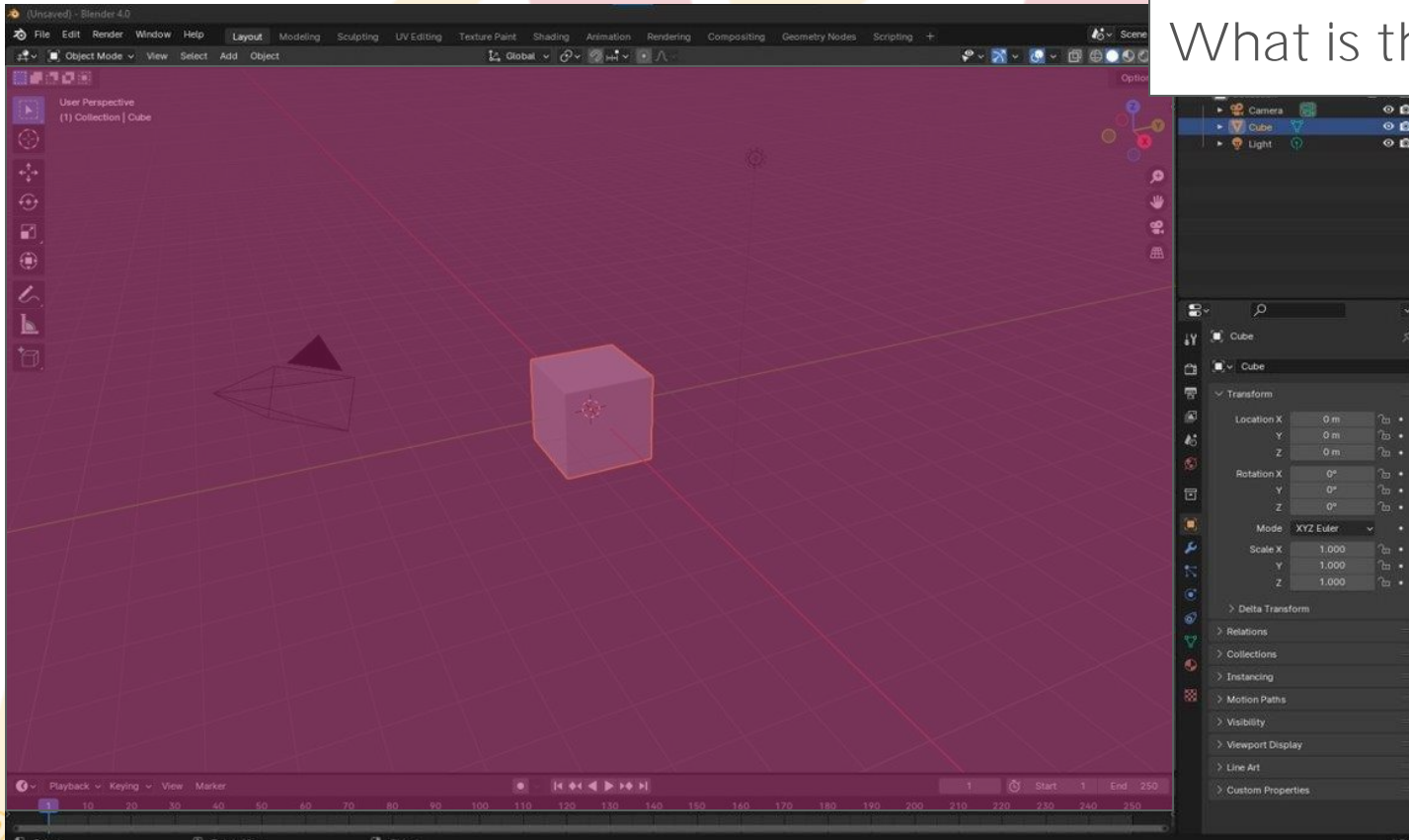# REU Modeling Course - Part 2

Blender

More Modeling
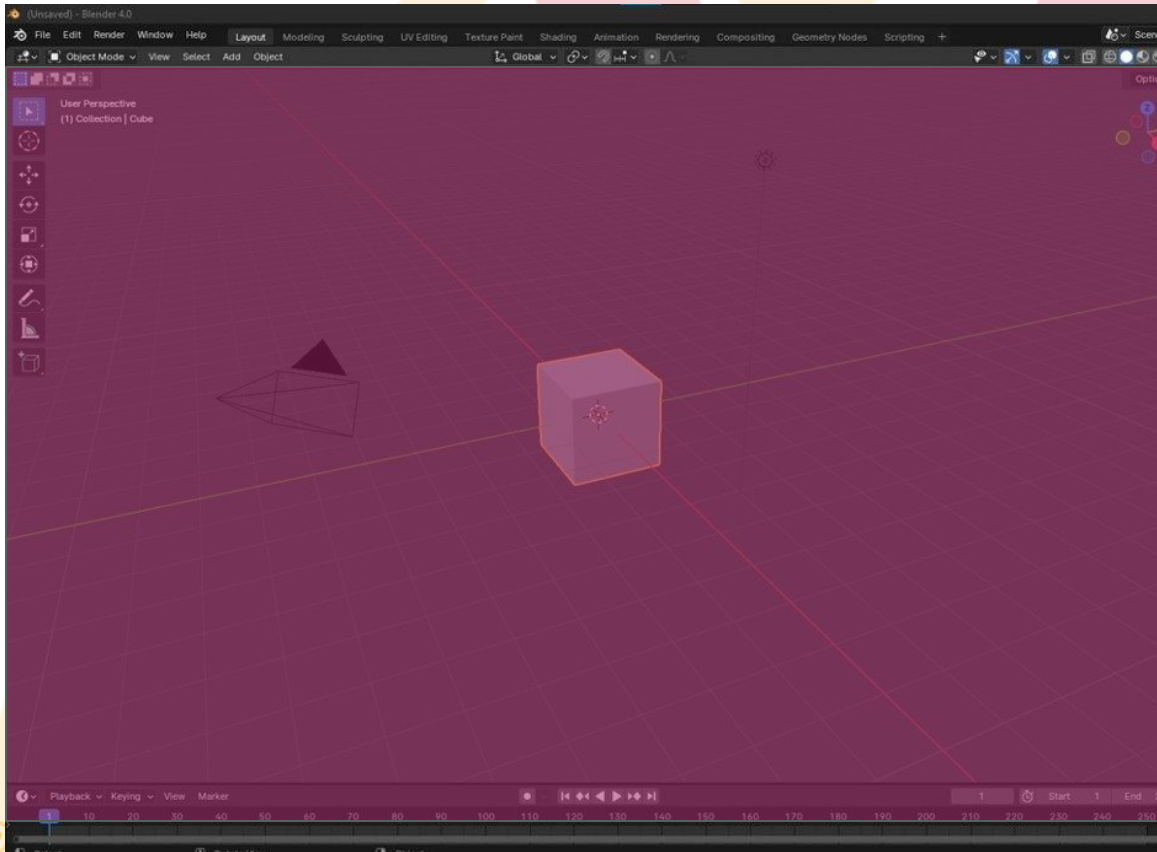
Workshop Workflow

- Review Previous Session

- More Modeling Operations

- Organizing Scenes/Objects in Blender

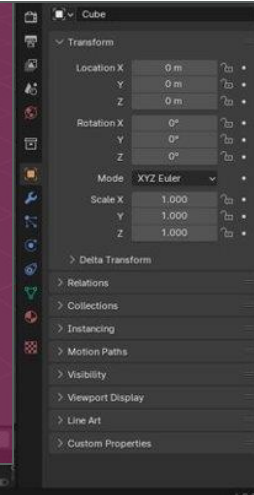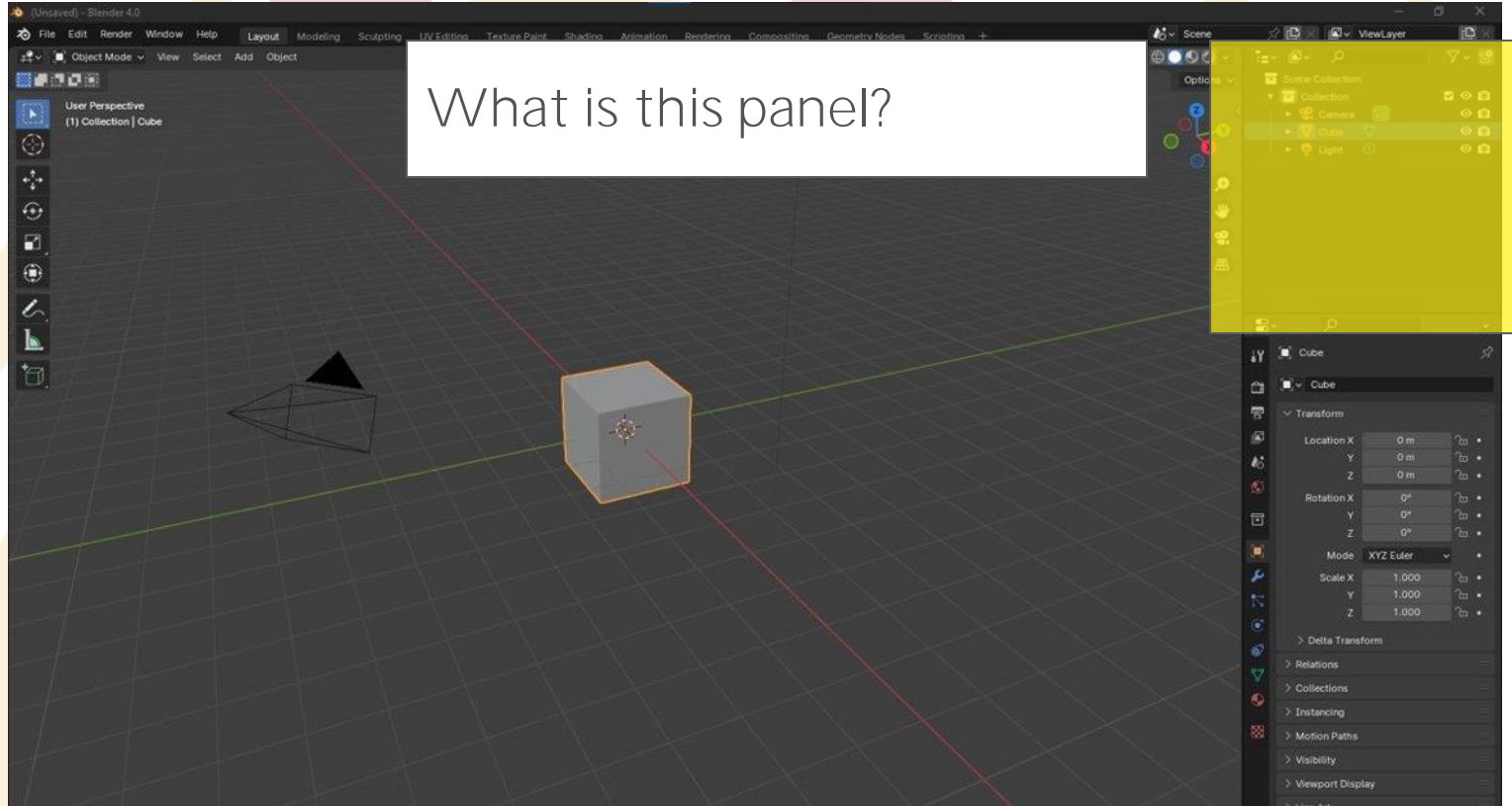- **Today's Mini Creation**

