

GEOMETRIC TRANSFORMATIONS

COMPUTER GRAPHICS PROJECT

Vaibhav Bajpai
Computer Science – 5th Semester

Overview

- **Introduction**
- **Project Description**
 - ▣ Objective
- **Technologies Used**
- **Screenshots**

Introduction



A **transformation** in elementary terms is any of a variety of different functions from geometry, such as rotations, reflections and translations. These can be carried out in Euclidean space, particularly in dimensions 2 and 3.

Transformations:

- Geometric Transformations
- Coordinate Transformations

Introduction



Geometric Transformations:

- Translation
- Rotation
- Scaling
- Reflection
- Shear

Project Description

■ Objectives:

The project uses an arbitrarily drawn triangle as a sample polygon to which the successive geometric transformations are applied.

Transformations Supported:

- Translation
- Rotation
- Scaling

Project Description

- Key Features:

- **32-bit C++ Compiler**

The project uses GCC instead of 16-bit Turbo C++ compiler extending the address space of the project beyond 16KiB to support high resolution as 800x600 to display polygons and preventing stack overflows in case of flood-fill subroutines that extensively use recursion to fill the areas.

- **Cross-Platform Graphic Library**

The project uses **SDL(Simple Direct Media Layer)** instead of **graphic.h** to implement low level pixel operations to allow the project to be easily ported across different platforms

Technologies Used

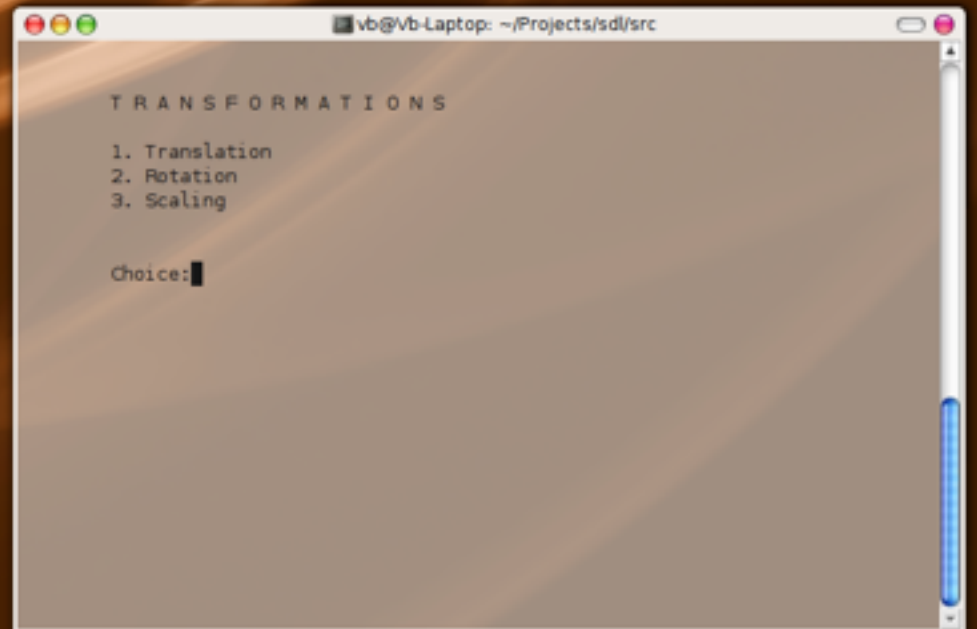
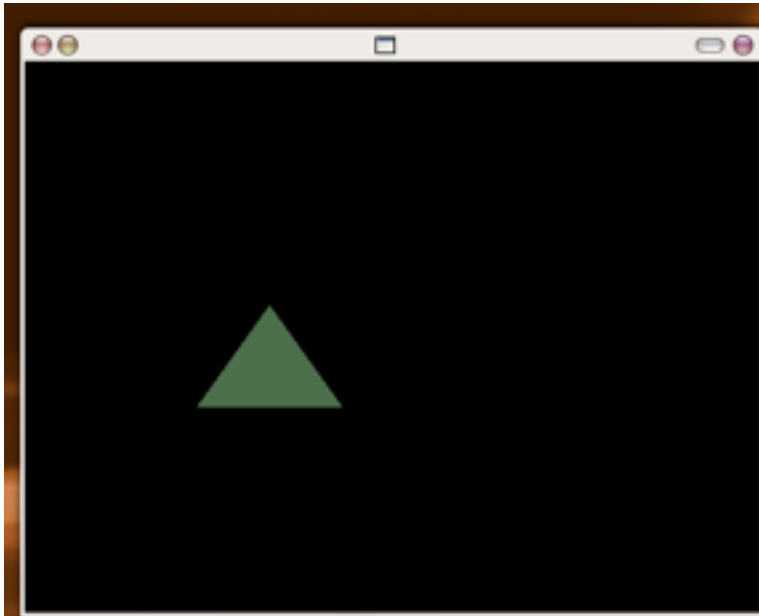


- **Language:** C++
 - **Compiler:** GCC(g++)
- **Graphic Library:** SDL(Simple Direct Media Layer)
- **Supported O/S:** Linux, Windows, OSX

