Image Enhancement Methods **C++**

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Algorithm Steps:

- Step 0: open inFile, maskFile via argv[]
  - open imgOutFile, AvgOutFile, MedianOutFile, GaussOutFile via argv[]
  - thrVal <- get from argv[3]
- Step 1: numRows, numCols, minVal, maxVal <- read from inFile
  - maskRows, maskCols, maskMin, maskMax <- read from maskFile
- Step 2: dynamically allocate all 1-D and 2-D arrays
- Step 3: loadMaskAry (maskFile, maskAry)
- Step 4: loadImage (inFile, mirrorFramedAry)
- Step 5: mirrorFraming (mirrorFramedAry)
- Step 6: imgReformat (mirrorFramedAry, deBugFile)
- Step 7: computeAvg (mirrorFramedAry, avgAry)
  - imgReformat (avgAry, deBugFile)
  - binaryThreshold (avgAry, thrAry)
  - prettyPrint (thrAry, AvgOutFile)
- Step 8: computeMedian (mirrorFramedAry, medianAry)
  - imgReformat (medianAry, deBugFile)
  - binaryThreshold (medianAry, thrAry)
  - prettyPrint (thrAry, MedianOutFile)
- Step 9: computeGauss (mirrorFramedAry, GaussAry)
  - imgReformat (GaussAry, deBugFile)
  - binaryThreshold (GaussAry, thrAry)
  - prettyPrint (thrAry, GaussOutFile)
- Step 10: close all files

Image 1 Outputs: Threshold value used is **5**

- imgOutFile

5 5 1 36

5 1 22 3 4

4 16 10 22 5

5 21 36 33 4

6 1 2 6 3

2 1 2 5 4

- AvgOutFile

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1

- medianOutFile

1 1 1

1 1 1

1 1 1

1

- GaussOutFile

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1

- deBugFile

5 5 4 10

8 10 10 10 9

8 9 9 9 8

7 9 8 8 8

5 8 8 8 7

4 6 6 6 6

5 5 2 5

5 5 5 4 4

5 5 5 4 4

5 5 5 4 4

4 5 4 4 4

2 2 4 4 4

5 5 3 12

7 9 12 10 7

7 11 12 12 8

7 11 13 12 8

5 7 8 8 6

3 4 5 5 4

Image 2 outputs: Threshold value used is **36**

- imgOutFile

46 46 1 63

1 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5

2 1 2 3 4 55 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 43 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5