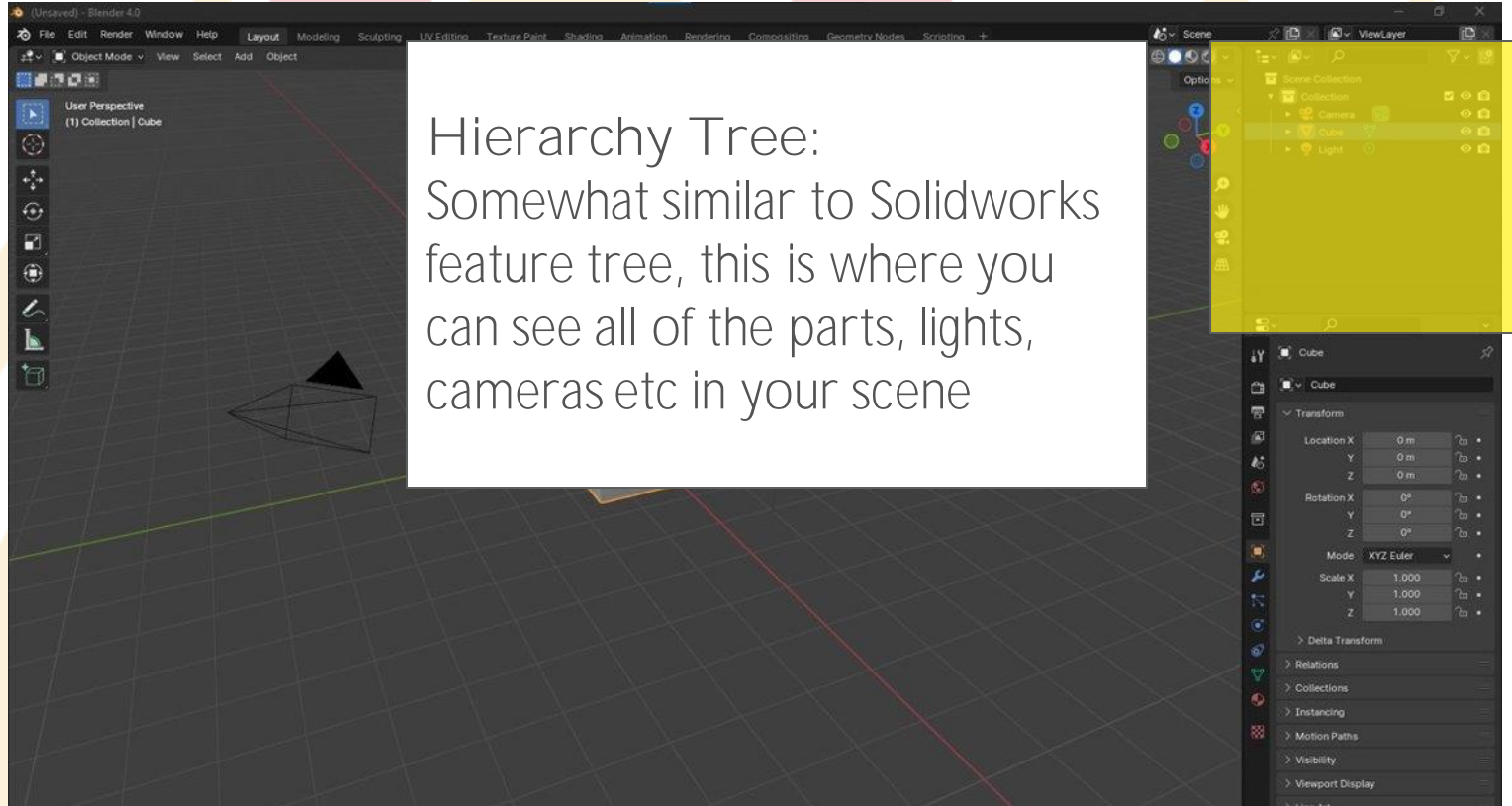# Review

What is this window?

Review

ViewPort:
This is where you can see your scene that you are editing/creating

Review

What is this panel?

Review

Hierarchy Tree:
Somewhat similar to Solidworks feature tree, this is where you can see all of the parts, lights, cameras etc in your scene

Review

What is this panel?

Review

What is this panel?
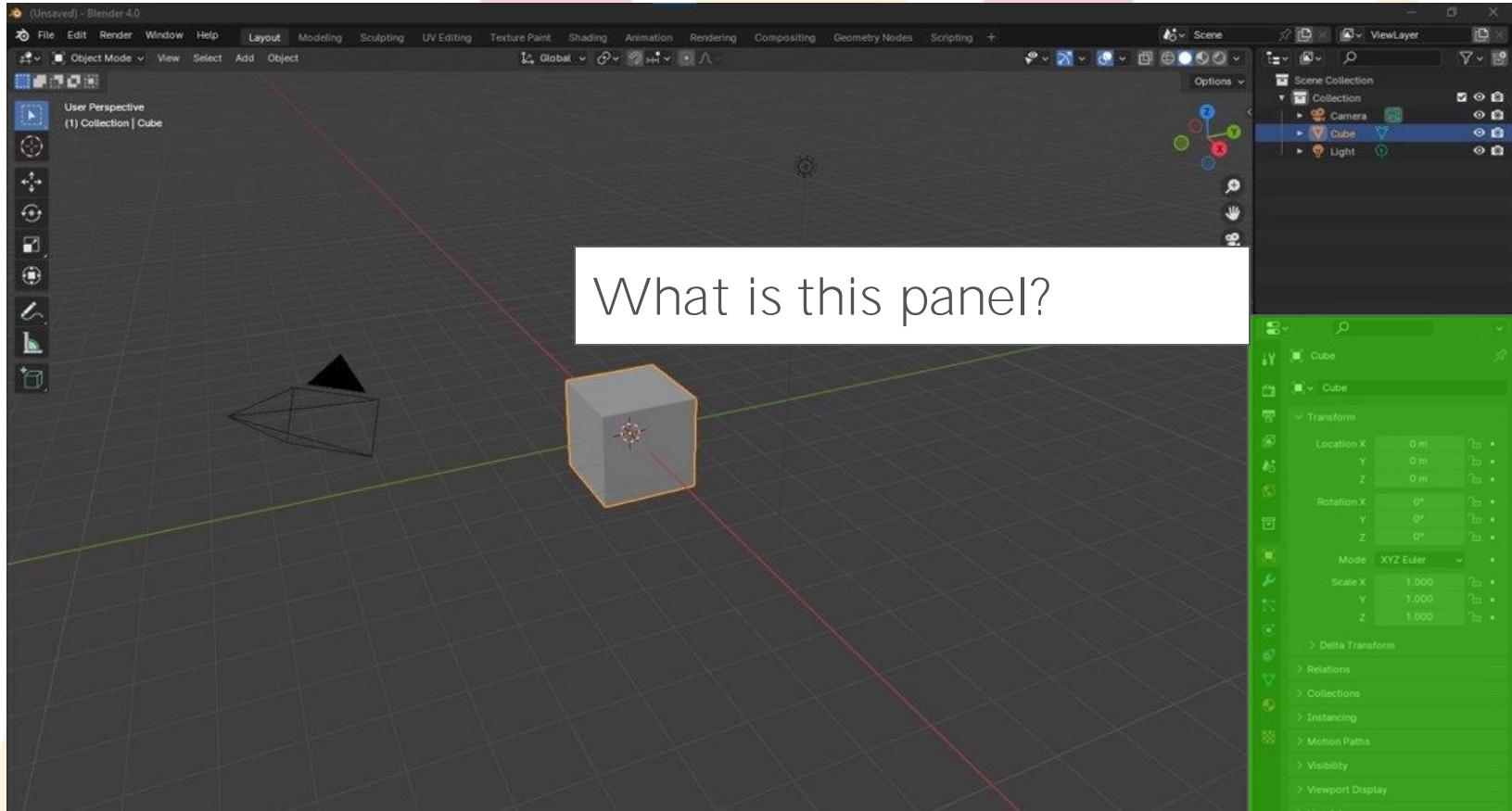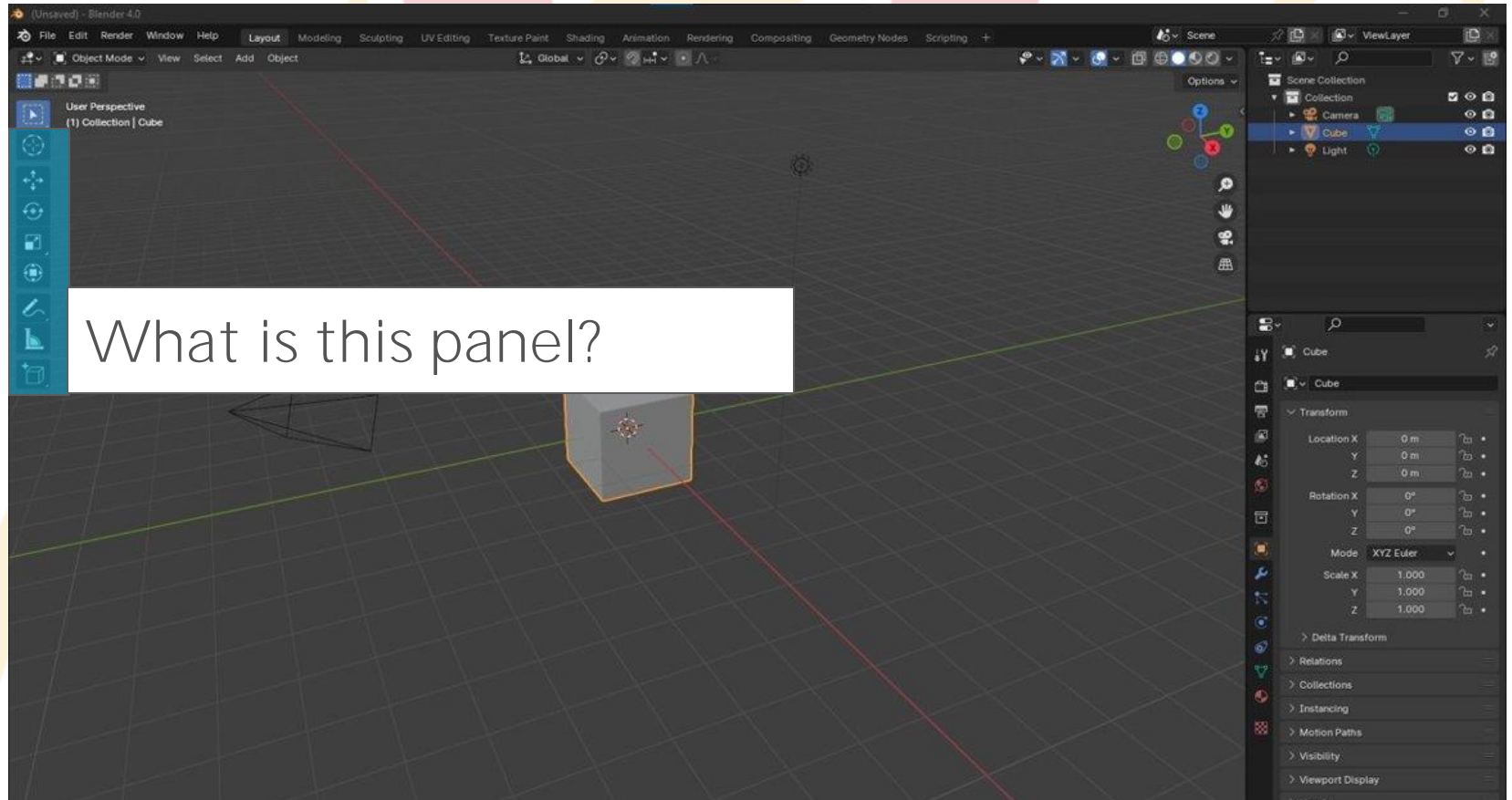
Review

