# BREAST CANCER PREDICTION IN HUMANS BY USING ARTIFICIAL INTELLIGENCE /MACHINE LEARNING

## Problem Statement:

Breast cancer is one of the leading causes of cancer-related deaths among women worldwide, and its early detection is crucial for improving survival rates. Fine Needle Aspiration (FNA) cytology is a widely used diagnostic procedure for identifying breast tumors as benign or malignant. However, the process relies heavily on manual interpretation by pathologists, which can be subjective, time-consuming, and prone to human error. Variability in expertise and workload further increases the risk of misdiagnosis or delayed treatment, emphasizing the need for reliable diagnostic support tools.Advancements in artificial intelligence and machine learning provide an opportunity to address these challenges by developing systems capable of learning from medical datasets and generating accurate predictions. This project focuses on designing and implementing a machine learning-based system to classify breast tumors based on cytological features obtained from FNA samples, such as clump thickness, cell shape, cell size uniformity, and mitosis.The proposed system aims to act as a diagnostic aid for medical professionals, offering consistent, fast, and reliable results that complement expert judgment. By reducing diagnostic errors and supporting early treatment decisions, the system has the potential to improve healthcare outcomes and contribute to saving lives, particularly in resource-limited regions.

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