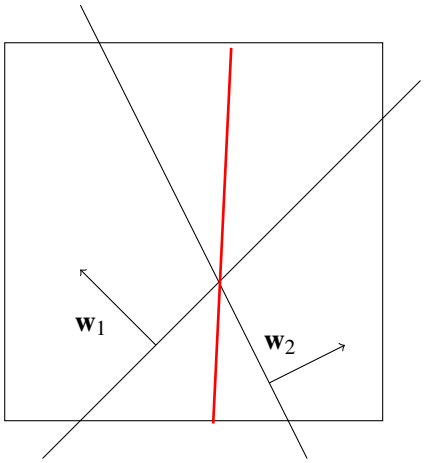
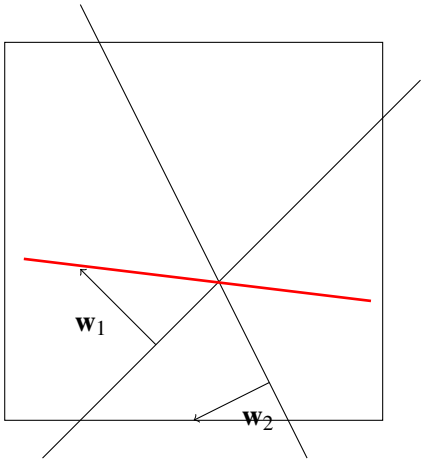
c. (4 points) The following box represents a 2-dimensional feature space, with the planes and weight vectors associated with C_1 and C_2. Use a diagram and an explanatory sentence to show how these planes determine a decision boundary, and indicate the decision regions (that is, which part of the feature space will be classified as C_1 and which as C_2).

The red plane represents set of points that are equidistant from planes C1 and C2
Points to the left are classified as Class C1 and ti the right as C2

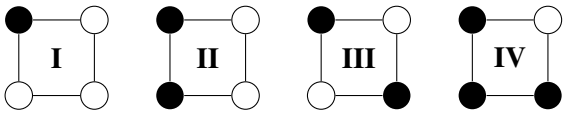


d. (4 points) Do the same for the following case (diagram and explanatory sentence). What is the difference?

Points above red line are classified as C1 and below are classified as C2
The orientation has changed as the decision plane must lie in the same direction as w1 + w2



e. (4 points) The following diagrams represent possible ways to split the four possible observations of two binary features between two classes. Which of the cases below are consistent with conditional independence of the feature values, given the class?



i, ii, iv are consistent with conditional independence of the feature values given the class