# Lab [02]: [Basics Operations on Image]

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**Objectives**

1. Create your own image
2. Read/Display images
3. Perform slice operations on Images.
4. Display images as an array

**Tool(s)/Software**

* Spyder, Pillow (library), OpenCV, SciKit-Image

**Description**

**Task 01 – Creating image**

**1. Create data.csv file (excel) and add the following data.**

A screenshot of a computer

Description automatically generated

**Read the data.csv file and display them using the following code.**

**import numpy as np**

**import pandas as pd**

**df= pd.read\_csv('data.csv')**

**check = df.to\_numpy()**

**import matplotlib.pyplot as plt**

**plt.matshow(check, cmap='gray')**

**plt.show()**

**Experiments:**

* Change the values in data.csv file and re-run the code.
* The set of values in the data.csv file is

**1,0,1,0,1,0**

**0,1,0,1,0,1**

**1,0,1,0,1,0**

**0,1,0,1,0,1**

Which represents 1-bit per pixel. See the Practical Task Assignment for the task related to this.

**Task 02 – Read image and converting to Array (you can read any image)**

**from PIL import Image**

**import sys**

**from numpy import \***

**img = Image.open("face.bmp")**

**img.show()**

**newImage = asarray(img)**

**print(newImage)**

Discussion: This code reads the face.bmp image and display them. Also, by using the numpy library function “as array”, convert the same to array and then print the array.

**See the Practical Task Assignment for the task related to this.**

**Practical Tasks to Submit**

**Task – 01: Explain the Task-1**

If you change the values of the task-1 data file, where the value for each pixel is in the range (0-255), then using the same code and check the answer:

**The example values are provided.**

**92,232,44,223,175,157**

**75,6,91,101,84,137**

**215,191,245,205,22,123**

**216,10,234,242,45,4**

Q. Why we are getting gray-scale image:

**Answer:**

**Task – 02:** Perform the Array slicing techniques. Take a slice (some section from the image-generated array) and display them.

# --- ( End of Lab – 02 ) ---