Assignment 02

<u>Linking Software</u>

Course: Arch 565 - Advanced Computer Applications II
**Due Date:** Monday, March 9th
Weight: 25% of assignments grade

Overview

This assignment explores the integration of multiple software platforms in a single architectural workflow. Students will connect **Rhino/Grasshopper** with **Revit/Dynamo** to create a data-driven design pipeline. By linking modeling, parametric control, and BIM data management, the exercise demonstrates how advanced workflows enhance precision, efficiency, and interoperability in professional practice.

Objectives

- Develop a parametric model in Rhino/Grasshopper that can be shared with Revit.
- Use Rhino Inside Revit to manipulate or extract BIM data from the imported geometry.
- Demonstrate the value of multi-platform workflows in managing complex design problems.
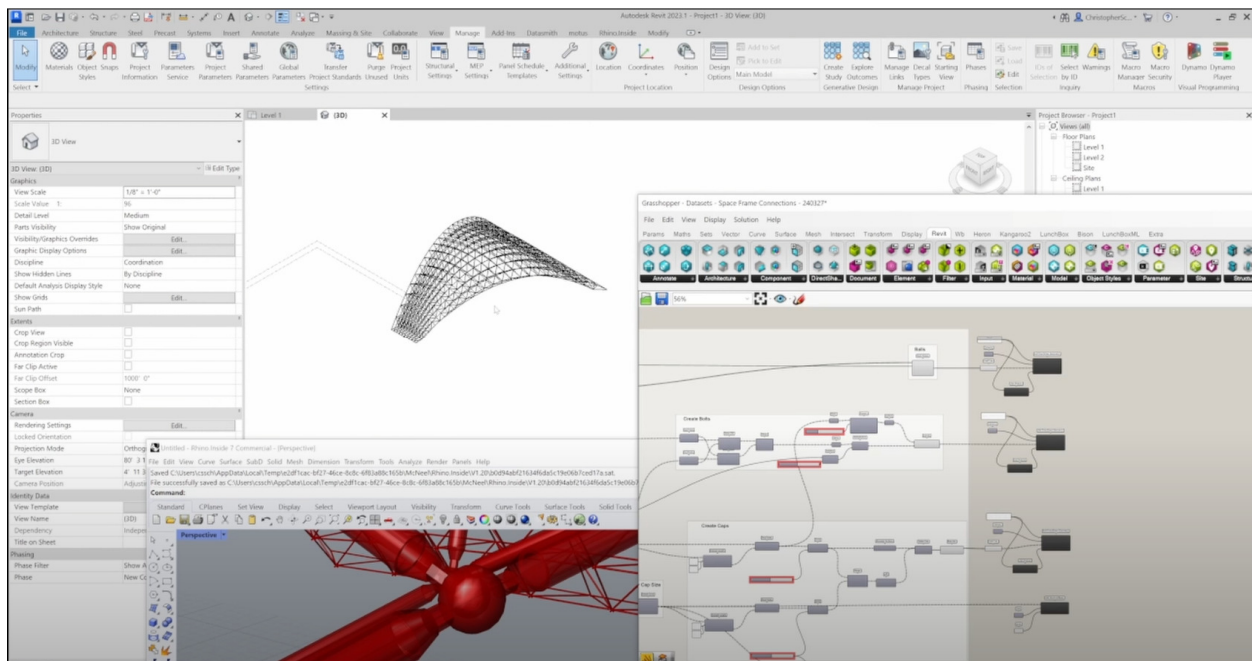
https://www.youtube.com/watch?v=5JoWe_O_U5E

Assignment Tasks

1. **Model Creation in Rhino**

   - Build a parametric geometry (e.g., façade system, structural grid, or spatial layout) in Rhino/Grasshopper.

   - Ensure the model has adjustable parameters (e.g., spacing, height, rotation).

2. **Data Exchange with Revit**

   - Import the Rhino/Grasshopper geometry into Revit using Rhino.Inside.Revit.

   - Translate the geometry into Revit-native elements (walls, curtain panels, or structural families).

3. **Documentation**

   - Produce diagrams or screenshots showing the workflow (Rhino → Revit → Dynamo).

   - Write a 1-page explanation of the workflow, noting challenges, benefits, and potential applications in practice.

Deliverables

- Rhino/Grasshopper definition file.

- Revit project file with imported geometry.

- Workflow diagram + 1-page summary.

Evaluation Criteria

Technical Execution (40%) - Accuracy of model transfer and functioning workflow.
Workflow Complexity (30%) - Level of integration between software platforms.
Clarity of Documentation (20%) - Quality of workflow diagram and written explanation.
Craft & Precision (10%) - Clean, well-structured files and outputs.

Grading Rubric (100 points total)

Criteria	Excellent (A: 90–100)	Satisfactory (B–C: 70–89)	Needs Improvement (D–F: <70)
Technical Execution (40 pts)	Workflow functions seamlessly; Rhino geometry imports cleanly into Revit; Dynamo script runs without errors; parametric control or data extraction is accurate.	Workflow is mostly functional with minor errors; some geometry or data transfer issues present but still usable; Dynamo script partially functional.	Workflow is incomplete or does not function; geometry fails to transfer properly; Dynamo script missing or non-functional.
Workflow Complexity (30 pts)	Demonstrates advanced integration (e.g., multiple adjustable parameters, meaningful BIM data extraction, or multi-step automation).	Demonstrates moderate integration; parametric control or data extraction is basic but functional.	Workflow is minimal or simplistic; little to no evidence of meaningful integration.
Clarity of Documentation (20 pts)	Workflow diagram is clear, well-labeled, and logically explains the steps; written summary is concise, reflective, and insightful.	Workflow diagram is present but lacks clarity or detail; written summary is adequate but mostly descriptive.	Documentation is incomplete, unclear, or missing; workflow explanation does not effectively communicate process.
Craft & Precision (10 pts)	Files are well-organized, clean, and efficient; outputs are precise and professional.	Files are somewhat organized but contain redundancies or minor errors; outputs are serviceable.	Files are disorganized, messy, or difficult to navigate; outputs lack accuracy or professionalism.