German University in Cairo
Faculty of Media Engineering and Technology
Winter 2021

DMET 501 – Introduction to Media Engineering

Project

(Due on: January 4, 2021 at midnight)

In this project you are required to create a webpage using HTML, CSS and JavaScript, showing the different pixel-point-processing techniques discussed in the course.

- The requirements:
  You are going to implement decreasing brightness, increasing contrast, decreasing contrast and inverse functions (negative of an image) that will be applied on a grayscale image.
  You will find in the Zip folder **a seed project** in which you are required to continue with your code to get a fully functional webpage that applies transformations on an uploaded grayscale image based on the user's choice. For simplicity, the image can only be either .png or .jpeg. **This seed project has the increase brightness transformation fully implemented to help you as a start, so a good first step is to open the webpage and see how the increase brightness is working, then trace how it is done and linked between the html and js file.** To view the webpage on the browser, you need to double click on the html file. It is highly recommended that you use a text editor like Visual Studio Code, Sublime, etc. to make it easier to view the full project files at once and track the syntax easily.

  In HTML:

  1- You are supposed to add your name(s), ID(s) and tutorial number(s) to appear at the top of the webpage.
  2- Add the Inverse option to the existing drop down list.
  3- Create the remaining forms with the corresponding needed input fields for the remaining unimplemented transformations. A form should appear only for the chosen transformation and the non-chosen transformation forms should remain hidden (this step can be combined in HTML + JavaScript)
  4- The input fields should restrict the values entered to be numbers and to be from 0 to 255.

  Note that: The chosen transformation is the one selected from the dropdown list (the menu) found in the seed project.

  In CSS:

  1. You should make the colors for Name(s), ID(s) and tutorial number(s) different such that all names have same color, similarly for IDs and tutorial number.
  2. You should center the name, IDs and tutorial numbers.

In JavaScript:

1- You should link the forms submissions to call the correct transformation function (the ones you will implement).
2- You are going to implement decreasing brightness, increasing contrast, decreasing contrast, and inverse as described in the techniques' requirements section of the project description below.
3- After applying the transformation on the image, the result image should be displayed.

Note that: You are given hints where you should edit your code in the seed project and that the seed project is documented using comments.

Techniques Requirements

Decrease Brightness

Needs the field of "Decrease Brightness Value" so that you can decrease the brightness of the image according to the given value as shown in the below graph

Try the value: 70 for Decrease Brightness Value.

Increasing Contrast

Needs the following fields so that you can increase the contrast of the image according to the given values as shown in the below graph

- "Original Brightest Dark"
- "Original Darkest Bright"
- "Transformed Brightest Dark"
- "Transformed Darkest Bright"

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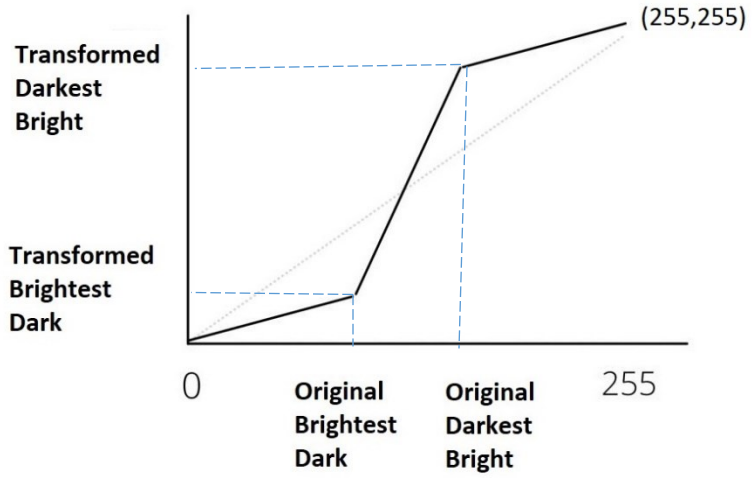
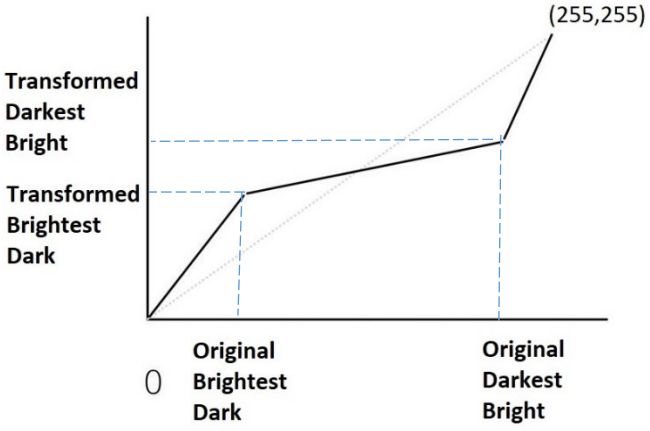


Try the values: 50, 100, 10 and 175 for original brightest dark, original darkest bright, transformed brightest dark, and transformed darkest bright, respectively.

Decrease Contrast

Needs the following fields so that you can decrease the contrast of the image according to the given values as shown in the below graph

- "Original Brightest Dark"
- "Original Darkest Bright"
- "Transformed Brightest Dark"
- "Transformed Darkest Bright"



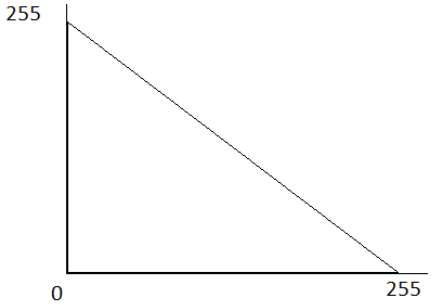
Try the values: 50, 100, 80 and 85 for original brightest dark, original darkest bright, transformed brightest dark, and transformed darkest bright, respectively.

Note that: You need to follow the naming here for labelling your input fields. Also, you have two grayscale images in the project folder that you can test on.

Inverse (Negative of the Image)

Doesn't need an input field and should apply the inverse of the image as shown in the below graph

Note that: You don't have to use a form submission here.



Apply the inverse : No values are needed.

- For HTML, CSS and JavaScript:

https://www.w3schools.com/html/default.asp

https://www.w3schools.com/css/default.asp

https://www.w3schools.com/js/

- To be submitted:
  - The zipped folder of the seed project after modifying the given files and renaming the folder as mentioned in the submission guidelines

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Submission

1- You should submit 1 compressed folder containing your project + pdf report containing screenshots of the webpage after applying each technique on the 2 provided images using the values mentioned in the description (Your Name, ID, and tutorial number should appear in the screenshots plus the values provided, unless it is the inverse you should only show the transformation with no values). Note: Your code has to be generic as we will test it on other images
2- Submit to this link https://forms.gle/eUgndrx5jRjsVfar9
3- If the file is too large to be attached, upload all files to a cloud storage and submit the link.
4- The subject of the submission email is [T-XX_43-XXXXX] [T-XX_49-XXXXX].zip, for example: [T-01_49-12345] [T-02_43-2346].zip
5- **The project can be done in pairs (Both students have to be with the same TA tutorial groups). If you cannot find a team member then you can do it individually.**
    a. Habiba: T7, T17, T24
    b. Yasmeen: T8, 12, 13, 14, 20, 21, 22, 23
    c. Hadeel: T9, 10, 11, 15, 16, 18, 19, 25
6- **All files have to be submitted, any file created or used have to submitted, any missing files may put you at risk of losing your grade.**
7- Not following the mentioned guidelines, the project will be graded in **ZERO**.

Good Luck ☺