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| Faculty of Computer & Information Sciences  Ain Shams University  Subject: Analysis and Design of Algorithms  Year: (3rd year) undergraduate (CS)  Academic year: 2nd term 2021-2022 |  |

**Image Quantization Project**

**Team ID-T038**

**Department-CS**

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GetDistinctColors() function:

This function takes the 2D array “ImageMatrix[,]” as a parameter then reads both the width and the height of the image. Inside the function, there is a defined set “S” which we will use to add the RGB coordinates of each pixel into the set so this set will contain only the distinct colors. This is done inside a nested loop by adding the red color (represented in 1 byte) after being shifted to the left by 16 bits to the green color (represented in 1 byte) after being shifted to the left by 8 bits. Then, both of them are added to the blue color in one element of the set containing 3 bytes of colors and 1 empty byte. At the end of the function, this set is converted to an integer list “L” which is returned.

**Function’s order:** Outer Loop: , Inner Loop:

CalcWeight() function:

This function takes two Vertices “V1” & “V2” of VertexParent type as parameters. It is used to calculate the Eculidean distance (weight) between both vertices’ colors.

**Function’s Order:**

BuildingMST() function: