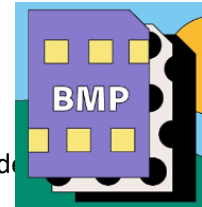<u>Technical Report</u>

<u>Name:</u> Omar Rashad Salem

<u>Project:</u> 24-bit BMP file manipulation project (STD C++ only)

Overview:

-this project is a mini tool for 24-bit file manipulation (published CLI version now) made ~~~~~~~ STD C++ **libraries**.

- • *Why C++?*

- it's a perfect language specially for learning programming logic since most of this project concepts will be studied/implemented 1st time for me and this is an golden opportunity to do so hopefully.

Main features:

Made in C++ may be faster in some cases than image process in python
Ability to load 24 bit bmp images in structured code to easily read and manipulate
Has feature to resize height of the BMP file
Has feature to do a Weight gray scale operation on BMP images
Has feature to do simple Binary Threshold on images
Has some error handling
All source code is available via Github (latest versions will be published in master branch) :
https://github.com/orsnaro/Static_chroma_bmp

Millstones:
- ● Learning the .bmp format file structure and header (done)
- ● Learning basic i\o operations on binary files using <fstream> library and <filesystem> library in C++ (done)
- ● enable resize options and aspect ratio preserve check features before starting (Done Partially)
- ● taking crash course on QT library for C++ GUI (took 1 hour course for basics)
- ●
- ● Enhance error handling (Done)
- ● Refactor the code to make it more clean code .(Done)

- ● Publish final version on GitHub with readme file and video tutorial on *how to use*. (done)

References:

1. **learn the bmp :**
   (https://www.drdobbs.com/architecture-and-design/the-bmp-file-format-part-1/184409517)

2. **Ex's from Purdue college:**
   https://engineering.purdue.edu/ece264/17au/hw/HW15

3. **24-bit BMP Structure:**
   (https://upload.wikimedia.org/wikipedia/commons/7/75/BMPfileFormat.svg)

4. **#Pragma Pack() world:**
   (https://learn.microsoft.com/en-us/cpp/preprocessor/pack?view=msvc-170)

5. **Binary file stream C++:**
   (https://www.eecs.umich.edu/courses/eecs380/HANDOUTS/cppBinaryFileIO-2.html)

6. **more on binary cpp! :**
   (https://cplusplus.com/articles/DzywvCM9/)

Tutorial Video to my project is provided in The video attached