Modifiers:
These tools will help you
move, scale, rotate
objects in the scene

Areas

What is this panel?
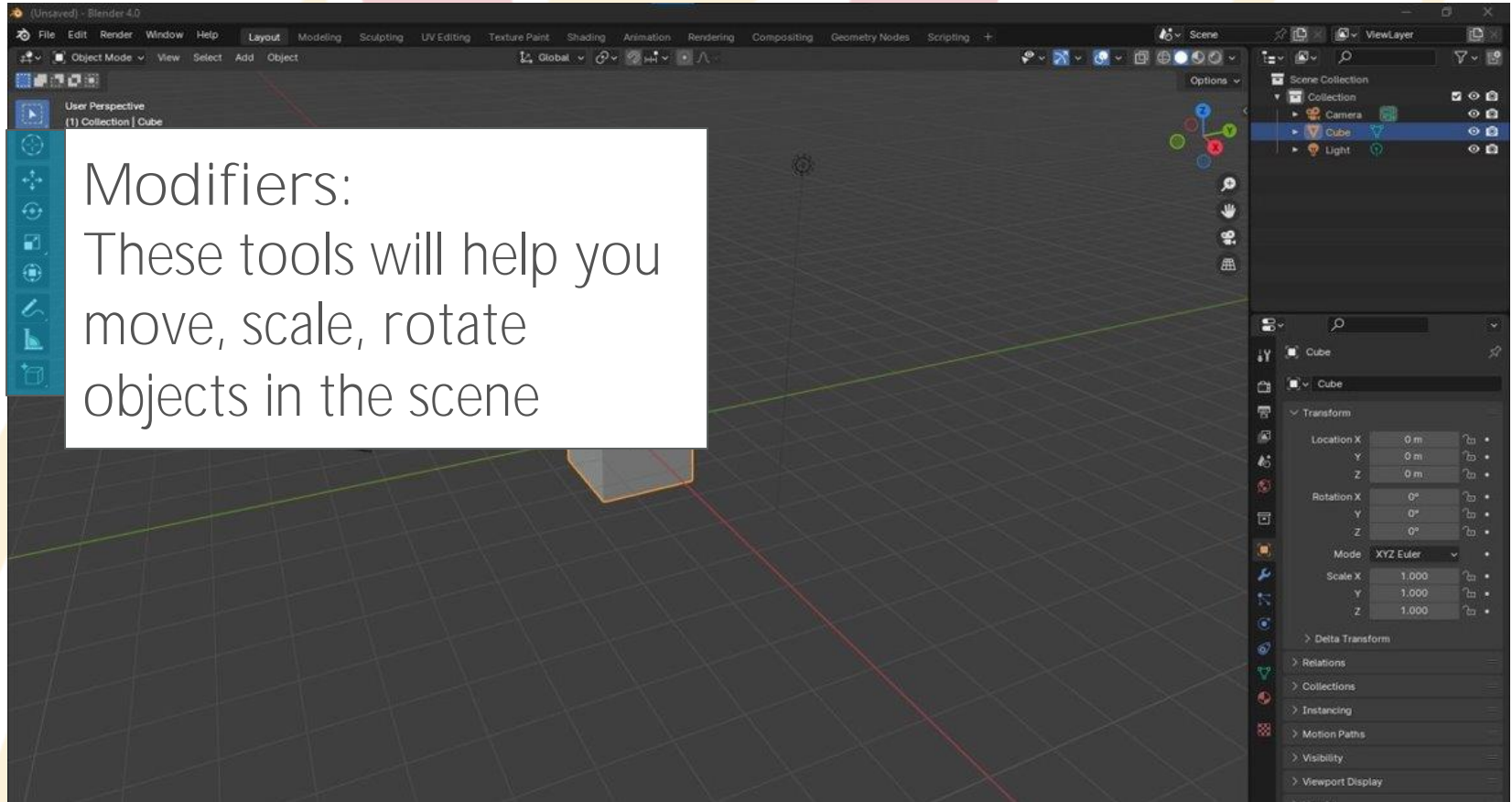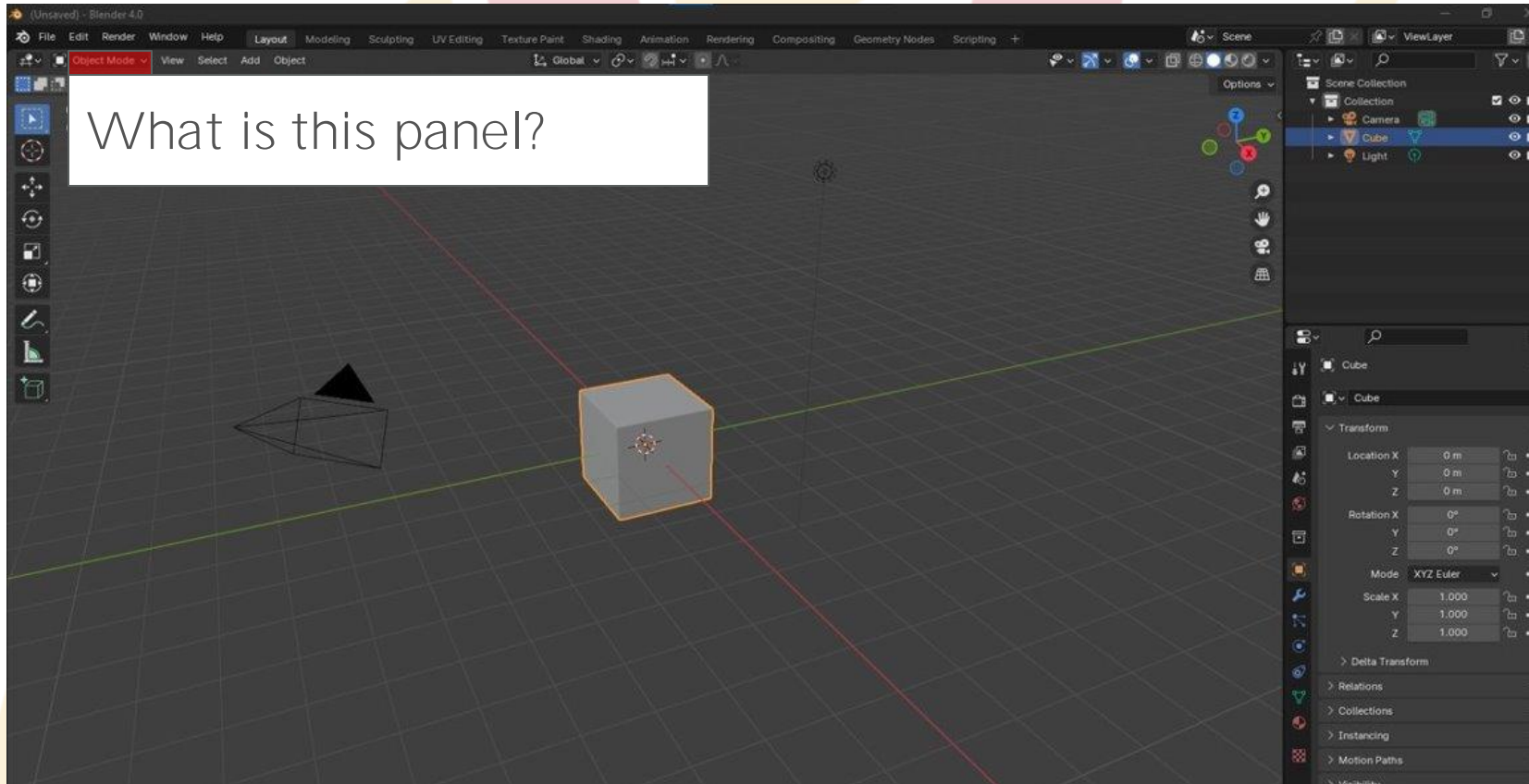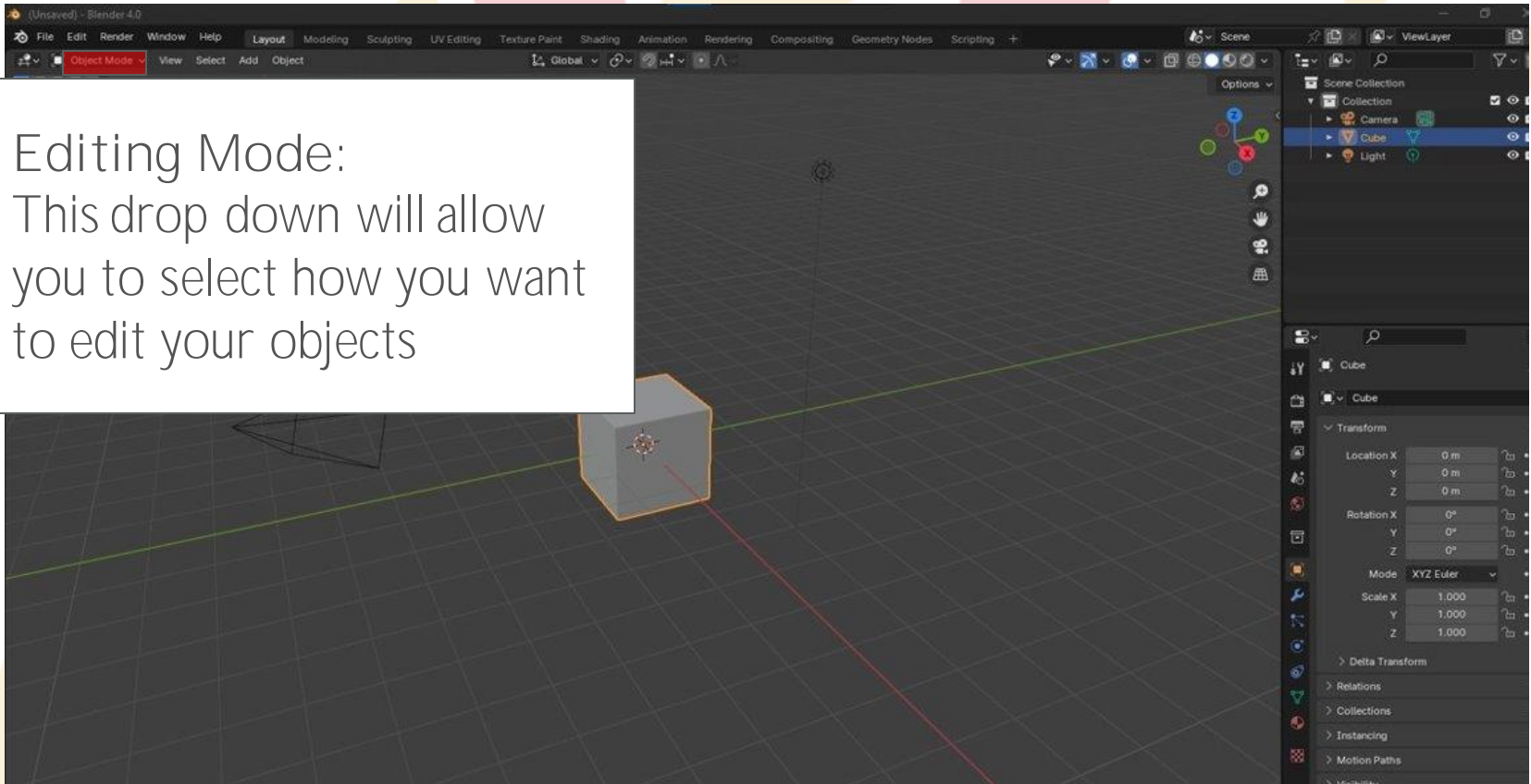
Review

