# CS-174A Discussion 1C, Week 6

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@ Discussion 1C Github: https://github.com/NoctisZ/CS174A-1C-2020Fall (https://github.com/NoctisZ/CS174A-1C-2020Fall)

# Outline

- Announcements
- Midterm Q&A
- Q&A about Assignment 3

# Announcements

- **Assignment 3** due this Sunday @ 11:59 PM
- **Team Proejct Proposal** due on Nov. 17 (Tue) @ 11:59 PM: https://ccle.ucla.edu/mod/assign/view.php?id=3352675 (https://ccle.ucla.edu/mod/assign/view.php?id=3352675)
- Create or join your team's Github repo: https://classroom.github.com/g/AljoM9DO (https://classroom.github.com/g/AljoM9DO)
- Don't forget to sign up the **CS174A Team Project Sign-up** google sheet (at top of the CCLE proposal page)!
- **Team project midway demo showcase** will be during discussion session on 11/20 (next Friday)

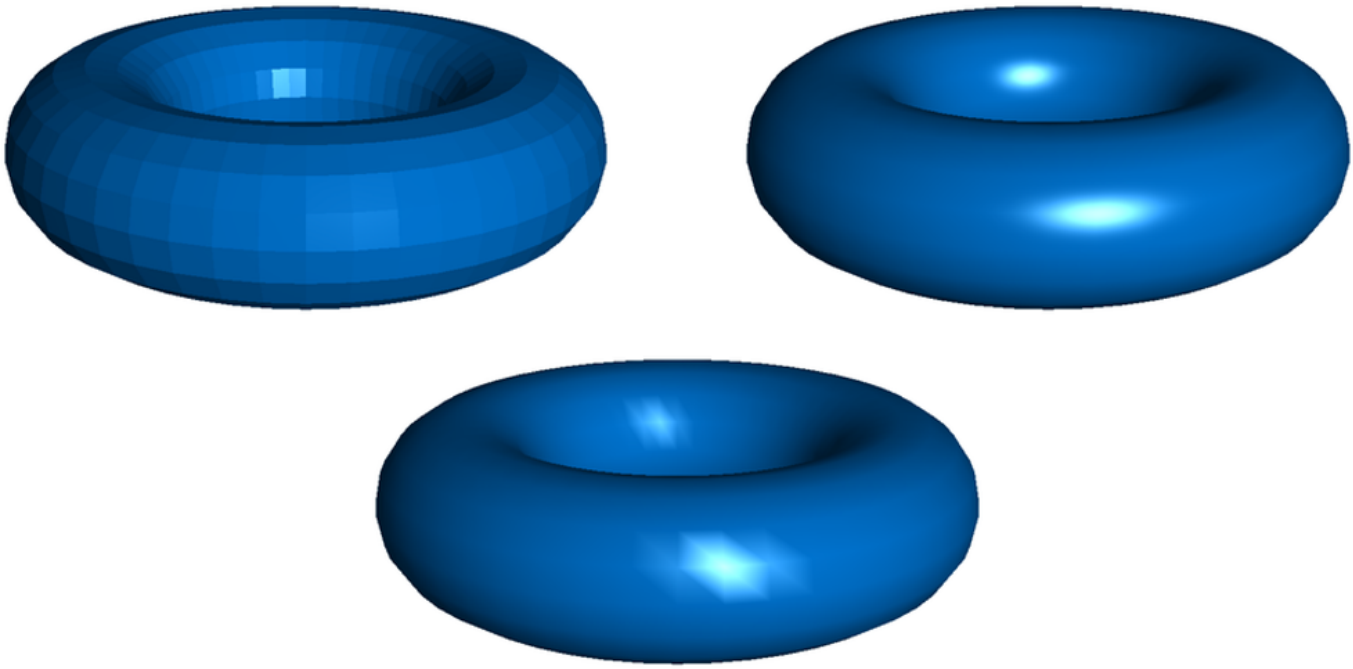
# Midterm Q&A

- Q1b: Two factors are accuracy and speed
- Q3b: Calculate vertex coordinates using radius * cos(theta) or sin(theta)
- Q4a: Order of matrix multiplication is very important
- Q4c: Inverse of an orthogonal matrix is its transpose

# Assginement 3

## Shader

- **Shader** is a type of program used in 3D scenes for the production of appropriate levels of light, darkness, and color in a rendered image. It now has more functions than its original purpose and is widely used fields like special effects and video post-processing
- **Flat shading**: lighting is evaluate only once for each polygon
- **Gouraud shading**: lighting is applied to each vertex on a polygon and being linearly interpolated (i.e. bilinear interpolation) over the surface
- **Phong shading**: similar to Gouraud shading, lighting is applied to each vertex first. Then normals are interpolated between the vertices and the lighting is evaluated per-pixel. Thus specular highlights look more natural and precise.



## Extra Credits

- Smoothly transform camera
- Build Custom Ring Shader