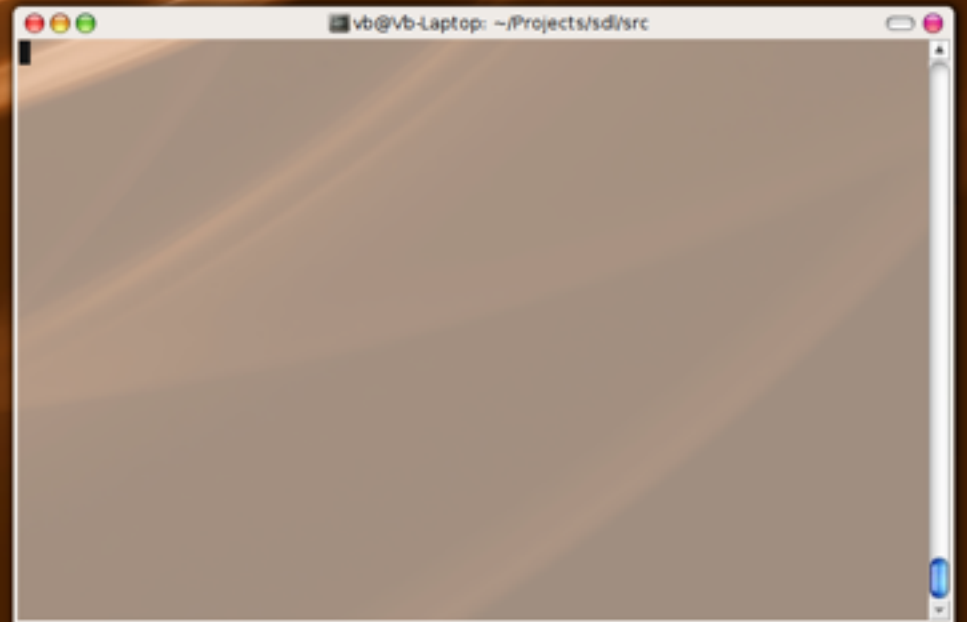
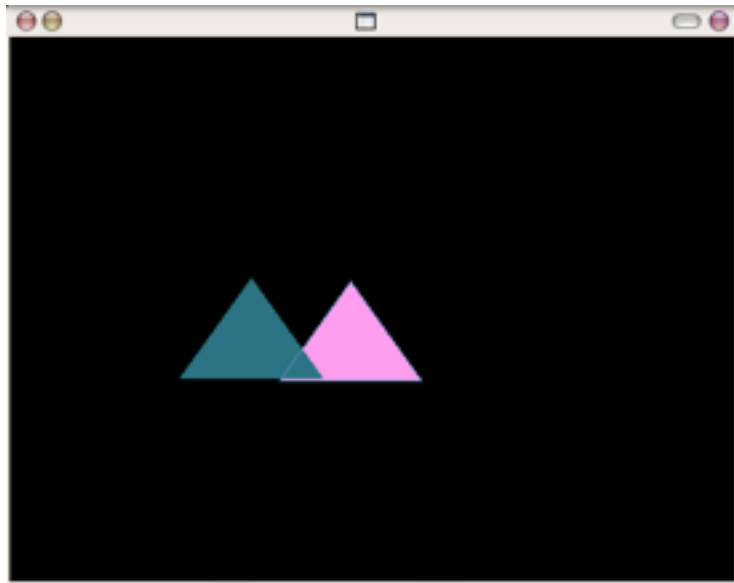
Simple Direct Media Layer

- Simple DirectMedia Layer is a cross-platform multimedia library designed to provide low level access to audio, keyboard, mouse, joystick, 3D hardware via OpenGL, and 2D video frame buffer.
- SDL supports Linux, Windows, Windows CE, BeOS, MacOS, Mac OS X, FreeBSD, NetBSD, OpenBSD, BSD/OS, Solaris, IRIX, and QNX.
- SDL is written in C, but works with C++ natively . SDL is distributed under GNU LGPL version 2.

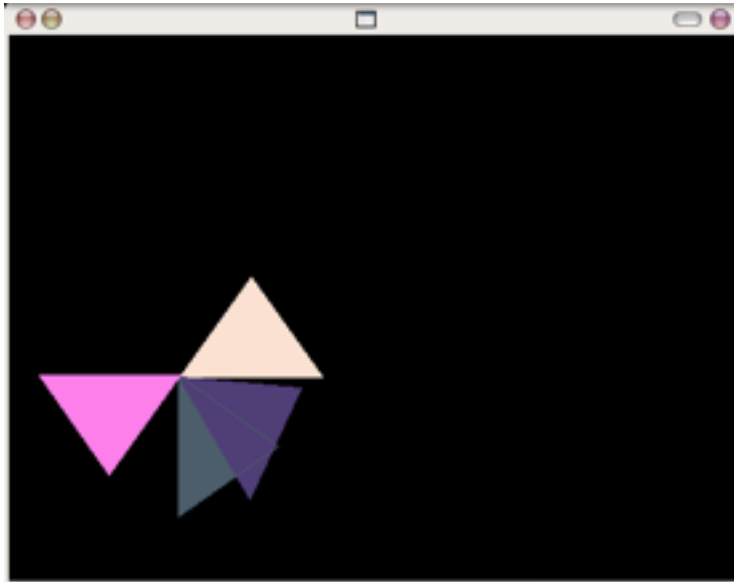
Screenshots



Screenshots



Screenshots



```
vb@Vb-Laptop: ~/Projects/sdl/src

TRANSFORMATIONS

1. Translation
2. Rotation
3. Scaling

Choice:2

Angle:60

Reference Point:120 240
```