

## CHAPTER 1

### INTRODUCTION

#### 1.1 INTRODUCTION

Compression is the art of representing the information in a compact form rather than its original or uncompressed form. In other words, using the data compression, the size of a particular file can be reduced. This is useful when processing, storing or transferring a huge file, which needs lots of resources. If the algorithms used to encrypt work properly, there should be a significant difference between original file and the compressed file. When data compression is used in a data transmission application, speed is the primary goal. Speed of transmission depends upon the number of bits sent, the time required for the encoder to generate the coded message and the time required for the decoder to recover original ensemble. Compression can be classified to two method as lossy and lossless of data. Lossless method is the exact data can be recovered while lossy compression is only a close approximation of the original data can be obtained.

In this research, the image compression technique is used to prove the transmission of image data. The technique will be divided into three type method which are coding method, spatial domain compression and transform domain compression methods. The coding method is used to this technique. There are four coding method which are arithmetic, Huffman, Lempel-Ziv Welch (LZW) and Run-Length.

## **1.2 PROBLEM STATEMENT**

The issue that will like to highlight is how to solve the issue that the image data will reduced the size of data but still produce the high quality of data. The image data is bigger size will be reduce and the measuring performance will be measuring by compression ratio. In this problem will be solve by the compression technique using the algorithm that will propose.

## **1.3 OBJECTIVE**

The objectives for this research are :

- 1) To study how the lossless compression is processing in image data
- 2) To produce compressed output that is smaller size of compressed size than the original data but still remain the quality of image data
- 3) To evaluate the performance based on compression ratio of image data
- 4) To test the performance of image data by using the techniques

#### **1.4 SCOPE**

There are two scope of compression which are algorithm and behaviour. The first scope is algorithm. Many of algorithm that will can use to solve the problem in this research but in this algorithm, it used the compression algorithm and to more specific is lossless compression algorithm. This algorithm is usually use in the image data file.

The second scope is behaviour of compression. Depending on the application there are various criteria to measure the performance of a compression algorithm. When measuring the performance the main concern is space efficiently. In this research is focussing the behaviour of the image data which is based on the compression algorithm that will be use. Thus measuring performance is not to easy but it should be different measurement to evaluate the performance of those compression like compression ratio to produce the good result for this research.