EC7212 – COMPUTER VISION AND IMAGE PROCESSING

TAKE HOME ASSIGNMENT 1

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GitHub code link: <https://github.com/TharukshiDiyunugala/ImageProcessing-Techniques-Python>

Original image used:

A tree on a hill

AI-generated content may be incorrect.

Figure : 736 x 491, 76.9 KB image sample

Q1.

A screen shot of a computer program

AI-generated content may be incorrect.

Figure : Code for Q1



Figure : Output after reducing intensity levels to 2



Figure : Output after reducing intensity levels to 4

A tree on a hill

AI-generated content may be incorrect.

Figure : Output after reducing intensity levels to 8

A tree on a hill

AI-generated content may be incorrect.

Figure : Output after reducing intensity levels to 16



Figure : Output after reducing intensity levels to 32



Figure : Output after reducing intensity levels to 64

A tree on a hill

AI-generated content may be incorrect.

Figure : Output after reducing intensity levels to 128



Figure : Output after reducing intensity levels to 256

Q2.



Figure : Code for Q2



Figure : Image after applying 3×3 spatial averaging filter

A tree on a hill

AI-generated content may be incorrect.

Figure : Image after applying 10×10 spatial averaging filter

A blurry tree on a hill

AI-generated content may be incorrect.

Figure : Image after applying 20×20 spatial averaging filter

Figure 13: Spatial 10x10 average

Q3.

A computer screen shot of a program code

AI-generated content may be incorrect.

Figure : Code for Q3



Figure : Image rotated by 45 degrees

A tree in the middle of a field

AI-generated content may be incorrect.

Figure : Image rotated by 90 degrees

Q4.



Figure : Code for Q4

A tree on a hill

AI-generated content may be incorrect.

Figure : Resolution reduced using 3×3 block averaging

A tree on a hill

AI-generated content may be incorrect.

Figure : Resolution reduced using 5 × 5 block averaging

A tree on a hill

AI-generated content may be incorrect.

Figure : Resolution reduced using 7×7 block averaging

Note: All the resultant images for the questions are included under the results folder inside the GitHub repository.