

First, I printed out the image file head. After that, I write the image file with “fwrite”. Second, I started to write “main”. Because the question requires us to make sure is “argc” correct, so I used to achieve that. Next, I used ‘printf’ and ‘scanf’ to let user insert frame size and frame color. Third, I insert the picture into the program. The input command has two or three strings, the 2nd one is the name of the input file. Since ‘strcpy’ has a side effect to change str1, ‘strcpy(file_name, argv[1])’ is used to save the value. Fourth, input the colored image file with ‘fread’. Fifth, Allocate memory space for the palette and read the palette from the image file. Also allocates memory space for image pixel data and Read image pixel data from the image file. Sixth, Create a file head of the quarterly reduced image and copy the fields of the input image header. After that, update the width and length of the image pixels, half the size of the input image, and if the input image has an odd width or length, take the ceiling. Seventh, allocate memory space for image pixel data of the reduced image. Eighth, perform image reduction. Copy even rows and even columns of the original input image data to the reduced image. Do the same thing for the size of the reduced image. Ninth, perform the merge and calculate the width of the background. Finally, print out the file head and close all the files.