# HW Assignment 3
Phong and Toon Shading

Introduction

In this assignment, I have used an existing 3d model of a dancing couple(from Free3D) for my animation. I have implemented spotlight, directional light sources, phong and toon shading.

Lighting:-

1)Directional Light:-

This was easy to implement as this is the type of lighting we have used till now in all the homeworks including the previous lab session. All light rays are unidirectional coming from infinity. Screenshot of directional light with **Phong Shading** is attached below:-
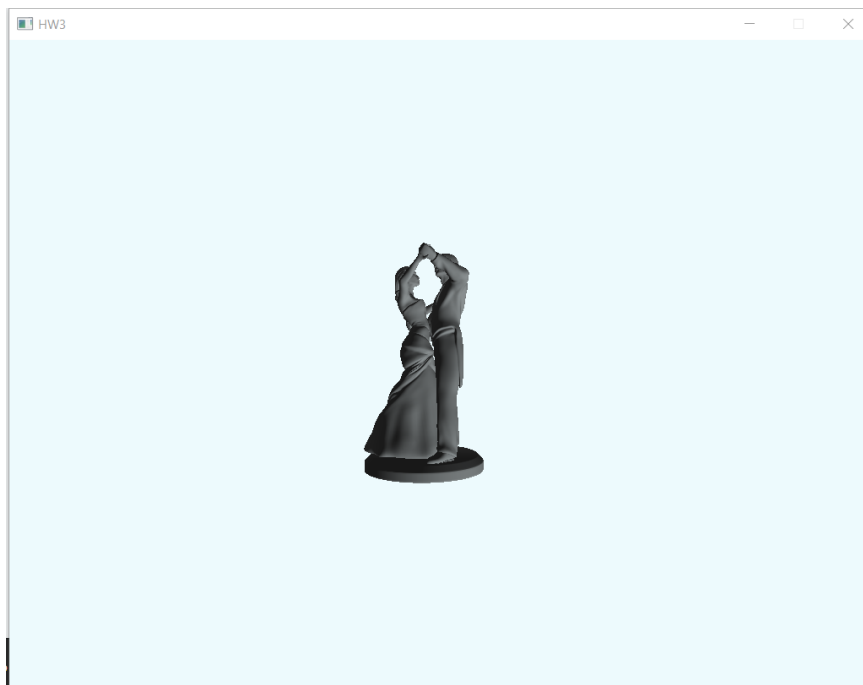
2)Spotlight:-

I have implemented this for the first time. In this type of lighting, the light rays are projected conically and only the volume inside the cone is lit. Screenshot attached below:-
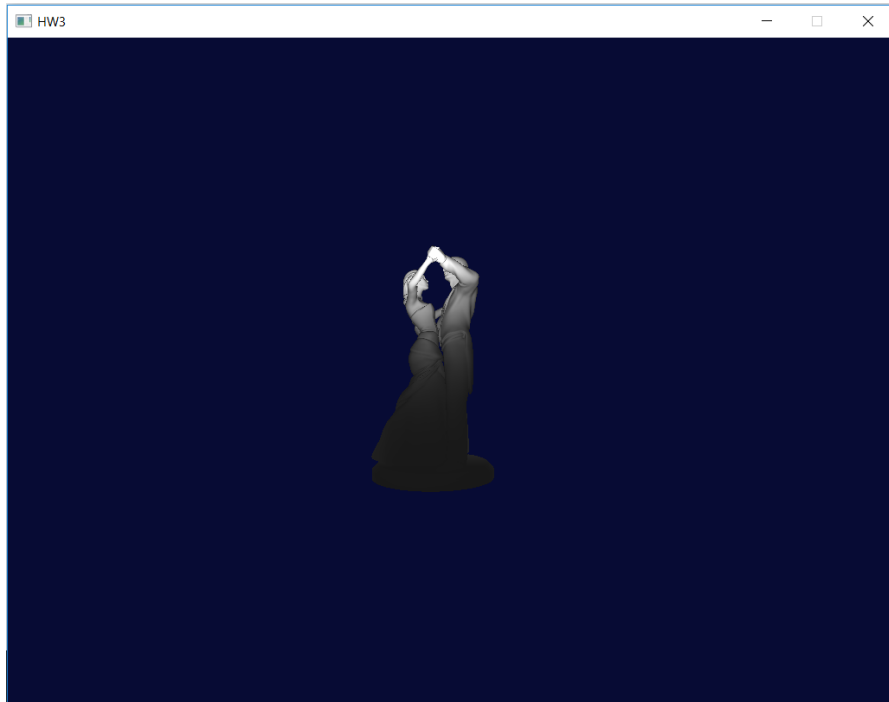
Shading:-

In Phong shading, Phong-Blinn model is used to calculate shading. Toon shading is shading which makes the object appear unreal. Screenshot of my implementation of **toon shading** is attached below:-
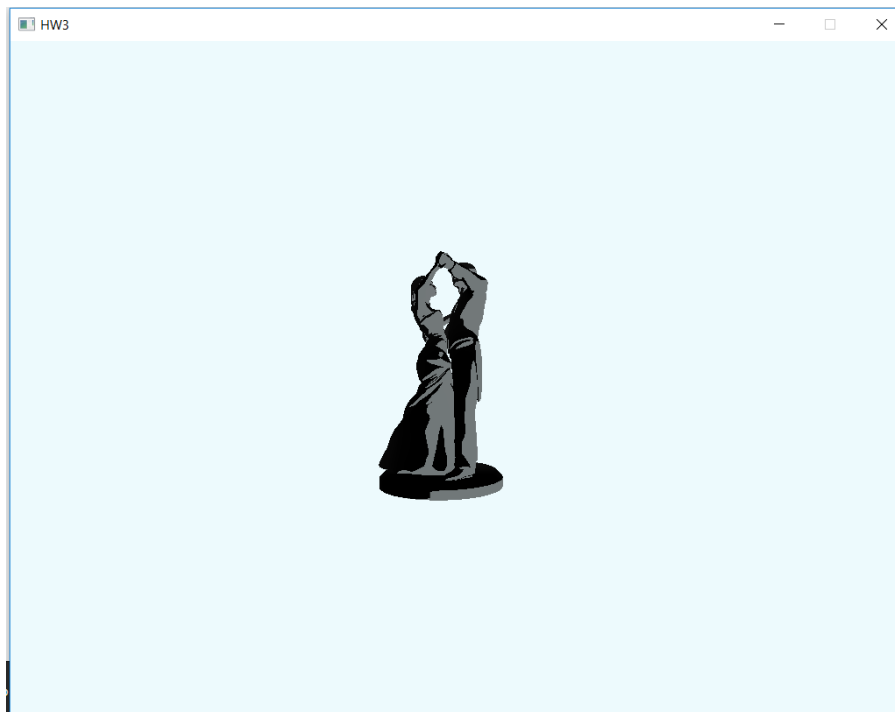
Usage:-

I have used keyboard interaction for my animation.

1)Press "N" to shift b/w day mode and night mode.

2)Press "T" to shift b/w Toon shading and Phong shading.

Creativity and animations(portrayal of cycle):-

I have implemented day and night mode. In the day mode, the user can either choose phong or toon shading. For the night mode, I have implemented a smooth and creative spotlight animation.