Editing Mode:
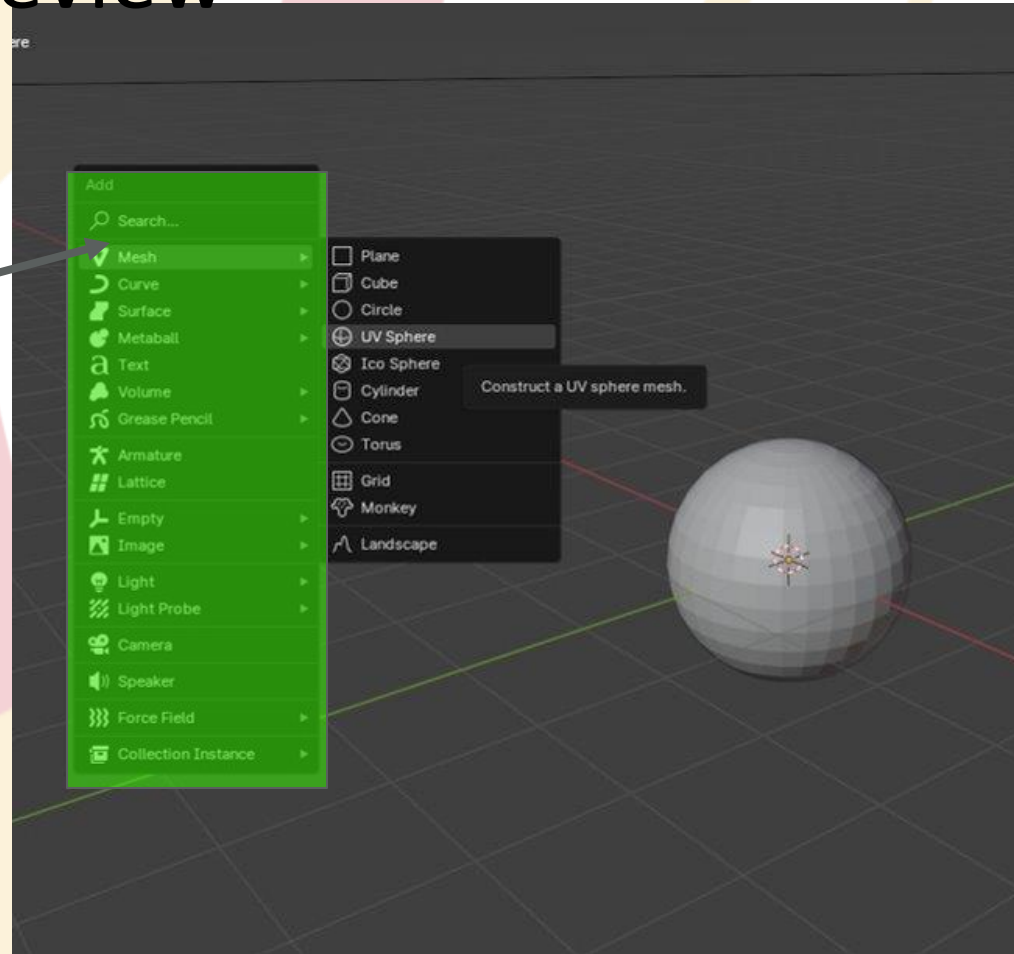This drop down will allow you to select how you want to edit your objects

Review

- Shift + A is a crucial hotkey!
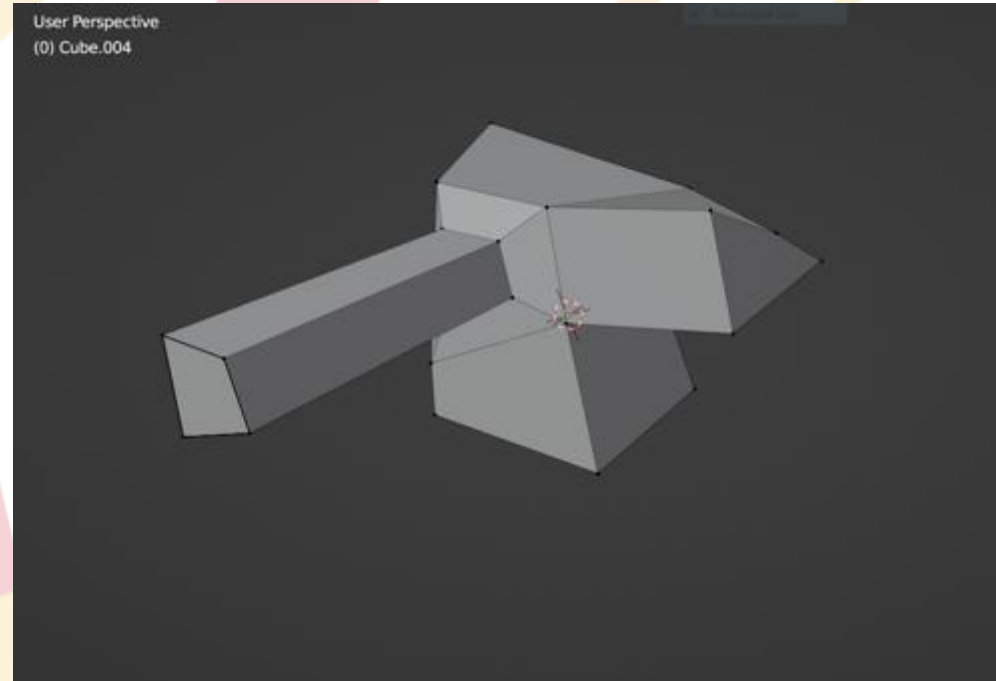
- (Open Add Menu) Shift + A

- Add Menu > Mesh > UV Sphere

Hotkey Review:

- Move: G

- Scale: S

- Rotate: R

- Switch Editing Mode: Tab

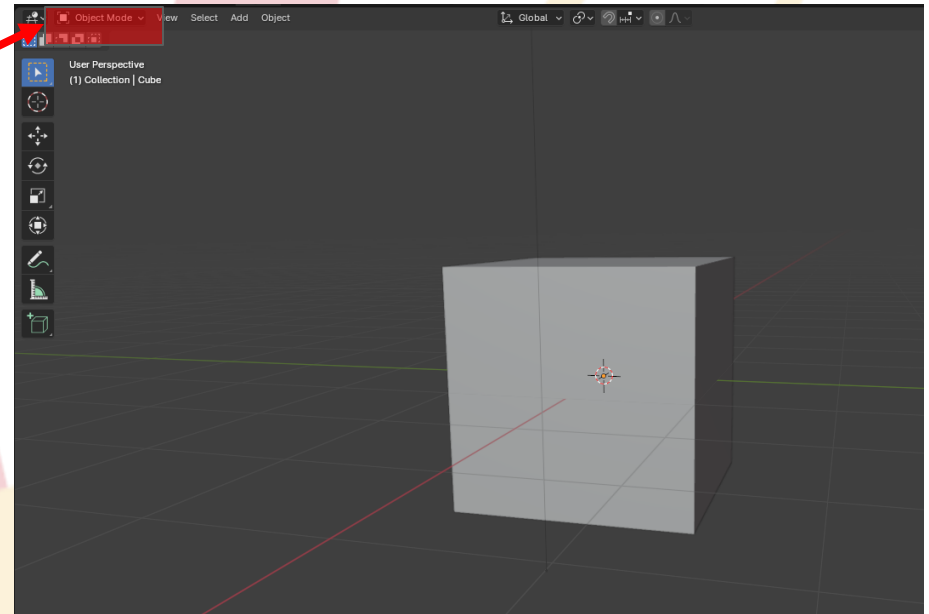**IOWA STATE UNIVERSITY**
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More Vertex Operations

- The following tools were used to make this shape from a simple cube:

  - Extrude

  - Bevel

  - Edge Slide

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Vertices: Extrude

- Add a cube to scene
- Enter "Edit Mode"

Vertices: Extrude

Notice that a new menu has popped up on the left

Extrude (E)

Bevel (Ctrl+B)

Tip: Clicking and dragging is the best way to select vertices

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Vertices: Extrude

Extrude (E)

Bevel (Ctrl+B)

- Select the point(s) to edit
- Press E for extrude
- Move mouse to extrude points
- Now try to add a bevel

Break Time!

Modifiers!

