1) Project title and summary

Title: Photography techniques.
Summary: The main project idea is to mimic photographic techniques with still images, implemented in a dashboard with sliders for parameter adjustment and showing part of the algorithm used.

2) Goals and target audience
   The goal is to mimic photographic techniques and present the results using a dashboard. The target audience is amateur photographers interested in photographic techniques and how can be mimic with the computer.

3) Project Pipeline and expected baseline

A) Literature review: Select in the literature what photographic techniques can be mimic with computer vision techniques. Some ideas are panning, High Dynamic Range (HDR) imaging, depth of field manipulation.
B) Implementation: Implement a photographic technique using python in google colab, using image processing libraries like OpenCV or Pillow.
C) Dashboard Creation: Show the results in a dashboard created using Streamlit.
D) Parameter Adjustment: add a slider to the dashboard to change a parameter and see the effect in the output image.
E) Algorithm Visualization: Show parts of the algorithms in the same dashboard and how it values changed by changing the values in the slider. For example, If the algorithm uses kernels, then we can show the matrix and give the option of changing the values in that matrix and see the response in the output image.
F) Algorithm Improvement: Implement other computer vision algorithms that improve the output image, such as adaptive blurring, edge detection or depth estimation, that probably will require the use of deep learning frameworks such as PyTorch or TensorFlow.

   Baseline: The minimum results expected is a dashboard showing the results of a photographic technique over an image.

4) How you plan to improve on baseline results.

   I will use algorithms that use neuronal networks to segment better the fix objects.

5) Preliminary experiments and results

   The dashboard was created using the libraries OpenCV, Numpy, Streamlit and pandas. The code is at https://github.com/Francisco-hub-eng/cis5810_final/tree/master, and the dashboard is at https://cis5810final.streamlit.app/ .

6) Project timeline, milestone, and how the duties for each group member is organized.

   I will work alone, and the project timeline is:
   - two weeks to implement the neural network algorithm in my computer
   - one week to implement the segmentation in the dashboard.

   Milestone are:
   - run a neuronal network in my computer
   - obtain an acceptable segmentation (at least follow the shape of the object, not necessary the borders)
   - implement the segmentation in the dashboard