**Image quantization project**

**Milestone one documentation**

**Team 100**

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**Used structures:-**

A screenshot of a cell phone

Description automatically generated

Vertix data : is a structure we built to know the node data ( RGP content , parent node , distance between the parent and the node itself , position in the heap).

Used objects :

A screenshot of a cell phone

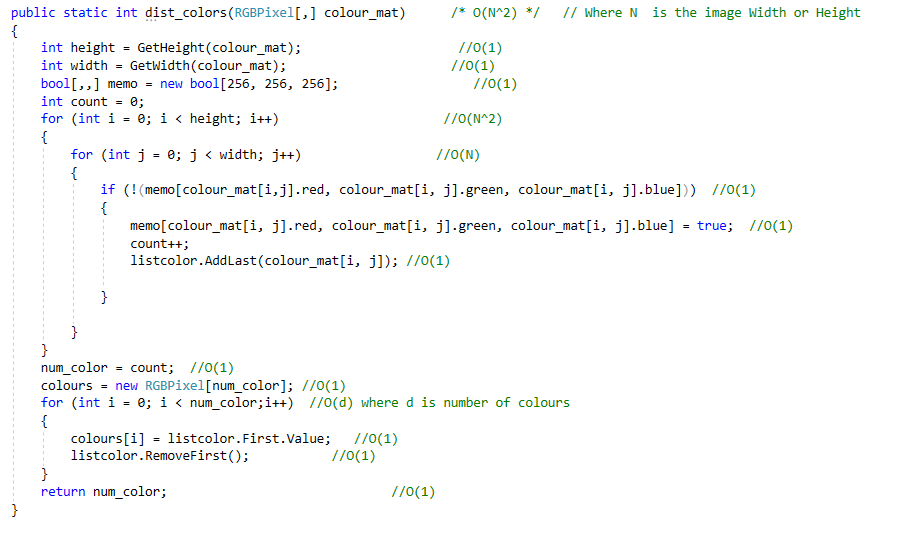
Description automatically generated

Used Classes and it’s functions are after the functions implementation

Used Functions :-

1-distinct colors:

Code:



Explanation:

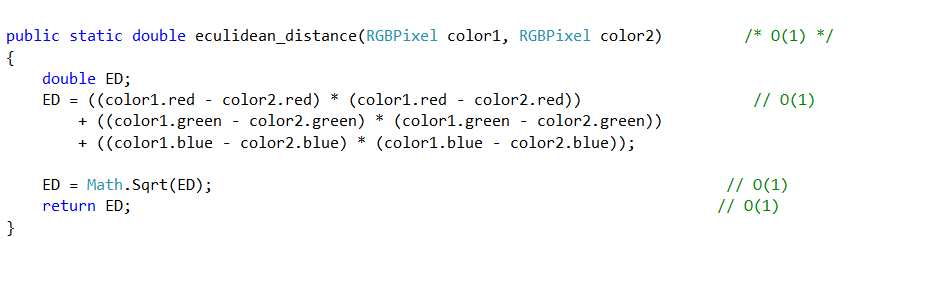
This function is used to determine the number of distinct colors in the image , by using histogram for checking and LinkedList to store and determine the colors without repetition then save them in array .

**Analysis of the code:-**

**O(N^2).**

2-Eclidean distance :

Code:

Explanation**:**

Calculates the weight of the edge between two vertices and implementing the eqn :-

**Weight =sqrt ( (R2-R1)^2 + (G2-G1)^2 + (B2+B1)^2 ).**

**Analysis of the code:-**

**O(1).**

**3-MST:-**

**Code:**

**A screenshot of a social media post

Description automatically generated**

Explanation:

Building the Minimum Spinning Tree Using Prim's algorithm and binary heap .

**Analysis of the code: -**

O(E log(V)).

Used Classes :-

Binary Heap

A screenshot of a cell phone

Description automatically generatedFunctions in the heap : -

A picture containing screenshot

Description automatically generated

A picture containing screenshot

Description automatically generated

A screenshot of a cell phone

Description automatically generated

A screenshot of a social media post

Description automatically generated

A close up of a map

Description automatically generated