

**Project Proposal**

**COURSE TITLE – Computer Graphics and Multimedia Lab**

**COURSE CODE –** CSE 358

***Submitted To***

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# **Project Title:** Urban Life: Day & Night Simulation

## 1. Introduction

Urban environments are dynamic, with interactions between buildings, vehicles, pedestrians, and natural elements. This project simulates a small urban area with both traditional houses and modern buildings, featuring moving cars, pedestrians, birds, and clouds. The simulation also includes a **day and night mode** to enhance visual realism.

## 2. Objectives

* Visualize a 2D urban scene with buildings, roads, trees, and pedestrians.
* Animate dynamic elements: cars on roads, pedestrians crossing, birds flying, and clouds moving.
* Implement day/night mode toggle affecting sky color and sun/moon appearance.
* Provide a simple interactive simulation for educational purposes.

## 3. Scope

* Static urban structures: houses, modern buildings, trees, roads.
* Dynamic objects: cars, pedestrians, birds, clouds.
* Day/night visualization.
* Keyboard-controlled interactivity for day/night toggle.

## 4. Tools and Technologies

* **Programming Language:** C
* **Graphics Library:** OpenGL with GLUT
* **Platform:** Windows/Linux/Mac
* **Development Environment:** Code::Blocks, or similar

## 5. Methodology

* Initialize OpenGL and configure 2D orthographic projection.
* Draw static elements: houses (smaller roofs), modern buildings, trees, and roads.
* Animate cars, pedestrians, birds, and clouds with continuous position updates.
* Implement day/night toggle with keyboard input affecting sky and sun/moon.
* Use a timer function (glutTimerFunc) for smooth animation.

## 6. Expected Outcome

* A 2D animated urban scene showing interaction between moving cars, pedestrians, birds, and clouds.
* Day and night visual modes.
* Keyboard-controlled interaction for toggling between day and night.
* Educational demonstration of basic animation and urban life in OpenGL.

## 7. Conclusion

This project provides a **simple yet engaging urban simulation**, demonstrating 2D animation, interactivity, and environmental dynamics through day and night cycles.