Report 3: CUDA

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1 Tasks:

Apply grayscale to this image:

Information:

- Height: 472
- Weight: 800
- Channel: 3

2 Running using CPU

Figure 1: Result of greyscale using CPU

```
for i in range(H):
  for j in range(W):
    g = (image[i][j][0] + image[i][j][1] + image[i][j][2]) // 3
    array[i][j]= [g]*3
```

Time elapsed : 1.9526922702789307

3 Running using GPU

Figure 2: Result of greyscale using GPU

```
def grayscale(src, dst):
    tidx = cuda.threadIdx.x + cuda.blockIdx.x * cuda.blockDim.x
    g = np.uint8((src[tidx, 0] + src[tidx, 1] + src[tidx, 2]) / 3)
    dst[tidx, 0] = dst[tidx, 1] = dst[tidx, 2] = g
```

Time elapsed : 0.13911175727844238s

4 Plot a graph of block size vs time

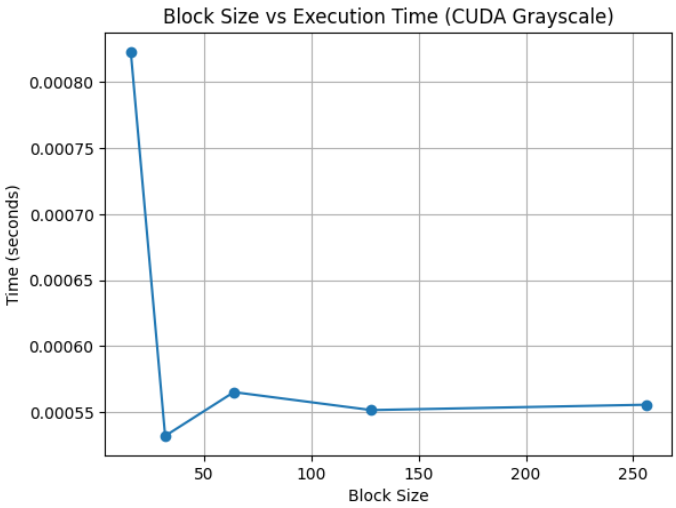

Figure 3: image

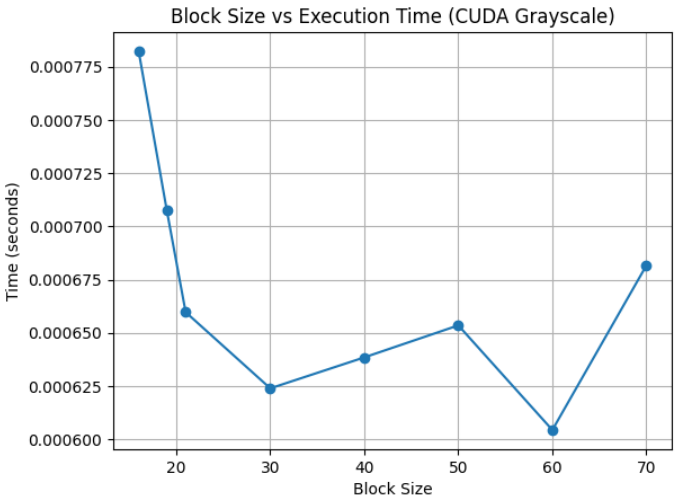

Figure 4: Enter Caption

5 Conclusions

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