Modifiers: Menu Introduction

Click the blue wrench
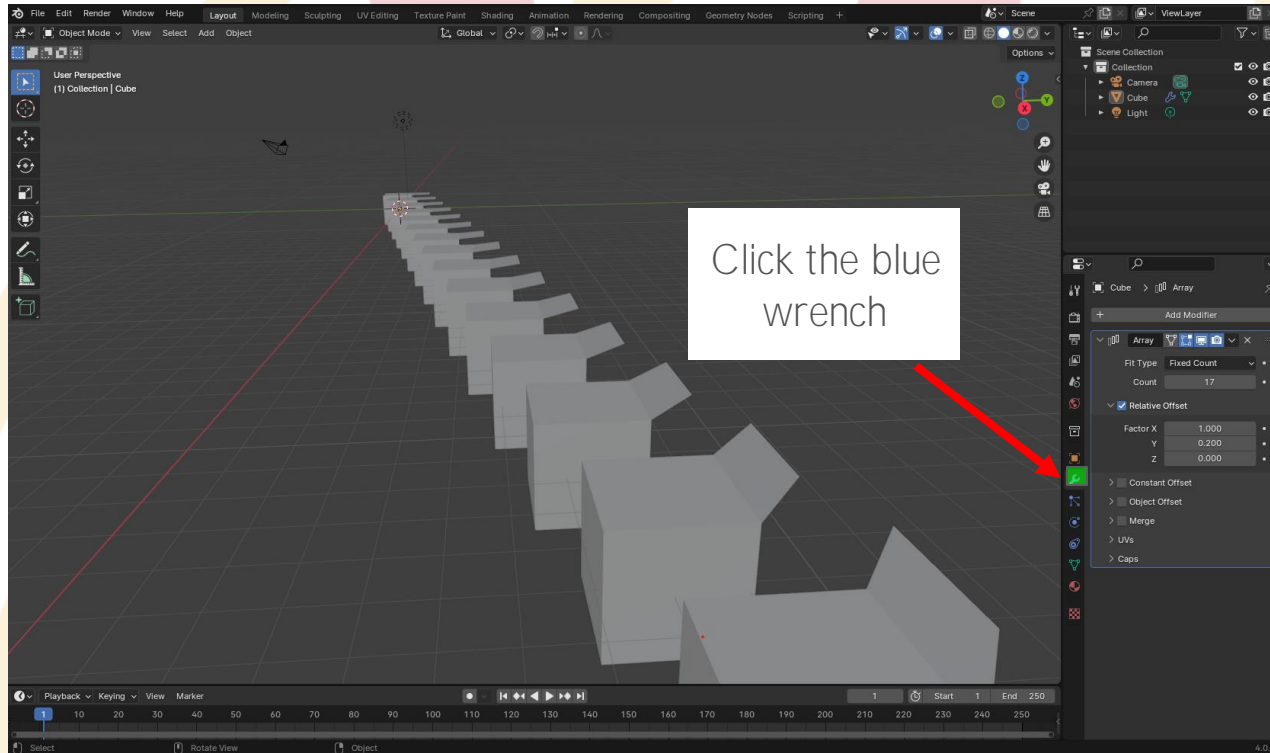
Modifiers: Menu Introduction
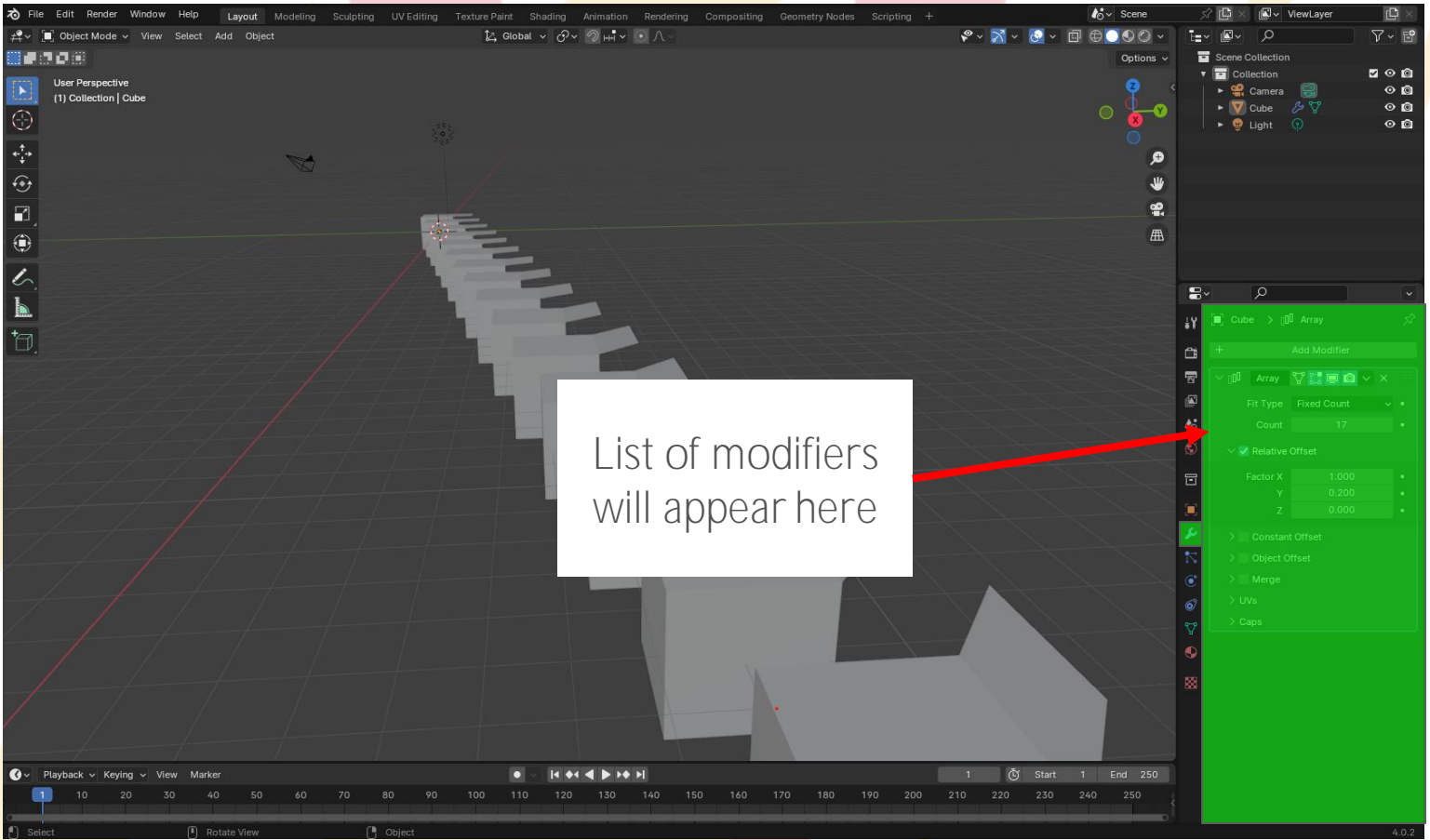
List of modifiers will appear here

Boolean Modifiers
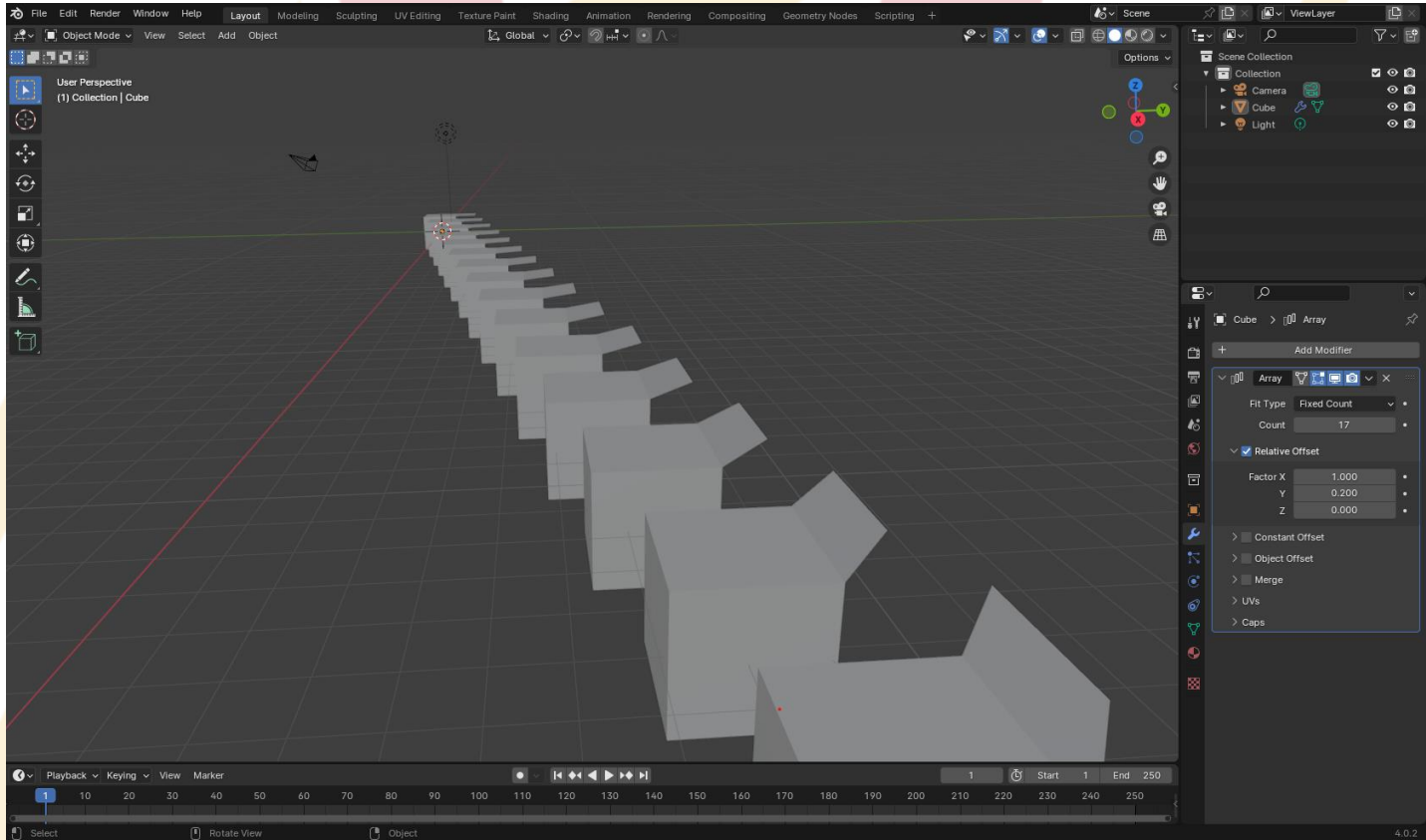
- Boolean Modifiers
  - Booleans let you subtract, add or intersect an object's geometry onto another object (merging)
  - Usually used for objects that will not be deformed (mechanical)
- Drawbacks:
  - Geometry cannot be deformed

Intersection   Subtraction   Union
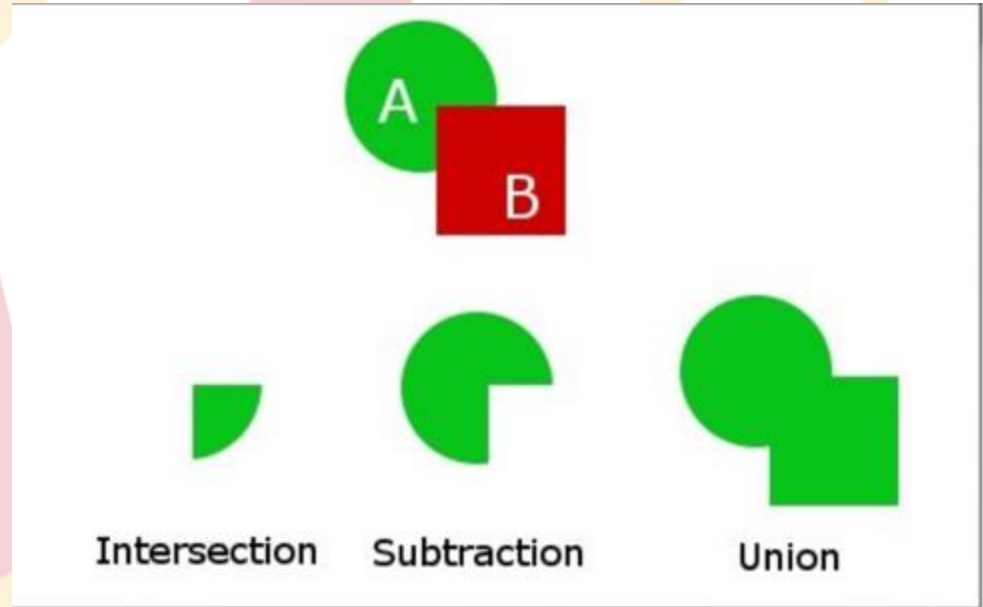
Modifiers: Boolean Difference
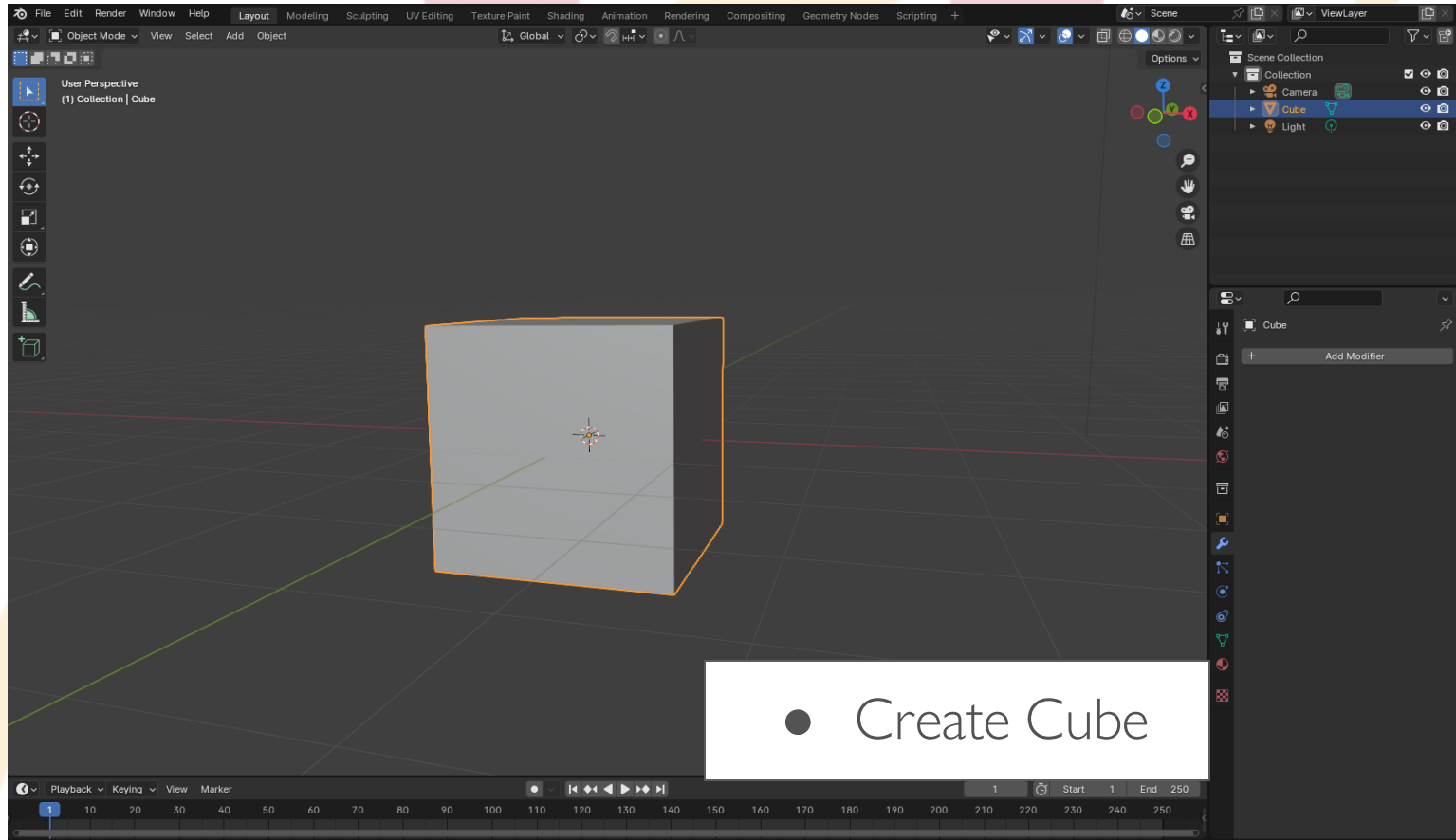
- Create Cube

