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CRISP-ML(Q):

Business Problem:

There are a lot of assumptions in the diagnosis pertaining to cancer. In a few cases radiologists,

pathologists and oncologists go wrong in diagnosing whether tumor is benign (non-cancerous) or malignant (cancerous).

Hence team of physicians want us to build an AI application which will predict with confidence the presence of cancer

in a patient. This will serve as a compliment to the physicians.

Business Objective: Maximize Cancer Detection

Business Constraints: Minimize Treatment Cost & Maximize Patient Convenience

Success Criteria:

Business success criteria: Increase the correct diagnosis of cancer in at least 96% of patients

Machine Learning success criteria: Achieve an accuracy of atleast 98%

Economic success criteria: Reducing medical expenses will improve trust of patients and thereby hospital will see an increase in revenue by atleast 12%

Data Collection:

Data is collected from the hospital for 569 patients. 30 features and 1 label comprise the feature set.

Ten real-valued features are computed for each cell nucleus:

a) radius (mean of distances from center to points on the perimeter)

b) texture (standard deviation of gray-scale values)

c) perimeter

d) area

e) smoothness (local variation in radius lengths)

f) compactness (perimeter^2 / area - 1.0)

g) concavity (severity of concave portions of the contour)

h) concave points (number of concave portions of the contour)

i) symmetry

j) fractal dimension ("coastline approximation" - 1)

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