

MACHINE INTELLIGENCE AND EXPERT SYSTEMS
EC60091
AUTUMN SEMESTER – 2018

COMPUTER ASSIGNMENT-4 (Metrics, VC Dimension, Feature Selection and
Hypothesis Evaluation)

- 1) ThirdEye Technologies have approached a cancer specialty hospital to sell their new Cancerous tumor detection technology. However, another competitor in market is also selling a similar technology and has contacted the hospital officials. Both the firms have modelled the temperature of malignant and benign tumors as Gaussian distributions and use a dynamic threshold set by user to classify the tumors.

Specification of the devices:

ThirdEye Technologies	Malignant	Benign
Mean	37	32
Standard Deviation	1	4

Competitor	Malignant	Benign
Mean	37	32
Standard Deviation	2	3

You have been given the task to select the best device to purchase.

- i) Generate the ROC's curves for each of the device by varying the thresholds.
- ii) Calculate the Area Under the Curve (AUC) for each and based on AUC values recommend a device accordingly.

Note: You are not allowed to use inbuilt ROC and AUC functions from python libraries.