Modifiers: Boolean Difference

- Create Second Cube
- Make sure cubes intersect

Modifiers: Boolean Difference

- Select first cube
- Click "Add Modifier"
- Click "Boolean"

Modifiers: Boolean Difference

To make a cutout, use the "Difference" setting
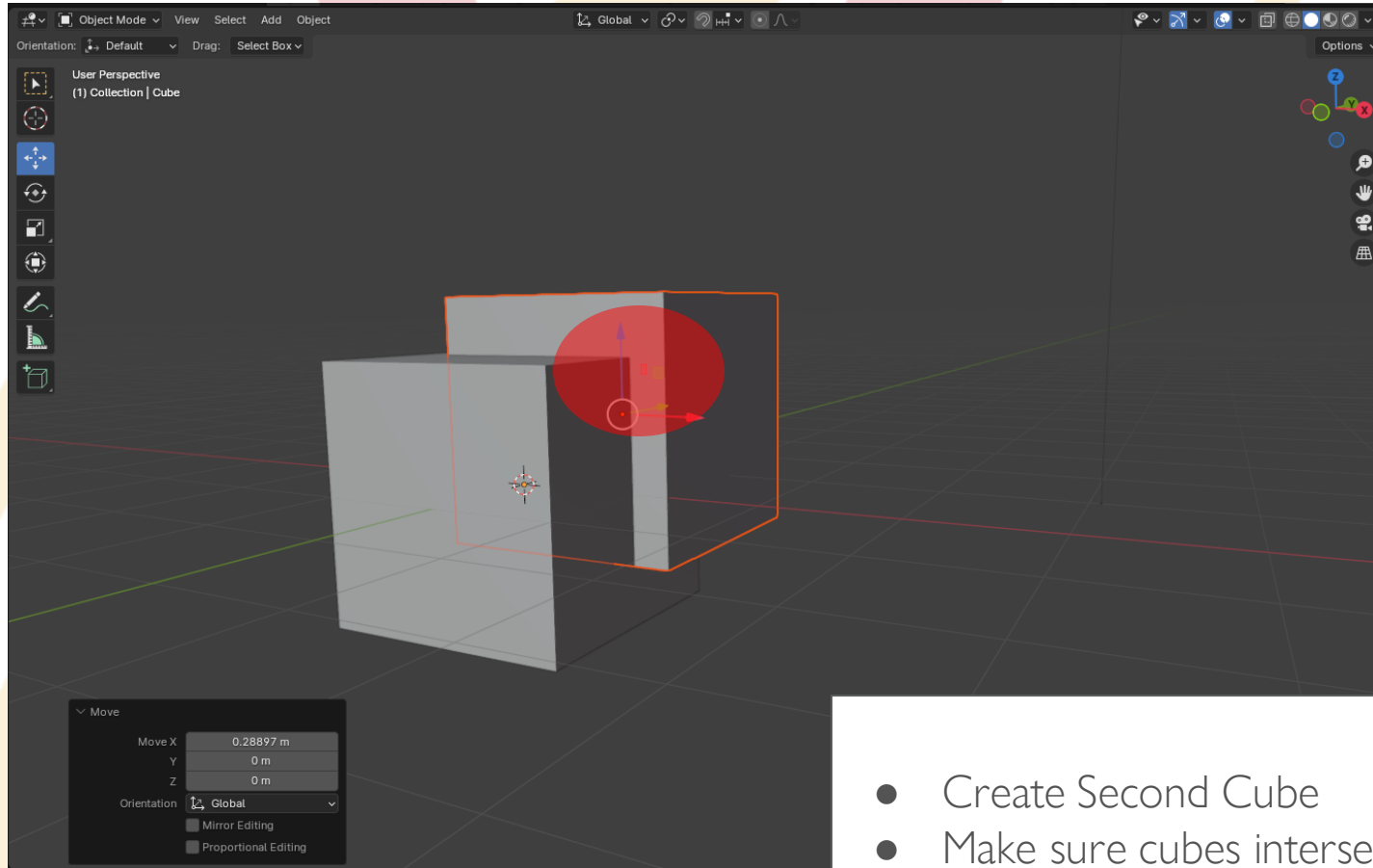
Select the eyedropper, and click the second cube

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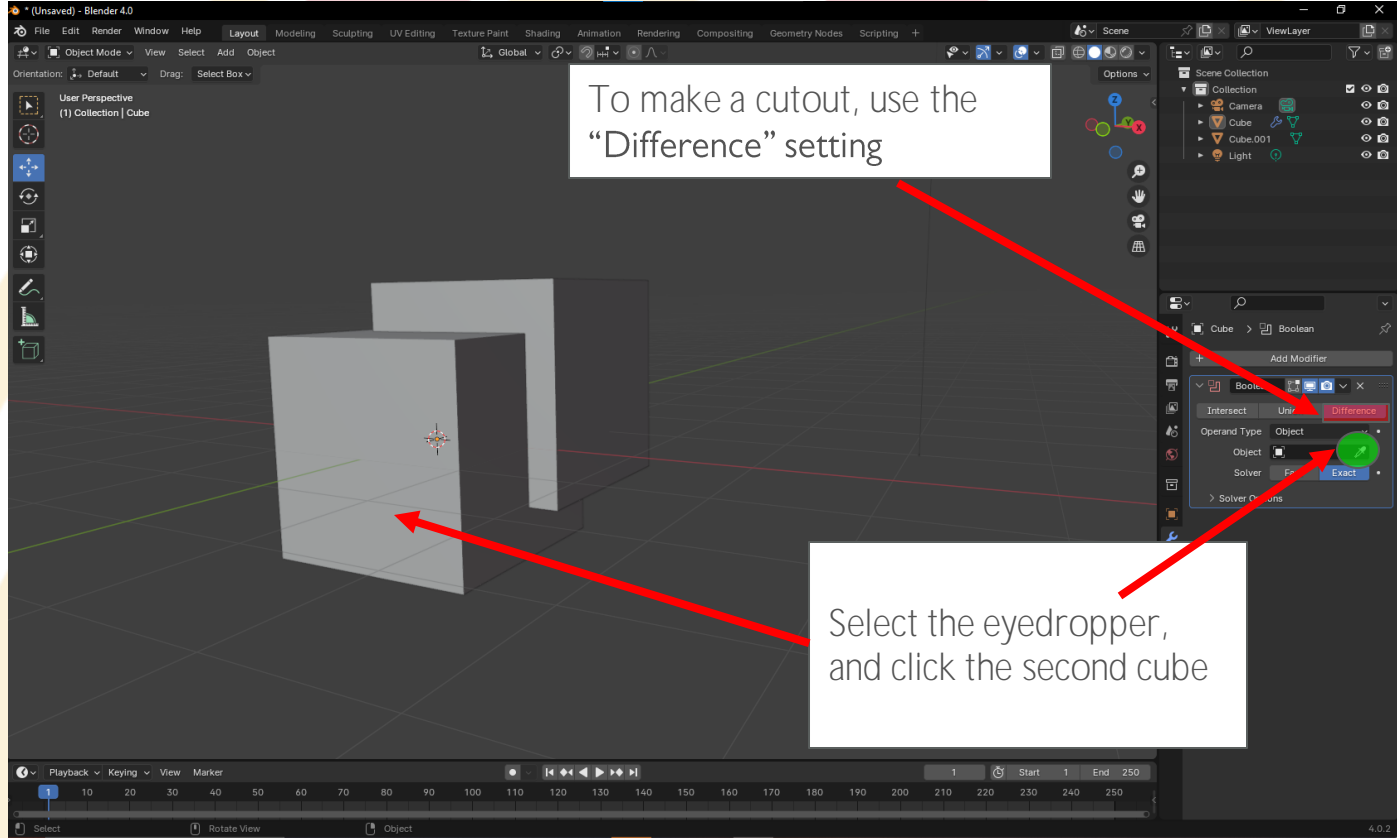
Modifiers: Boolean Difference
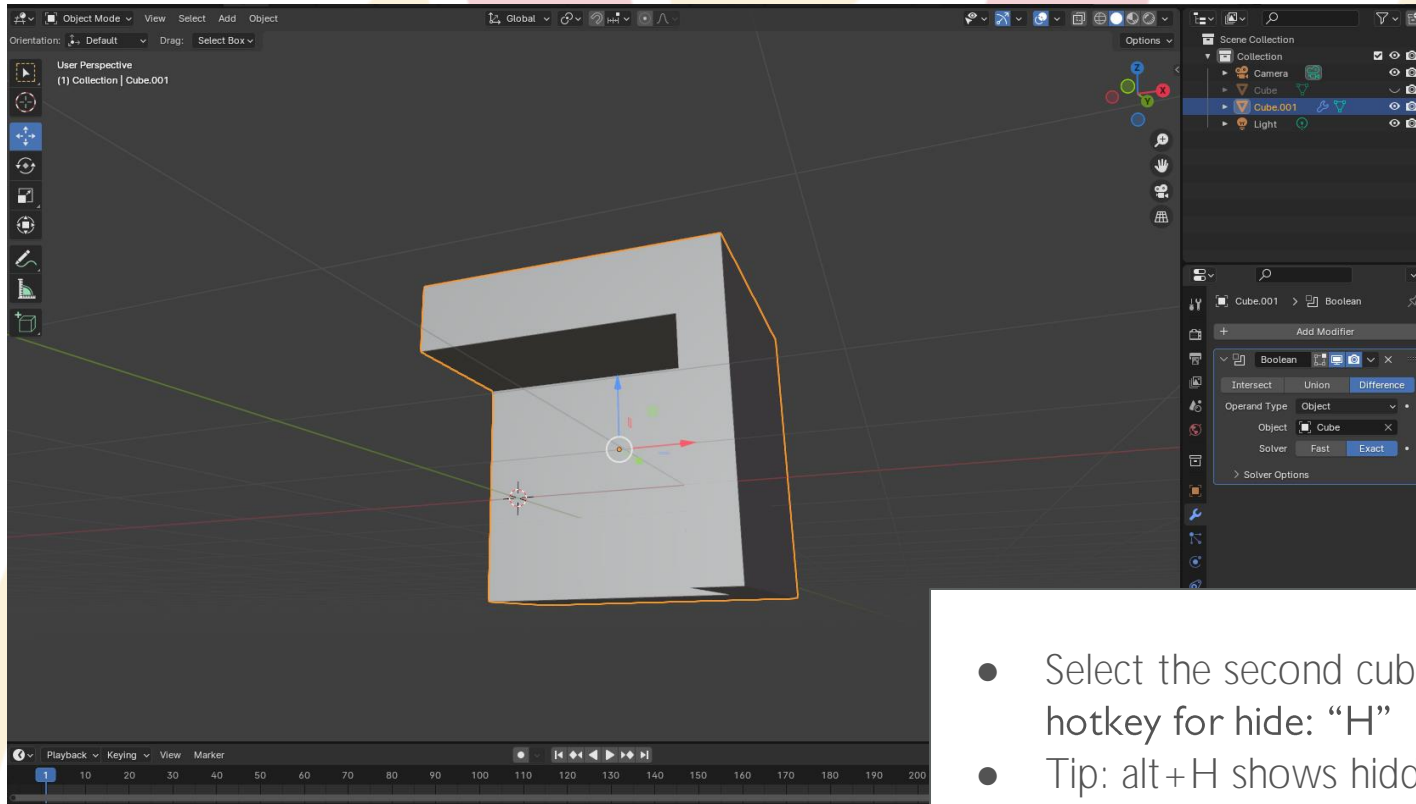
- Select the second cube and press the hotkey for hide: "H"
- Tip: alt+H shows hidden objects in scene

