Visualizations for Computer Graphics Concepts
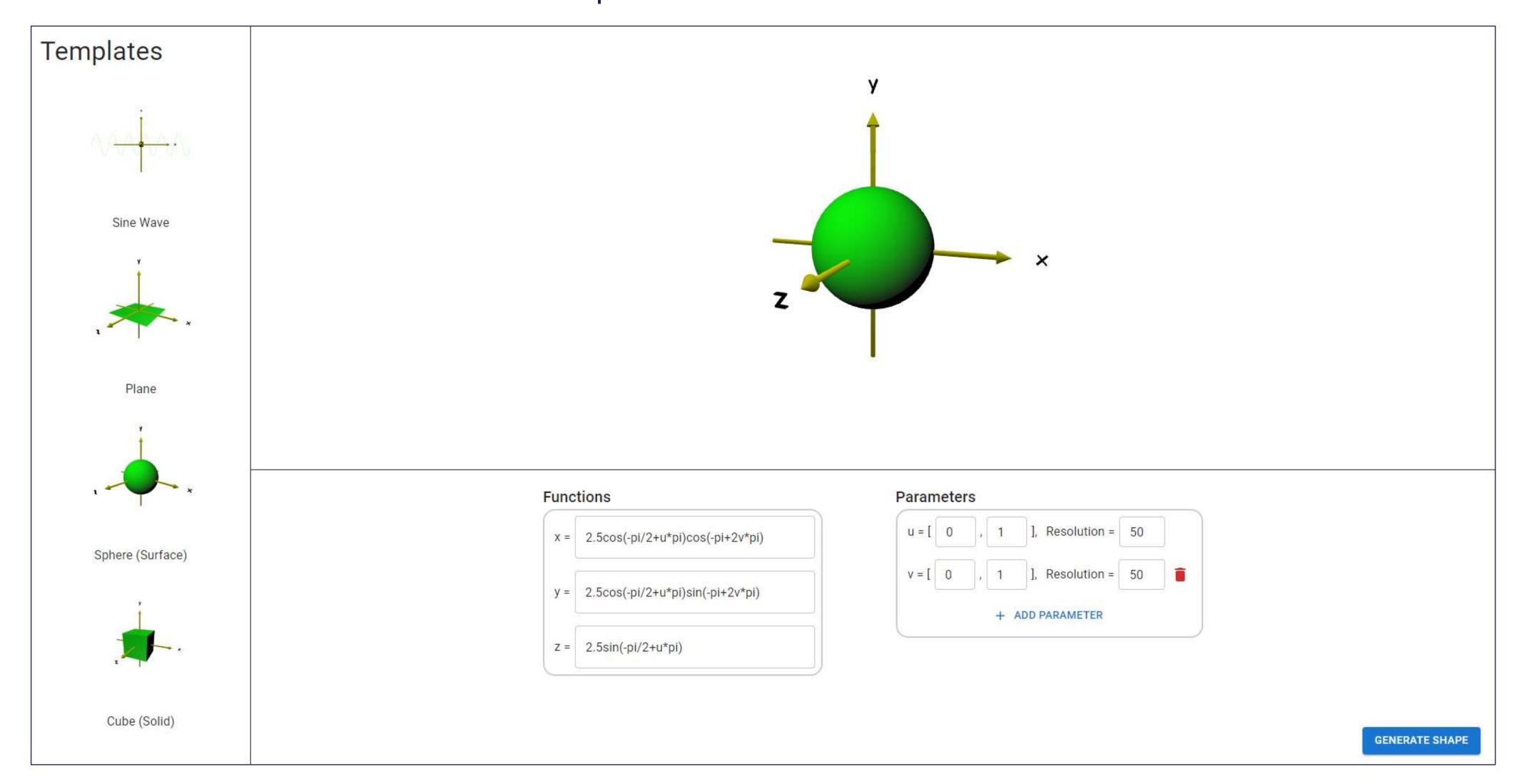
Student: Khairuddin Bin Ali   Supervisor: Prof. Seah Hock Soon

Templates

Sine Wave

Plane

Sphere (Surface)

Cube (Solid)

Functions

x = 2.5cos(-pi/2+u*pi)cos(-pi+2v*pi)

y = 2.5cos(-pi/2+u*pi)sin(-pi+2v*pi)

z = 2.5sin(-pi/2+u*pi)

Parameters

u = [0 , 1], Resolution = 50

v = [0 , 1], Resolution = 50

+ ADD PARAMETER

GENERATE SHAPE

Project Objective:

ShapeExplorer is a tool created to perform function-based shape modelling and visualization and is provided to students in NTU as part of the Computer Graphics and Visualization coursework project, and other related studies. This project aims to explore the feasibility of developing a web application to perform some of the same functionalities of ShapeExplorer on mobile devices while maintaining support for desktop platforms.

Parsing of functions:

2.5cos((-1/2+u)pi)sin(pi(2v-1))

ValueToken "2.5"

WrapperToken "cos((-1/2+u)pi)"

WrapperToken "sin(pi(2v-1))"

WrapperToken "(-1/2+u)"

ValueToken "pi"

ValueToken "pi"

WrapperToken "(2v-1)"

ArithmeticToken "-"

ValueToken "1"

ArithmeticToken "/"

ValueToken "2"

ArithmeticToken "+"

ParameterToken "u"

ValueToken "2"

ParameterToken "u"

ArithmeticToken "-"

ValueToken "1"