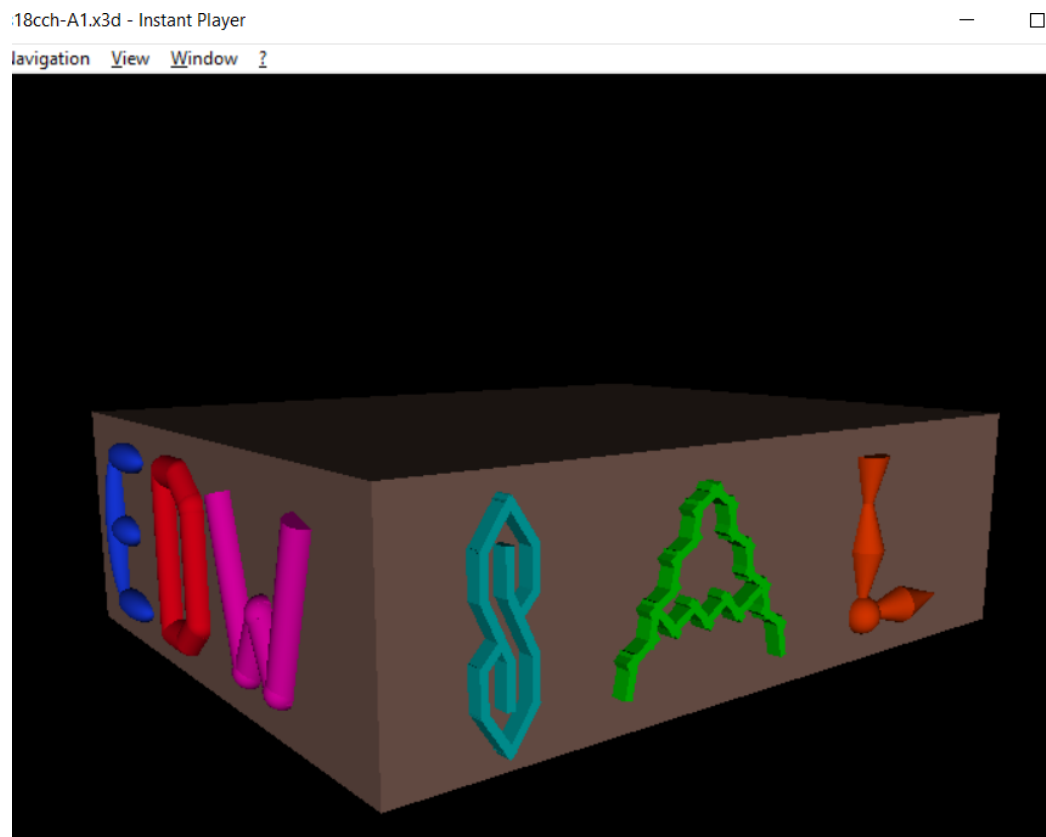# HCI & Computer Graphics Assignment 1 - Report

Created a large, brown box to place the letters on. I made it large as this makes it easier to place the letters on without worrying about running out of space. I chose to colour it brown as this is a plain colour which would make the brightly coloured letters stand out better.

…

```
  #base box

  <Transform translation='0 0 0'>

    <Shape>

      <Box size='10 3 8'/>

      <Appearance>

        <Material diffuseColor='0.6 0.45 0.4'/>

      </Appearance>

    </Shape>

  </Transform>
```
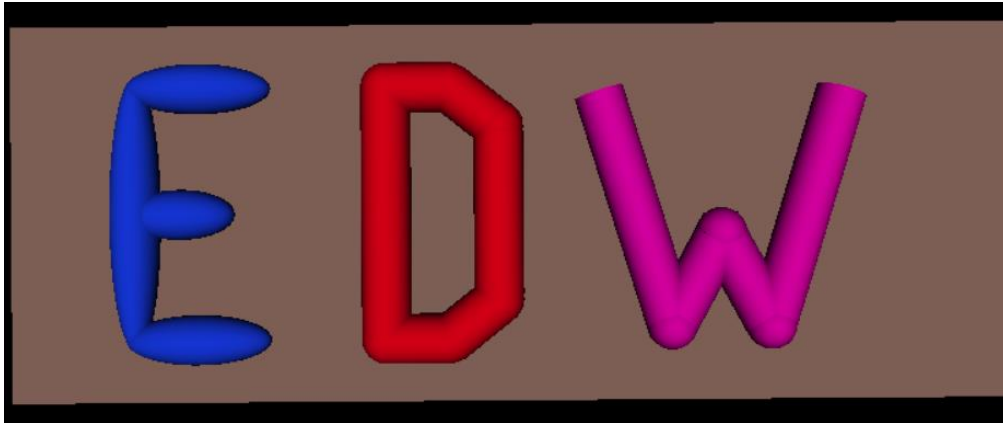
…

The "D" and "W" are made from a combination of cylinders for the straight sections and spheres for the corners where the cylinders join to give a smoother appearance. Originally, the "E" was also made from cylinders, however I decided to use elongated spheres as this gave a smoother appearance than cylinders and spheres and required less shapes overall to create.

