COS 426 Precept 1

Agenda:

- Introduction to C++
- Assignment 1 Part A
Introduction to C++

- Toy program: **Buffon's needle**
- Syntax and style
- Classes
- Inheritance
- Polymorphism
- Makefile
Assignment 1 Part A

- R2Pixel
- R2Image
- Extract channel
- Makefile
- Writeup
- Submitting
R2Pixel

- Four channels (RGBA) stored as an array of doubles:
  
  ```cpp
  class R2Pixel {
      public: ...
      private:
          double c[4];
  };
  ```

- Example usage:
  
  ```cpp
  R2Pixel p(0.5, 0.5, 0.5, 1.0);
  p.SetRed(1.0);
  double r = p.Red();
  p *= 0.5;
  ```
R2Image

• 1D array of pixels starting from lower left, in row-major order:

```cpp
class R2Image {
    public: ...
    private:
        R2Pixel *pixels;
        int npixels;
        int width;
        int height
};
```

• Example usage:

```cpp
R2Image im("image.jpg");
R2Pixel p = im.Pixel(50, 100);
im.Brighten(1.5);
im.Blur(2.0);
```