Homework 1

Problem 1

1. **Time required to transmit image= image size (in bits) /modem rate (in bits/sec)**
   * **= (1024x1024x(8+2) (bits) / 10e6(bits/sec))x500**
   * **= 5242.88 sec**
2. **Time required to transmit image= image size (in bits) /modem rate (in bits/sec)**
   * **= (1024x1024x(8+2) (bits) / 10e9(bits/sec))x500**
   * **= 5.24288 sec**

Problem 2

Generating Image:

This was done by first generating a blank image the color of the selected mode and shape of the given original image, “self.mode” is set by default to black which is shown in the constructor. After generating a blank image, we traverse through each element of the original image and map its current (x, y) coordinated to a new position based on the transformation being applied. The mapping function done by calling a helper function that outputs the results from the equation linked to the transformation. This could also be done my doing vector multiplication on a matrix (rotate/ remap the vector). For ease of implementation, I used the vector functions directly.

Text

Description automatically generated

Text

Description automatically generated

Original Image:



Affine Translation:

Text

Description automatically generated

Graphical user interface

Description automatically generated with low confidenceText

Description automatically generated with low confidence

Affine Shearing:

Text

Description automatically generated

A picture containing text

Description automatically generatedA picture containing text

Description automatically generated

A close-up of a child

Description automatically generated with medium confidence