Blender Python Script Documentation: Column Grid with Slab

Introduction:

This Blender Python script generates a grid of cylindrical columns and places a slab on top. The script utilizes the bpy (Blender Python API) module to create and manipulate objects in the Blender scene.

User-Defined Parameters:

- column_radius: Radius of each cylindrical column.
- column_height: Height of each cylindrical column.
- num_columns_x: Number of columns along the X-axis.
- num_columns_y: Number of columns along the Y-axis.
- slab_thickness: Thickness of the slab placed on top of the columns.

Workflow:

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1. Clear Existing Mesh Objects and Materials:
   - Clears existing mesh objects and materials in the Blender scene.

2. Create a Group of Columns:
   - Creates a collection named 'Columns' to group all column objects.
   - Iterates through a 2D grid to create cylindrical columns with specified parameters.
   - Defines vertices, faces, and edges for each column.
   - Sets the origin to the bottom of each column.

3. Update the Scene:
   - Updates the view layer to reflect changes in the scene after creating columns.

4. Calculate Slab Position:
   - Calculates the position for the slab based on the dimensions of the columns.

5. Create Slab:
   - Creates a mesh for the slab with specified vertices, faces, and edges.
   - Sets the origin of the slab to the bottom.
   - Places the slab above the group of columns.

6. Update the Scene:
   - Updates the view layer to reflect changes after creating the slab.

Note:

- The script provides optional adjustments for scale and other properties for both columns and the slab.
- Users can modify the user-defined parameters to customize the appearance of the column grid and slab.
- The script assumes that Blender is installed and the bpy module is available.

Usage:

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1. Open Blender and create a new text file in the Text Editor.
2. Copy and paste the script into the text file.
3. Run the script to generate the column grid with the slab in the Blender scene.

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