Assignment 4

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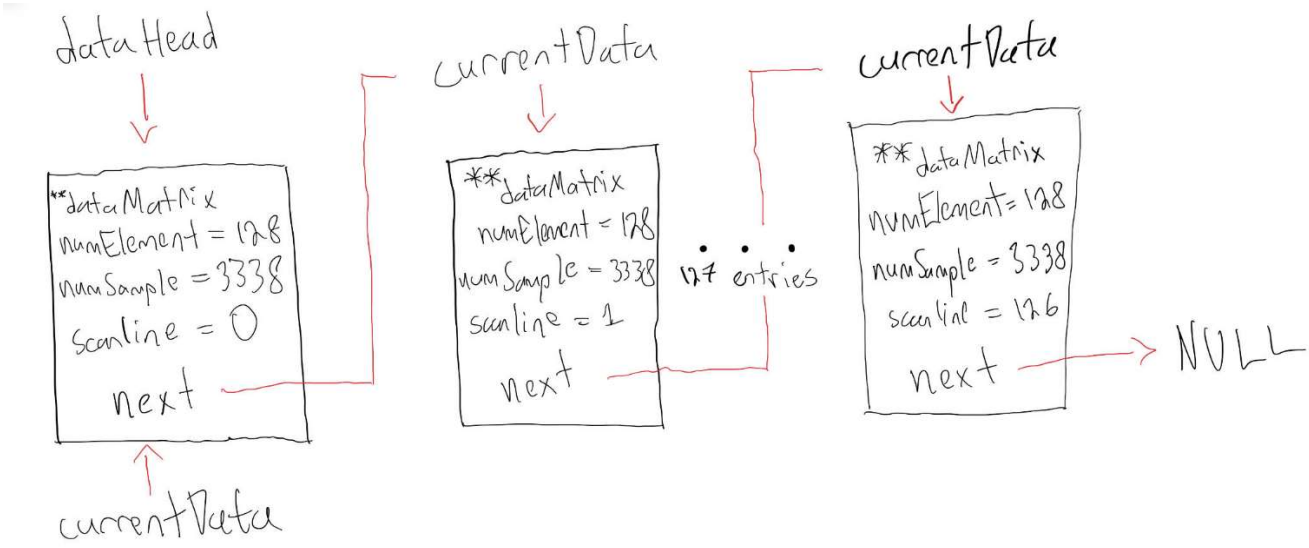
Part 4:

1)

- The pointer "imparams" holds the imaging parameters
- No, we do not have direct access to the parameters through the variable since they are private. Instead, we have to call "get" methods to return the parameters.
- The purpose of having this access method is to allow users to access certain data *without* changing it.

2)

- 127 (i.e., the number of scanlines)
- Size = float x numElement x numSample x 2 components
  = (4 bytes) x (128) x (3,338) x (2)
  = 3,391,408 bytes x (1 kB / 1024 bytes)
  = 3,338 x (1 MB / 1024 kB)
  = 3.26 MB
- "dataHead->next." It is initialized at NULL and reassigned to subsequent elements of the linked list.
-



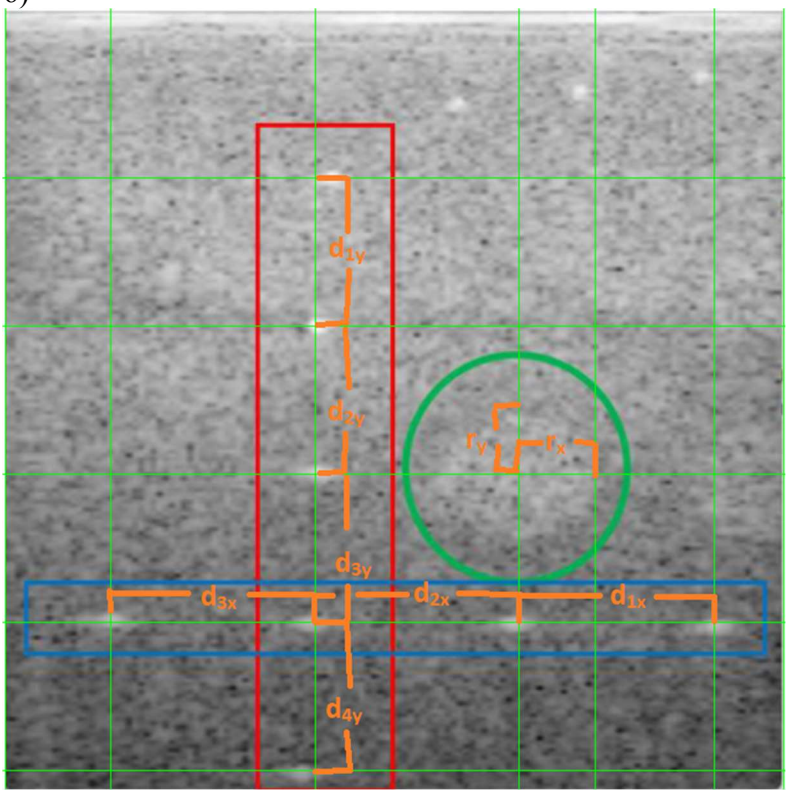
3)

- imagParam *params, dataBuffer *data, int numline

- Via the dataHead pointer
- Via the curData pointer (i.e., the next element of the linked list): each element of the scanline linked list corresponds to an element of the data linked list.

Part 5:

6)



Using the above grid, the following measurements were obtained:

d_{red} = ((d_{1y} + d_{2y} + d_{3y} + d_{4y})/4)/total height) x 50 mm
= ((1.04 + 1.05 + 1.03 + 1.05)/4)/5.48) x 50 mm
= **9.51 mm ≈ 10 mm**

d_{blue} = ((d_{1x} + d_{2x} + d_{3x})/3)/total width) x 38.4 mm
= ((1.37 + 1.44 + 1.44)/3)/5.48) x 38.4 mm
= **9.93 mm ≈ 10 mm**

r_{greenx} = (r_x/total width) x 38.4 mm
= (0.53/5.48) x 38.4 mm
= **3.71 mm ≈ 4 mm**

r_{greeny} = (r_y/total height) x 50 mm
= (0.41/5.48) x 50 mm

$= \mathbf{3.74\ mm \approx 4\ mm}$