EECS22 Lab Week7

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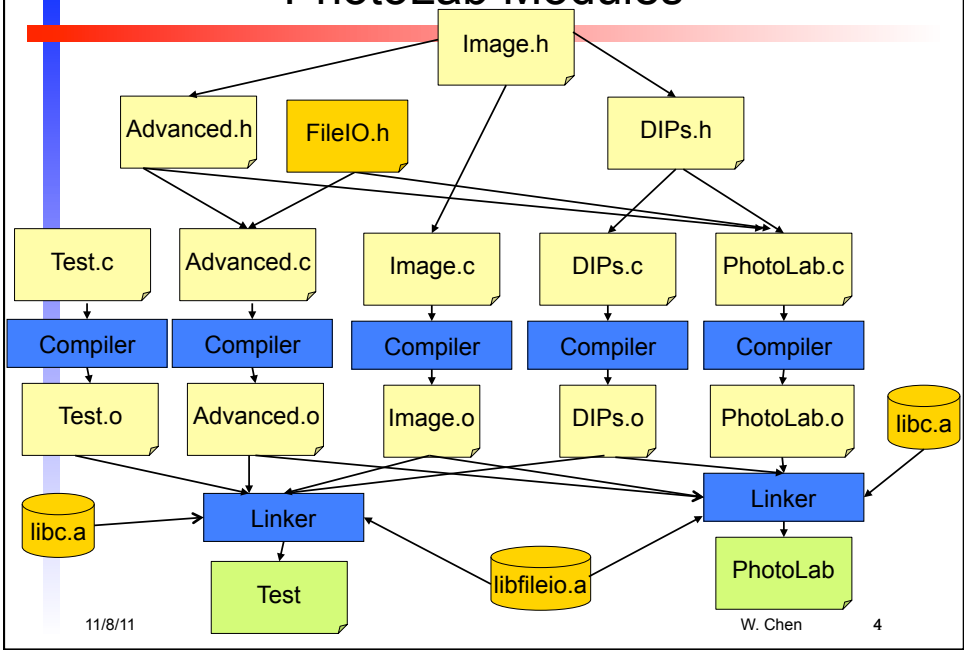
Midterm Evaluation

- Midterm Course Evaluation: Results
  - Participation
    - 9 out of 19 students (47.37%) •
    - Thank you very much!
  - Specific Feedback
    - Overall very positive and encouraging
    - Some great suggestions
      - Have small examples on the white board
      - Design the assignment a little better

Assignment 4

- Use dynamic memory allocation to handle images with different sizes.
- Use structures and pointers
- Use the Valgrind tool to check the memory usage of the program
- Makefile Development for compiling multiple modules into one program, and link against libraries.

PhotoLab Modules



Dynamic Memory Allocation

- Dynamic Memory Allocation (slides 13, lecture 12)
  - IMAGE *CreateImage(int W, int H)
  - Void DeleteImage(IMAGE *image)
- Structure (slides 6~9, lecture 11)
- Pointers

Advanced DIP functions

- Rotate-90-degrees
  - Original image size: W x H
  - Rotated image size: H x W
  - Mapping functions for pixel coordinates
    - Pixel (x, y) in the original image
    - Pixel (x', y') in the new image
    - x' = f(x, y) = height – 1 - y
    - y' = g(x, y) = x

Advanced DIP functions

- Resize
  - Original image size: W x H
  - Resized image size: H x (percentage / 100)
    W x (percentage / 100)
  - Mapping functions for pixel coordinates
    - Pixel (x, y) in the original image
    - Pixel (x', y') in the new image
    - Percentage >= 100
    - Percentage < 100

Advanced DIP functions

- Overlay
  - IMAGE *image = CreateImage(W, H);
  - ReadImage("sailing.ppm", image);
  - IMAGE *imageS = CreateImage(W', H')
  - ReadImage("rowing.ppm", imageS);
  - If the pixel in imageS is not white(255, 255, 255) or blue(102, 153, 204),
    copy pixel (x, y) in imageS to
    (x+offset_x, y +offset_y) to image.