…

#letter "E"

```
   <Transform translation='-5 0 -3' scale='1 5.5 1'>

     <Shape>

       <Sphere radius='0.2'/>

       <Appearance>

         <Material diffuseColor='0.1 0.25 1'/>

       </Appearance>

     </Shape>

   </Transform>
```

…

```
   #letter "D"

   <Transform translation='-5 0 -1'>

     <Shape>

       <Cylinder height='2' radius='0.2'/>

       <Appearance>

         <Material diffuseColor='1 0 0.1'/>

       </Appearance>

     </Shape>

   </Transform>

   <Transform translation='-5 -1 -1'>
```

```
    <Shape>
      <Sphere radius='0.2'/>
      <Appearance>
        <Material diffuseColor='1 0 0.1'/>
      </Appearance>
    </Shape>
  </Transform>

…

  #letter "W"
  <Transform translation='-5 0 1' rotation='-1 0 0 0.3'>
    <Shape>
      <Cylinder height='2' radius='0.2'/>
      <Appearance>
        <Material diffuseColor='1 0 0.75'/>
      </Appearance>
    </Shape>
  </Transform>

…

  <Transform translation='-5.02 -0.17 1.675' rotation='-1 0 0 0.5'>
    <Shape>
      <Sphere radius='0.2'/>
      <Appearance>
        <Material diffuseColor='1 0 0.75'/>
      </Appearance>
    </Shape>
  </Transform>

  …
```
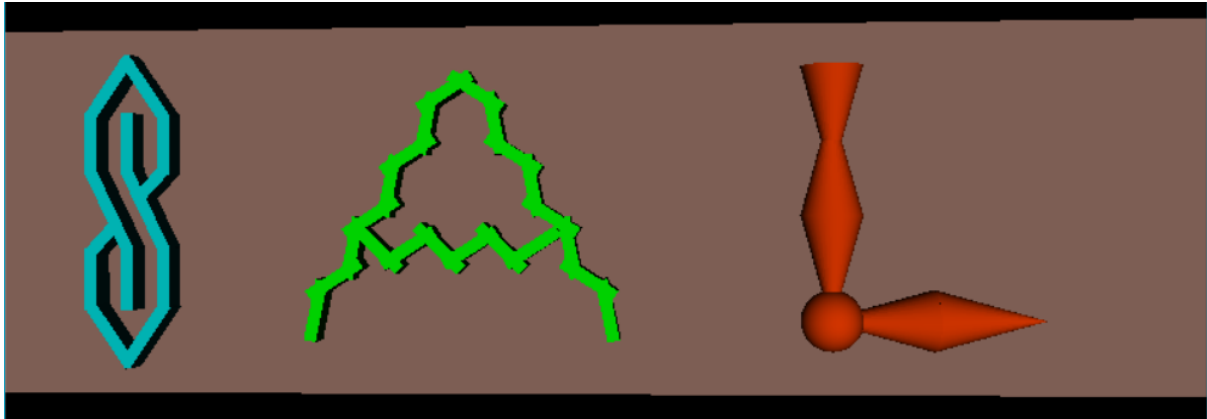
The "S" is made up from similarly sized boxes with each box having a slightly adjusted translation or rotation. In the case of the "A", it is made from lots of equally sized boxes that switch between two different rotations to give a zig-zag appearance. As "A" has a relatively simple appearance, I decided to make it more complex. "L" is also a simple letter to recreate, so I approached it more creatively by creating it out of several cones and a sphere as opposed to simply using lines. The cones are equally sized and are fitted alongside one another and flip rotation at the end of the previous cone.

…

```
#letter "S"
<Transform translation='-4 0.55 4' rotation='0 0 0 0'>
  <Shape>
    <Box size='0.1 0.5 0.4'/>
    <Appearance>
      <Material diffuseColor='0 0.85 0.85'/>
    </Appearance>
  </Shape>
</Transform>
…
<Transform translation='-3.5525 1 4' rotation='0 0 1 0.6'>
  <Shape>
    <Box size='0.1 0.6 0.4'/>
    <Appearance>
      <Material diffuseColor='0 0.85 0.85'/>
    </Appearance>
  </Shape>
</Transform>
```

…

```
<Transform translation='-3.8425 0 4' rotation='0 0 1 0.45'>

  <Shape>

    <Box size='0.1 0.7 0.4'/>

    <Appearance>

      <Material diffuseColor='0 0.85 0.85'/>

    </Appearance>

  </Shape>

</Transform>
```

…

```
<Transform translation='-3.9 -0.22 4' rotation='0 0 -1 0.75'>

  <Shape>

    <Box size='0.1 0.315 0.4'/>

    <Appearance>

      <Material diffuseColor='0 0.85 0.85'/>

    </Appearance>

  </Shape>

</Transform>
```

…

```
#letter "A"

<Transform translation='-2.15 -0.8 4' rotation='0 0 -1 0.2'>

  <Shape>

    <Box size='0.1 0.5 0.4'/>

    <Appearance>

      <Material diffuseColor='0 1 0'/>

    </Appearance>

  </Shape>

</Transform>

<Transform translation='-2 -0.55 4' rotation='0 0 -1 1'>

  <Shape>

    <Box size='0.1 0.5 0.4'/>
```

```
      <Appearance>

        <Material diffuseColor='0 1 0'/>

      </Appearance>

    </Shape>

  </Transform>

…
```

#letter "L"

```
  <Transform translation='2 -0.5 4' rotation='0 0 1 3.14'>

    <Shape>

      <Cone height='0.9' bottomRadius='0.25'/>

      <Appearance>

        <Material diffuseColor='1 0.25 0'/>

      </Appearance>

    </Shape>

  </Transform>

  <Transform translation='2 0.4 4' rotation='0 0 0 0'>

    <Shape>

      <Cone height='0.9' bottomRadius='0.25'/>

      <Appearance>

        <Material diffuseColor='1 0.25 0'/>

      </Appearance>

    </Shape>

  </Transform>

…

  <Transform translation='2 -0.9 4'>

    <Shape>

      <Sphere radius='0.25'/>

      <Appearance>

        <Material diffuseColor='1 0.25 0'/>

      </Appearance>

    </Shape>
```

```
        </Transform>

…
```