# CHAPTER 1
# INTRODUCTION

## 1.1 Background

Enlarging of an image is very necessary so that someone can see and observe image clearly and more detail, such as in printing that requires large images or in making documents. Image Enlargement can be done by many ways like using photoshop, paint and other application. In this project we will do the Image Enlargement using interpolation method, but the quality of the resulting image is very dependent on the interpolation method used.

There are several methods used in image enlargement, in this project used Bilinear interpolation method and the Bicubic interpolation method. The image will be downsized first according to the enlargement scale before enlargement process. After enlargement process using 2 interpolation methods with enlargement scale 2x, 4x and 6x, and the image qualtiy will be calculated using PSNR.

There are many image enlargement process that produce bigger resolution from the original image, but we didn't know the quality of the images. Bilinear interpolatin and Bicubic Interpolation methods produce inputs with different quality. The image result can be calculated with PSNR to calculate the quality of the output image. It can also consider which method is better in Image Enlargement, the higher PSNR value, the better image quality.

## 1.2 Problem Formulation

1. Which is the best method between Bilinear and Bicubic Interpolation for Image Enlargement?
2. Does the enlargement scale affect the quality of image?
3. Which method is fastest for Image Enlargement?

## 1.3 Scope

1. Image data only use image file format (.jpg)
2. Image Enlargement is done with a scale of 2x, 4x, 6x.
3. Using input of 30 images.
4. Output of interpolation image will be calculate using PSNR.
5. Image Enlargement time process will be count.

## 1.4 Objective

Make a program for Image Enlargement using Bilinear Interpolation and Bicubic Interpolation.