CHAPTER V
IMPLEMENTATION AND TESTING

5.1 Implementation

5.1.1 Button Menu Process

Figure 5.1 Button Browse RGB image

At the beginning of running the application is the user can choose the image to be processed with the browse button and appears on the screen of the new results.

Figure 5.2 Button RGB Process

The user can select the image that will be processed, after which the rgb button serves to display the results of the process of rgb.
Figure 5.3 Button Gray Process

The user can select the image that will be processed, then the grayscale function to display results from the process of Grayscale.

5.1.2 RGB to Grayscale Process

Figure 5.4 RGB to Grayscale Method

When the Button is clicked the image gray already inputed processed with the grayscale method.
5.1.3 RGB Process

```java
404  )
405  return grays;
406  }
407  }
408  public BufferedImage grayscale(BufferedImage input) {  
409  int rows = input.getHeight();
410  int cols = input.getWidth();
411  int b = 0;
412  int g = 0;
413  int r = 0;
414  for (int i = 0; i < rows; i++) {
415  for (int j = 0; j < cols; j++) {
416  r = input.getRGB(i,j) & 0xFF;  
417  g = input.getRGB(i,j) & 0xFF;  
418  b = input.getRGB(i,j) & 0xFF;  
419  gray[i][j] = (255 - (r + g + b))/3;
420  }
421  }
422  return gray;
423  }
```

Figure 5.5 RGB to Two-bit Grayscale Method

Then the inputed image processed with this 2 bit grayscale and 4 bit image.
Figure 5.7 RGB to Monochrome Image Method

In this RGB button the image will be processed into a monochrome image of the image is black and white.

5.1.4 RGB to Red Monochrome Process

Figure 5.8 RGB to Red Monochrome Image

This monochrome image process value red in taken to be processed into a monochrome image, the result of that process is the image of black and red.
Figure 5.9 RGB to Red Monochrome Two-bits

Monochrome red image uses restriction to determinan the outcome, with 4 channel color; black, dark gray, light gray, and white value of grayscale is limited by producing the 4 colors.

Figure 5.10 RGB to Red Monochrome Four-bits

Monochrome red image 4 bit grayscale proceduce image sharper on the detection of its line. On the green and blue channels is also the same
step her but only replace the color that will be processed only.

5.1.5 Create File TXT Process

```c
...
else b == 1;

if b > 100 b = b;
if b > 150 b = b;
if b > 250 b = b;

Color xct = new Color(xct, yct);
textured = newTxt(xct, yct, getRGB());
endTxt();
}

try {
    FileWriter myFileOut = new FileWriter("Main高速增长-1.txt");
    for(int x=0; x<width; x++) {
        for(int y=0; y<height; y++) {
            if (endTxt())
                table += table + endTxt();
        }
        System.out.println(table);
    }
    myFileOut.flush();
}
return myFileOut;
}

try {
    File myFile = new File("Main高速增长-1.txt");
    if (myFile.exists())
        return myFile.delete();
    return myFile.createNewFile();
}
return myFileOut;
```

Figure 5.11 Process Create File TXT

Then in each process grayscale 2 bits and 4 bit, thresholding rgb 2bits and 4 bit, value on the image are stored in the txt file.

5.2 Testing

5.2.1 Show Button Process

```c
...

Figure 5.12 Show Button Process Image
```
Initial display on the application of this is there are three buttons that can be selected, browse, rgb and grayscale.

5.2.2 Show File Directory

![Figure 5.13 Show File Directory](image)

Then if it is clicked the browse button it will pop up a screen file directory to select the image to be processed.

5.2.3 Show Result Browse Image

![Figure 5.14 Show Result Browse Image](image)
After the image has been selected then the image will appear on the screen button above, the image is in border titled.

5.2.4 Show Grayscale Image

Figure 5.15 Show Result Grayscale Image

When the image you selected appears on the screen button, and the button grayscale is selected it will pop up a new frame that displays all results process grayscale 2 bit and 4 bits.

5.2.5 Show RGB Image

Figure 5.16 Show Result RGB Image
The image is already selected, and then the rgb button is clicked it will pop up a new frame to display the image processed rgb thresholding.

**Table 5.1 Table Value of Grayscale**

<table>
<thead>
<tr>
<th>X, Y</th>
<th>[7][32]</th>
<th>[7][33]</th>
<th>[7][34]</th>
<th>[7][35]</th>
<th>[7][36]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grayscale</td>
<td>253</td>
<td>253</td>
<td>253</td>
<td>253</td>
<td>253</td>
</tr>
<tr>
<td>Two-bits</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td>Four-Bit</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
</tr>
</tbody>
</table>

In the table above is the result value of grayscale, 2bit and 4 bits, sample taken on the x,y start [7][32] of five samples. So you can see the result of differences in the image three. Differences in value are different at certain positions, but it is certain positions it can also have the same value. In fact many once stored on the txt file that is as big as the picture, but it is not possible to input on this chart so taken as many as five samples only.

**Table 5.2 Table Value of Red Monochrome**

<table>
<thead>
<tr>
<th>X, Y</th>
<th>[3][83]</th>
<th>[3][84]</th>
<th>[3][85]</th>
<th>[3][86]</th>
<th>[3][87]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monochrome Red</td>
<td>255</td>
<td>255</td>
<td>255</td>
<td>255</td>
<td>255</td>
</tr>
<tr>
<td>Monochrome Red 2-bit</td>
<td>255</td>
<td>255</td>
<td>255</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Monochrome Red 4-bit</td>
<td>255</td>
<td>255</td>
<td>255</td>
<td>255</td>
<td>255</td>
</tr>
</tbody>
</table>

In the table above, the comparasion of the value of the monochrome red, 2bits and 4 bits, it can be seen that in certain positions have the same value and different values above 255 is the value of her red so the image arising out of black and red, the colors of black on the image while the dominant red color on image.
Table 5.3 Table Value of Green Monochrome

<table>
<thead>
<tr>
<th>X,Y</th>
<th>[3][85]</th>
<th>[3][86]</th>
<th>[3][87]</th>
<th>[3][88]</th>
<th>[3][89]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monochrome Green</td>
<td>255</td>
<td>255</td>
<td>255</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Monochrome Green 2-bit</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Monochrome Green 4-bit</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In the table above, the comparison of the value of the monochrome green, 2bits and 4 bit, it can be seen that in certain positions have the same value and different, values above 255 is the value of her green so the image arising out of black and green. The colors of black on the image while the green color is dominat on the same image with a monochrome green.

Table 5.4 Table Value of Blue Monochrome

<table>
<thead>
<tr>
<th>X,Y</th>
<th>[8][75]</th>
<th>[8][76]</th>
<th>[8][77]</th>
<th>[8][78]</th>
<th>[8][79]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monochrome Blue</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>255</td>
<td>255</td>
</tr>
<tr>
<td>Monochrome Blue 2-bit</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Monochrome Blue 4-bit</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In the table above, the value that is in monochrome red, green, blue, all almost the same just that the differences lie in certain positions. The value that is used for 0 and 255 (channel value). If one of the colors from the rgb is used then the color will be the color of the dominant.