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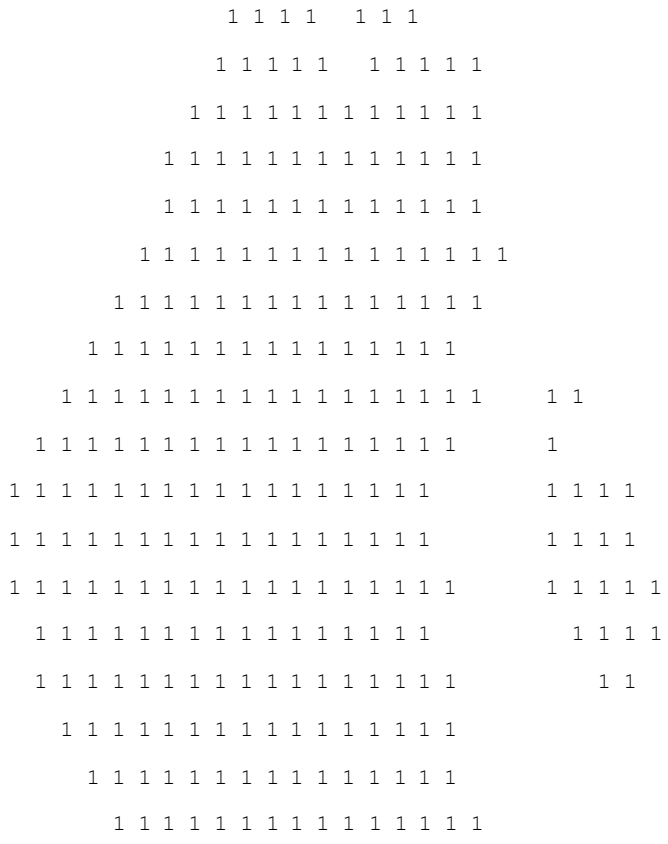
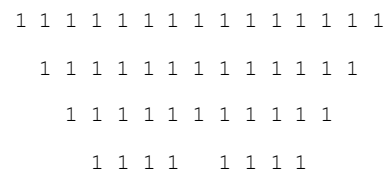
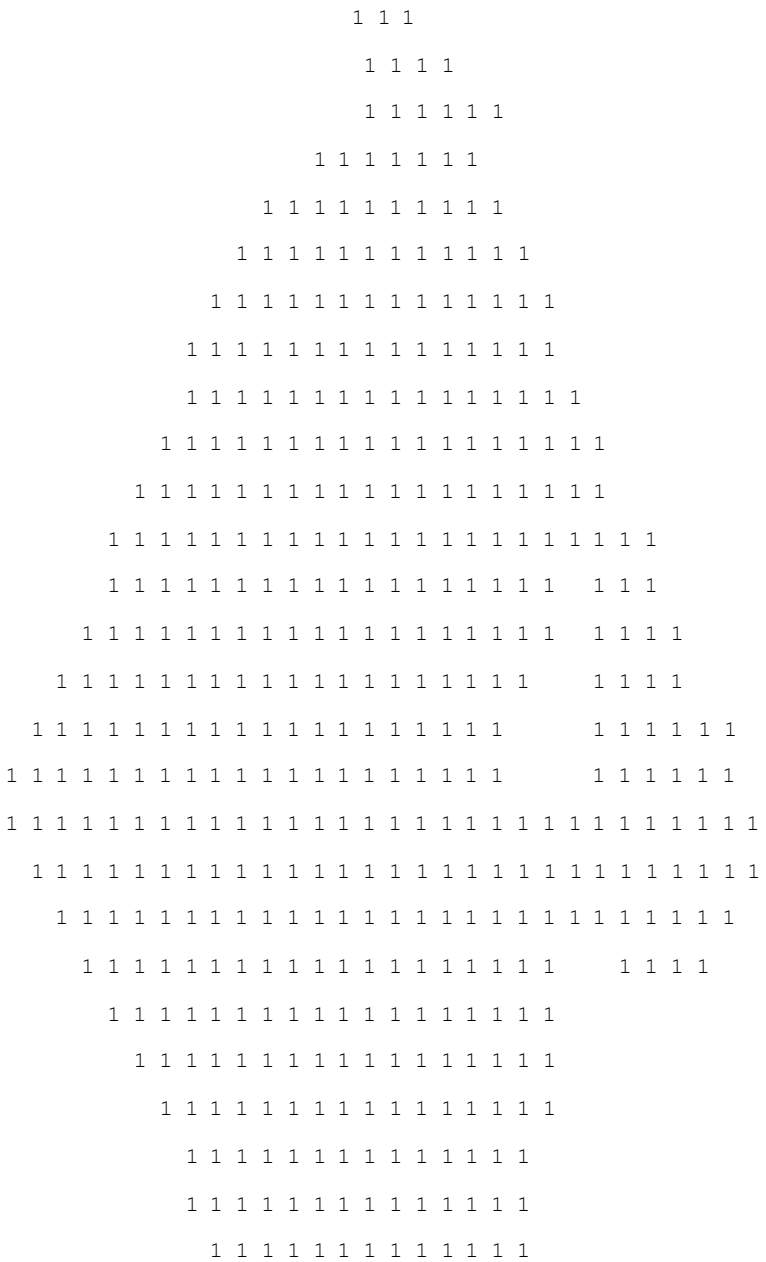
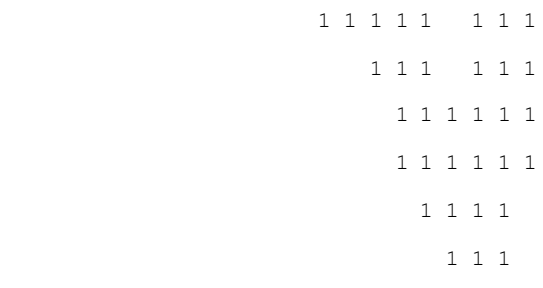
- AvgOutFile





- medianOutFile





- GaussOutFile