

Project 6: Colosseum

In this task, I was given to draw a colosseum using C# programming in Unity3D. I generated the arc doors using mesh.

The code is much similar to the previous task in which I was given to draw a structure with multiple arched doors.

In this, I am taking the number of rows to create the structure as 5. No. of segments is the number of arc doors in one row which I am taking to be 80. Next, I am defining the angle of the colosseum as “angleStep” which will be equal to $360/\text{segments}$. Further I am defining the radius of the colosseum as “ $(100 * \text{segments}) / 80$ ” in which 80 I picked up experimentally and 100 is also the radius when all the arc doors are connected.

‘i’ is the number of iterations.

```
float angleRadX = Mathf.Cos(angle * Mathf.Deg2Rad) * radius;  
float angleRadZ = Mathf.Sin(angle * Mathf.Deg2Rad) * radius;
```

angleRadX and angleRadZ will help us to generate coordinates of the arc doors which form the colosseum.

In this code also, we are declaring a method “CreateArcDoor” and defining it later.

```
arcdoor.transform.position = new Vector3(angleRadX, j * 10, angleRadZ);
```

→ This function transforms the position of the arc door where j is the number of rows (0,1,2,...) and 10 is the height of the arcdoor

```
arcdoor.transform.LookAt(new Vector3(0, j * 10, 0));
```

→ This function rotates the look of the object (arcdoor) to the point (new Vector3(0, j * 10, 0) - center)

Then we define the function “CreateArcDoor” in which we define the radius and height of the arcdoor.

We are taking the arcdoor at the origin, because we rotate the arcdoor around the center .
Therefore,

```
wallLeft.transform.position = new Vector3(-radius - 0.5f, height * 0.5f, 0.5f);  
wallRight.transform.position = new Vector3(radius + 0.5f, height * 0.5f, 0.5f);
```

```
arc.transform.parent = ArcDoor.transform;  
wallLeft.transform.parent = ArcDoor.transform;  
wallRight.transform.parent = ArcDoor.transform;
```

Here in this part of code, 'i' sets the parent object for the walls and the arc so that I can move only one object, not three.

Rest of the part is exactly same as explained in the previous task (wall with multiple arc doors).