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Boolean Modifiers: Intersect Example

1. Add a mesh cube
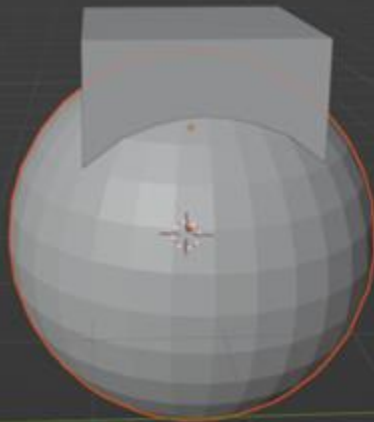
3. Apply the bool modifier to cube

2. Add a mesh sphere

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Break Time!

Modifiers: Array
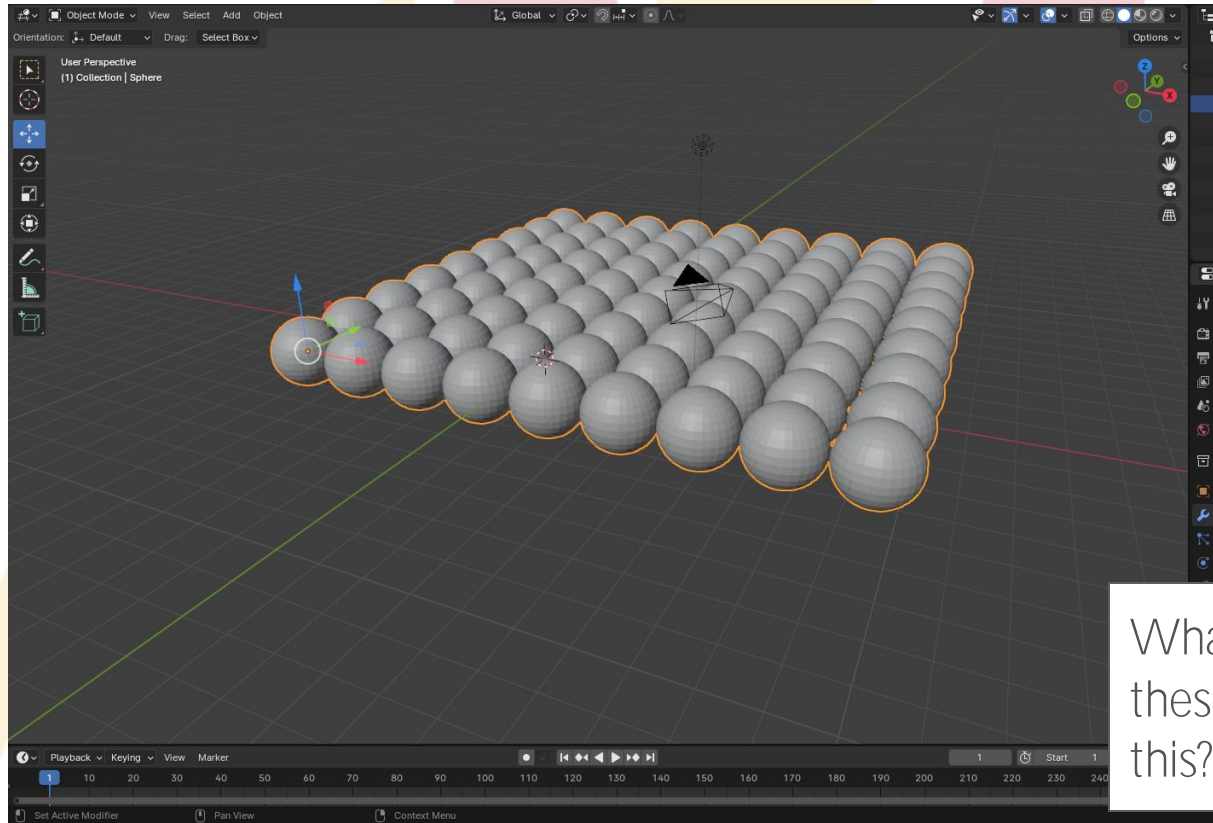
What if we wanted a lot of these spheres in a grid like this?

Modifiers: Array

We can use the array modifier in two ways.
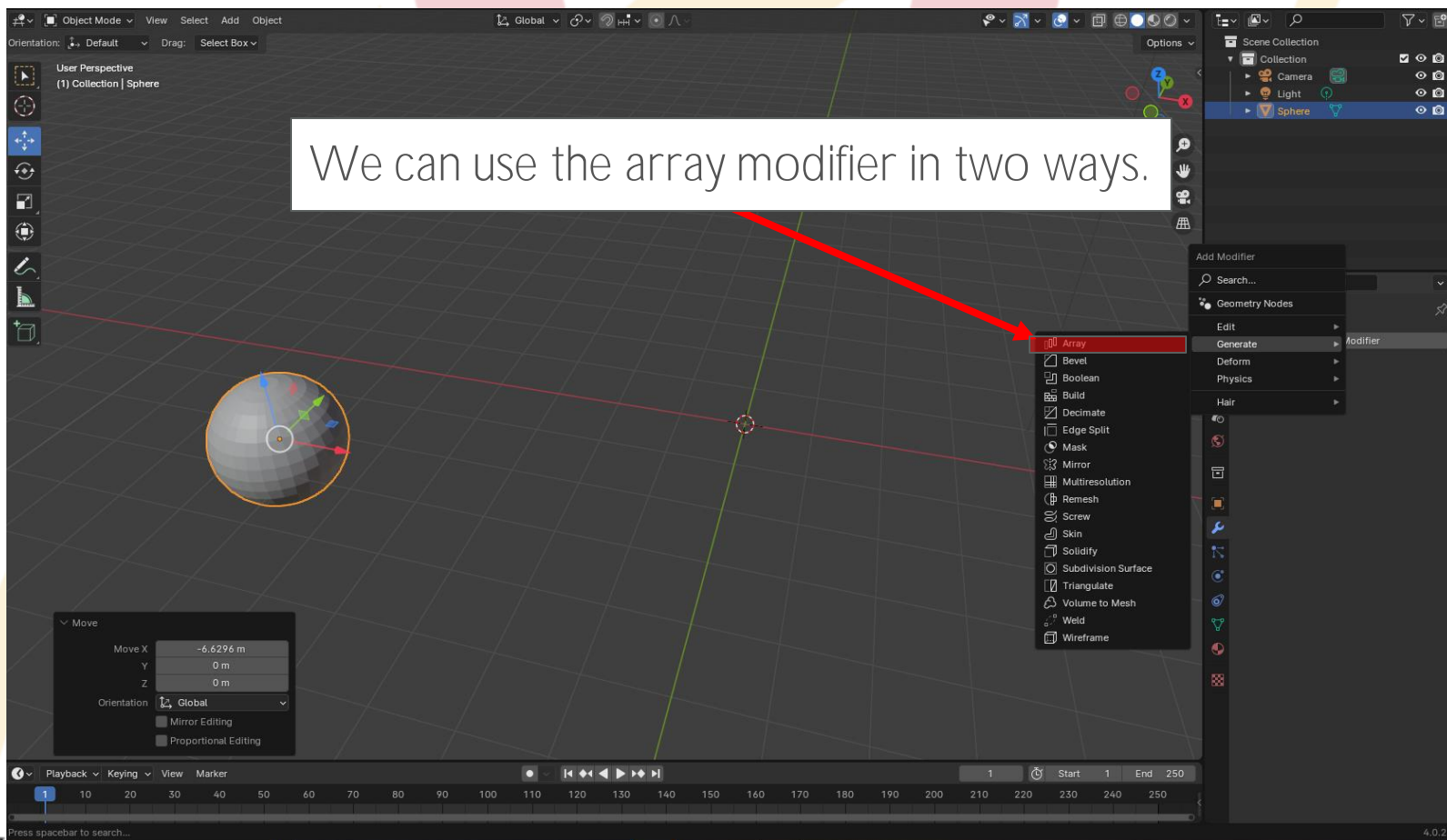
Modifiers: Array

