A Report submitted on First 3D model Assignment
For 3D Modelling and Animation(UCS632)

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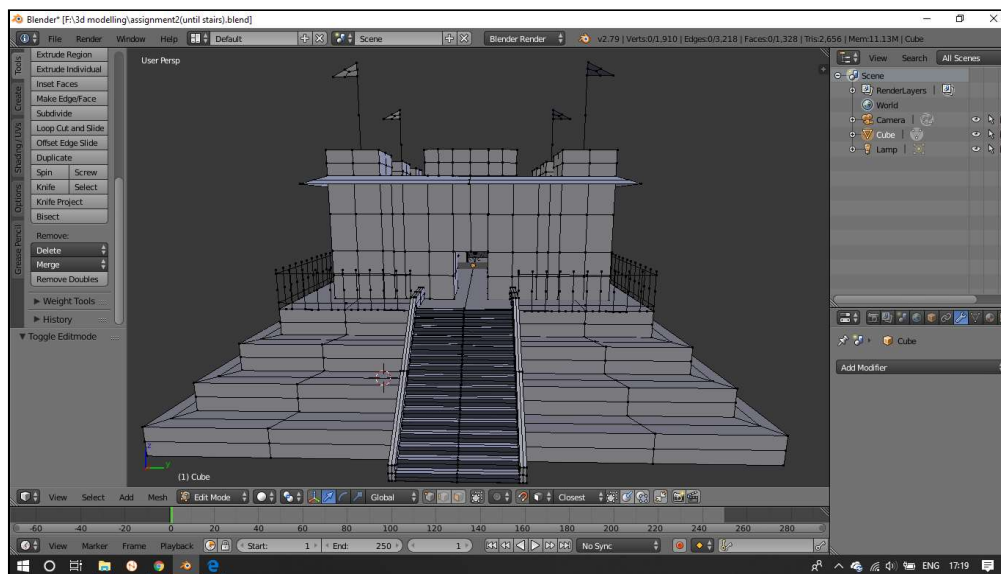
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INTRODUCTION:

Using tools and techniques form unit 1 of this course, we have created our first 3D model using basic shapes in blender.

1. ***Duplicate and Merging Techniques:*** In Blender, there are two types of duplication: duplicate linked(Alt D), duplicate objects(shift D). Duplicating an object makes a copy of the object which is selected and this copy behaves as another object and can be placed anywhere on the plane. The only difference between the two is that in linked duplication, both the objects remain linked only in edit mode(change in one object leads to change in other also). While merging, we can select the objects to be joined/merged and then either press "j" key or click on join from tools panel on the left. In this model, the flag poles are duplicated.

2. ***Normal and its importance:*** In Blender, the face outside will have a normal perpendicular to it. If a light is coming to the face of an object and it doesn't find a normal, then that light will either pass through it or it will behave differently. While playing some games one must have encountered a situation when your player is standing through a wall or can see through a wall, this happens due to backface culling which occurs due to wrong normals. Hence normal should be taken into consideration, before rendering.

3. ***Extrusion and Inset tools:*** In Blender, Extrusion refers to extruding a point/edge/ face to a different height, e.g- the face of an object can be extruded which will increase its breadth. Insetting tool refers to only working on a proportion of the face, not the full face. This inset tool decreases the area of the face to the desired context. In this model, the cube is extruded to form a castle and the base of the castle and insetting is also performed in the base of the castle.exrusion is also used in making the fence.

4. ***Edge loops, Loop cut and slide:*** In Blender, Edge loop refers to selecting the complete loop through which that edge is made of. The shortcut key for this is *Alt + selected edge*. For loop cut and slide, the whole mesh can be made to cut into 2 or more parts(based on ratio). For this, loop cut is used. The shortcut for this is *Ctrl + r*. In this model, the loop cut is used on the walls of the castle.
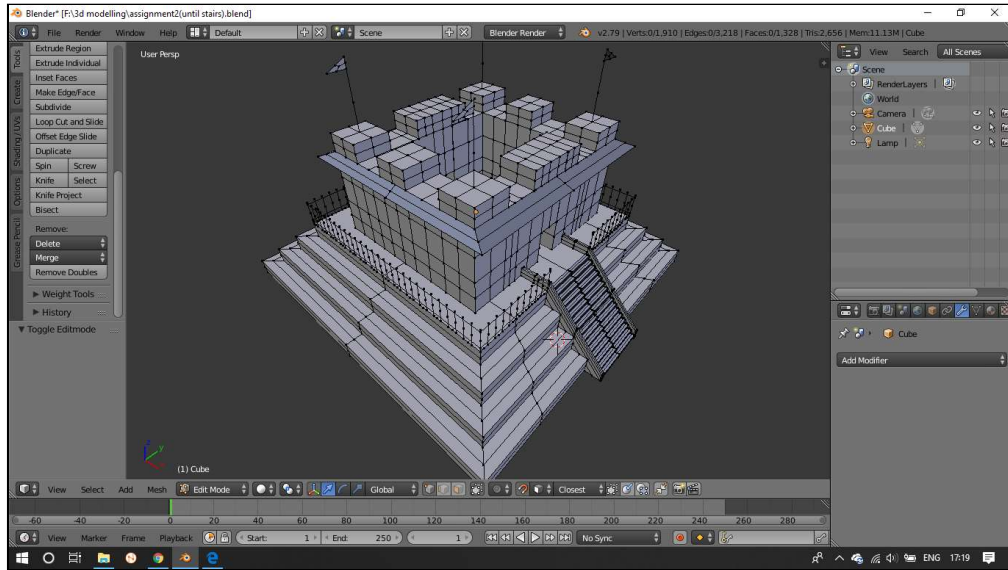
5. ***Constrain movements using snapping tool*:** In Blender, snapping tool is used to ease placing an edge/face onto another edge/face. The icon with a magnet is the snapping tool. It has 5 different types: volume, face, edge, vertex, increment. In this model, while making the stairs, the snapping tool is used to join the base of stairs to the castle base.

6. ***Array modifier*:** In Blender, the array modifier is used to make multiple copies of an object and to arrange it in sequence order. In this model, the stairs are made using the array modifier.

7. ***Subdivision*:** This method helps us to equally divide an edge or a face into parts. This can be found on the tools window under modifier or can also be done by pressing "w" key. If we increase the number of cuts, the number of faces increases exponentially and then it becomes difficult to render such a mesh.

Snapshot of the model:
(front view)

(side-top view)

(side view)