Chapter 1

Introduction

1.1 Background

I want to build the project is to ease specialist software to detect breast cancer patients more quickly, reduce calculation error and comforting doctor for not looking at all the old records of patients who have suffered from cancer for the conclusion that the patient suffers from cancer at what level or stage.

In the information, an early sign of breast cancer occurs when swelling or lump in the breast, bloody fluid out of the nipple, enlargement of glands in the armpits, wrinkles in the skin of the breasts. It starts in the cell of the breast by the group of cancer cells (malignant tumor)[1].

Breast cancer is most dangerous disease and it is the second leading cause of death among women. All human, both genders are born with some breast tissue and cells that have the possibility to get cancer breast. Male are rare to get breast cancer with only below 2500 diagnoses each year[2]. Even though most people exactly who produce bust most cancers will never be in a position to pinpoint just one certain lead to, scientists have discovered significantly concerning danger aspects that will show any stronger chances pertaining to most cancers.

There are many facts and myths that have been documented. Among them is smoking, family history, genetics, personal health history, early menstruation, late menopause after age 55, the use of agents, anti sweat result of breast cancer, all lumps are cancerous, the bigger breast size, the higher the risk, mammograms cause cancer, miscarriage induced causes of breast cancer and breast implants cause cancer[1][2].

Breast cancer tumors can be categorized by the size, type of cells, and the characteristics that fuel its growth. Breast cancer can be detected through the nine attributes which should be identified by a specialist, through inspection, that is the
clump thickness, uniformity of cell size, uniformity of cell shape, marginal adhesion, single epithelial cell size, bare nuclei, bland chromatin, normal nucleoli and mitoses. After the inspection is done, the experts can confirm the patient's cancer is malignant or benign level. From the result of inspections carried out by a specialist, doctor selecting a scale from 1 to 10 for setting the level of any examination result. Collect all examination results of all nine attributes result compared with previous patients that have been recorded. Through these records, the calculation can be done through software that I will build. This software will use the artificial intelligence technique that is case base reasoning. Case-based reasoning (CBR) means using old experiences to understand and solve new problems. A case-based reasoned solves new problem by using or adapting solution that were used to solve old problems. A case-based reasoning is an AI technique that imitates how human make a decision. In CBR, new problems are solved by recalling from a previously solved problem which are stored in the case-base[4][5].

1.2 Problem Statements

There are five problem that can be solve by develop the system use the case-based reasoning method, which is first is the possibility of error calculations scale after examining the patient can be fixed, second is speed the time doctor to make a thorough examination, third is speed up time when the doctor compared the new patient records with an old patient records that who have experienced similar situations and last but not least is the wasting of existing data or record can be reduced.
1.3 Aim and objectives of the project

This project aims to develop an application that can provide information about interesting places in Kuantan and can navigate tourists to go to their selected places. The objectives of the research are to:

1) To study case based reasoning artificial intelligent algorithm to apply in breast cancer detector software.
2) To develop a tool to process the similarity measurement and make the compares from the new record with previous record of the patient.
3) To evaluate the tool for improvement of detection of the cancer patients history.

1.4 Scope

1) This project concern on patients who related to the cancer detection focused on breast cancer.
2) This project also concern on doctor specialized in breast cancer.
3) The developed tool will use CBR calculation only.
4) Record of patient will use from Dr. William H. Wolberg (physician) from University of Wisconsin Hospitals, Madison, Wisconsin, USA dataset. 
(https://archive.ics.uci.edu/ml/datasets/Breast+Cancer+i+Wisconsin+(Original))