The first array makes copies along the x axis

Modifiers: Array
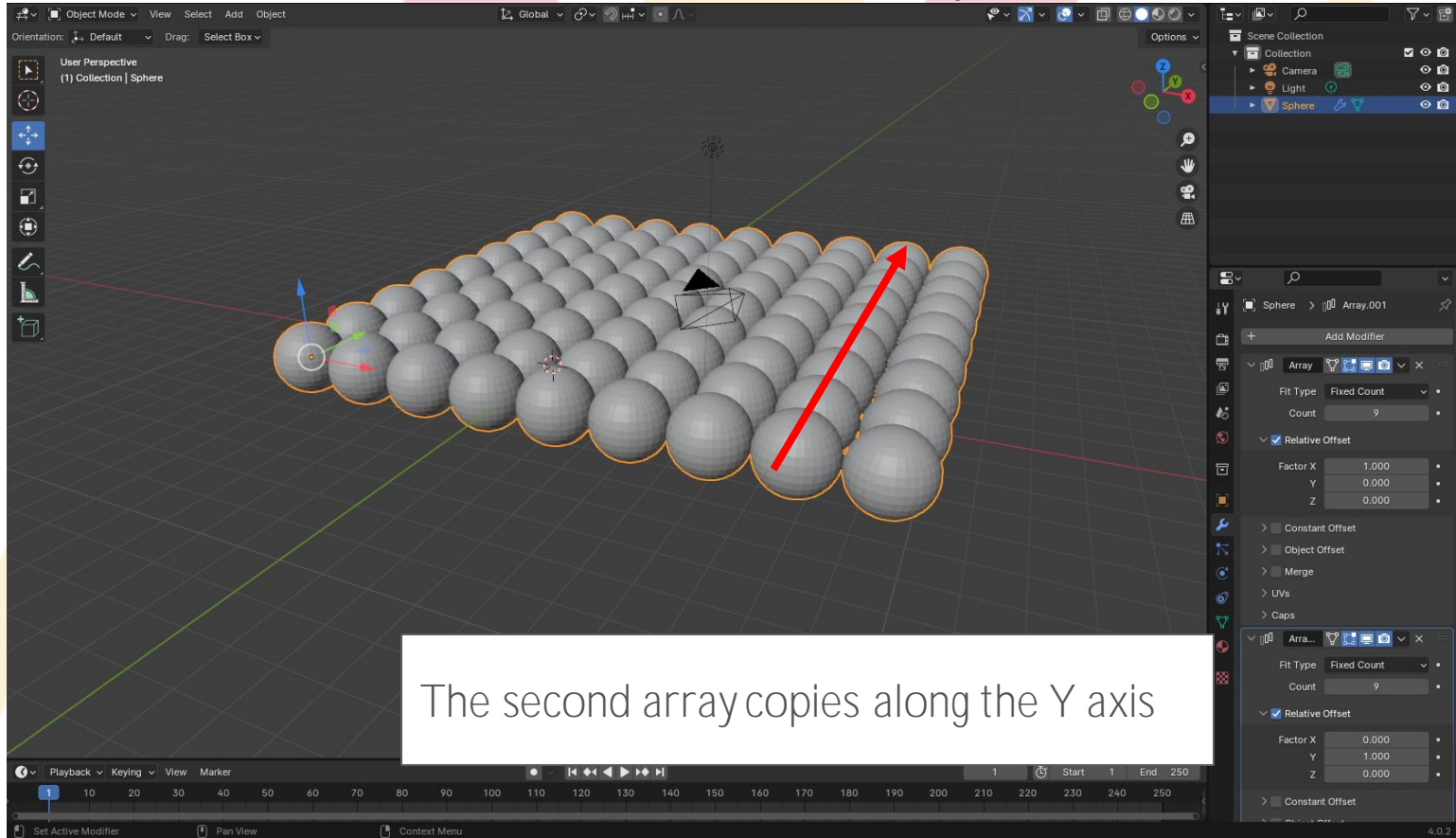
The second array copies along the Y axis

Creating Collections
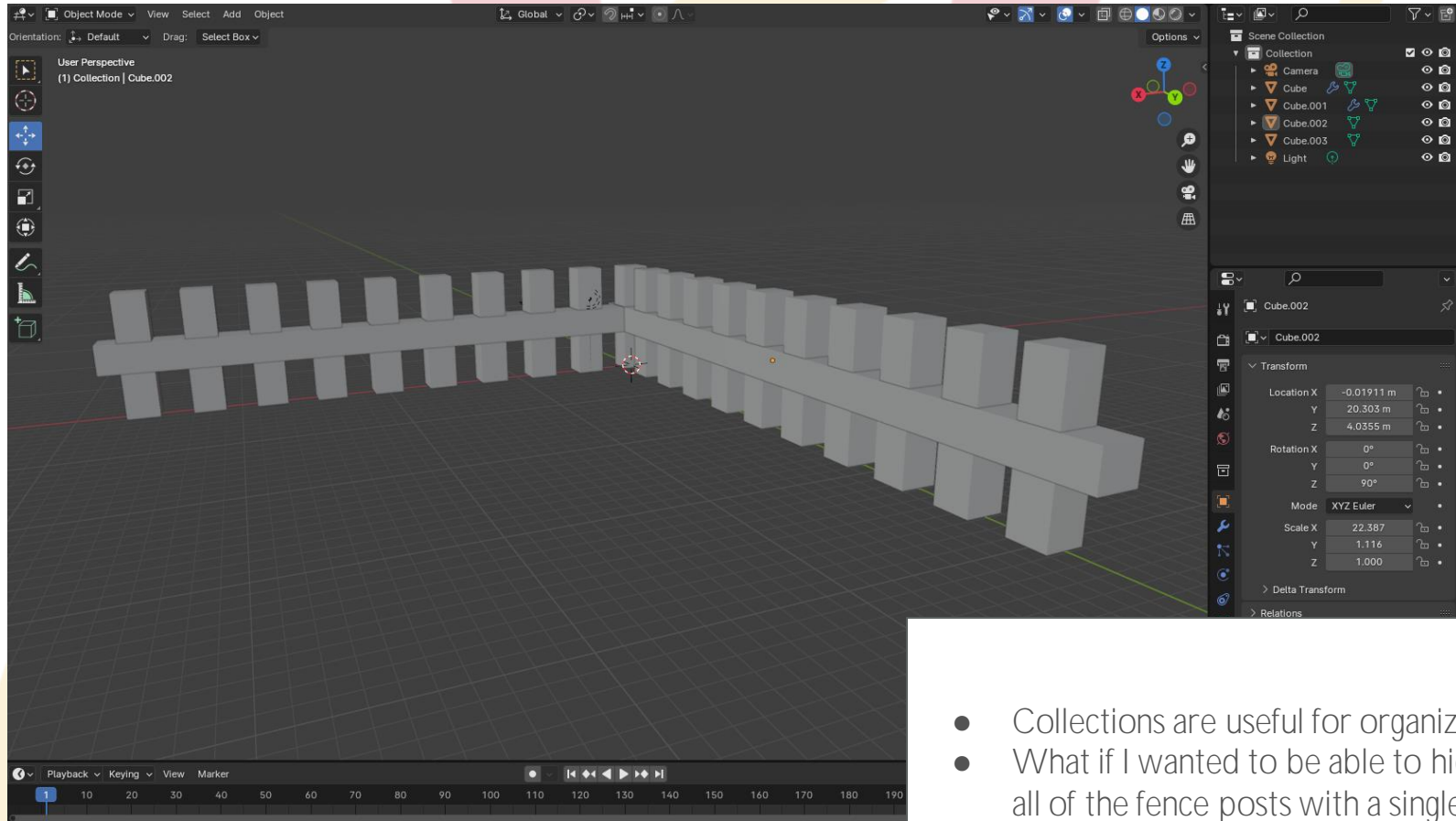
- Collections are useful for organizing a scene
- What if I wanted to be able to hide or show all of the fence posts with a single click?
- Put all the fence posts in a collection.

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Creating Collections

- Select fence objects
- Press M (or) right-click & select 'Move to Collection'
- "New Collection"
- Label the collection

Creating Collections

- All fence posts are now *collected* in this collection in the hierarchy
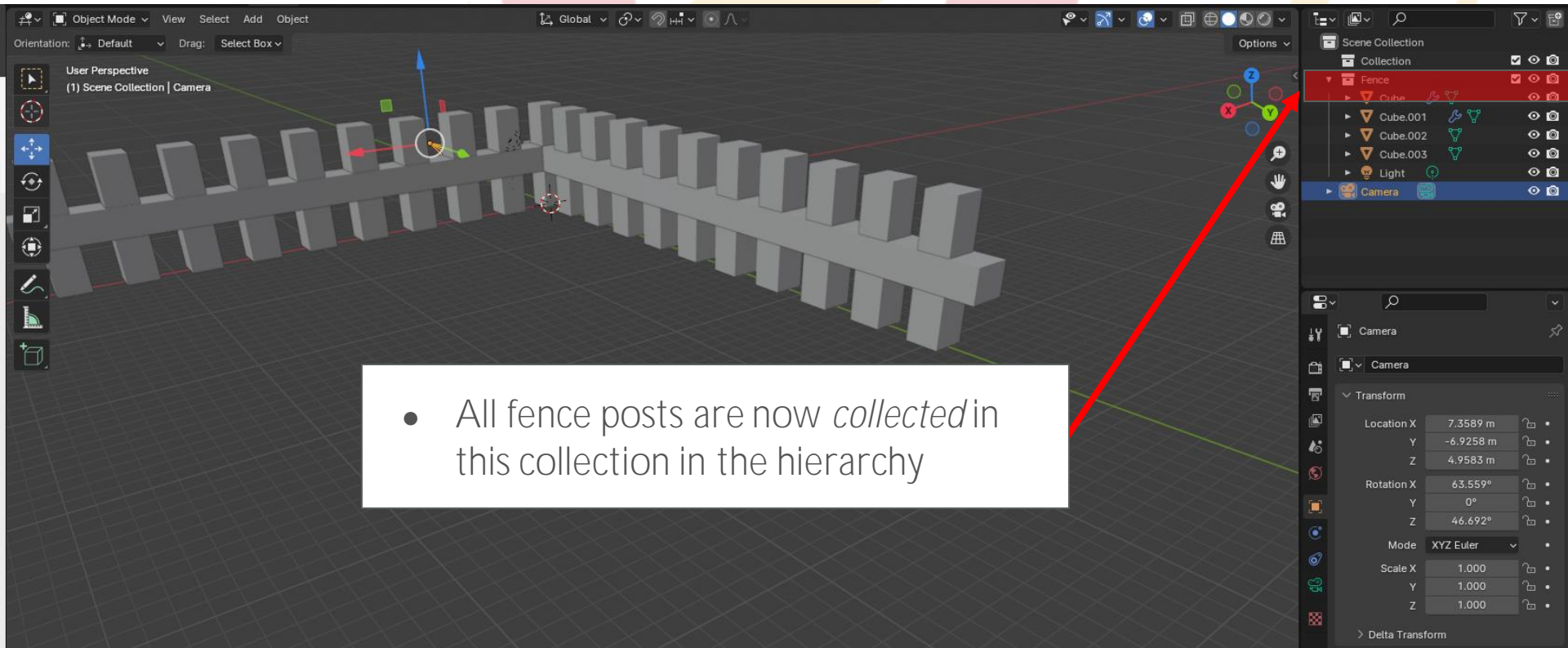
Mini Creation

Keep working on your creation from Session 1. Add more details, or try new techniques from what we talked about today. Try new modifiers, and play around to see what you can create. Use collections to organize your scene

✏️ Stage 1: Design
- Make a quick sketch using the materials provided to design and environment with the objects below.
- Confirm design with instructor before modeling

Stage 1I: 3 Objects
- Create a building
  - House
  - Shed
- Landscape/ground
- Yard feature
  - Wagon
  - Tree/bush

Stage III: 2 Objects
- Landscaping feature
  - Rocks
  - Walking path
- Details to building:
  - Door
  - Roof

Stage IV: 2 Objects
- More details
  - Cow
  - Water well
- Details to building:
  - Windows
  - Chimney

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Mini Creation Inspiration

Mini Creation Bonus

- Try animating something in your scene (eg: smoke from chimney, swaying tree)

- Use animation toolset to make the camera fly through your scene

- Try adding colors to the objects in your scene