



**National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science**

Department of Computing

Computer Graphics

Class: BSCS

Assignment 2

Submission Due: Nov 25th, 2018, 11:50 pm

Instructor: M. Muddassir Malik



Assignment 2

Introduction

In this assignment you have to understand and implement the following concepts

- Drawing models
- Texture Mapping
- Camera manipulation

Objectives

- Learn to draw spheres or load spheres
- Learn texture mapping on spheres
- Create a full scale application

Tools/Software Requirement

- WebGL enabled browser and an appropriate IDE.

Problem Statement:

Create a basic version of Google Earth that is interactive. It should contain the following features

1. A texture of earth mapped on a sphere [5]
2. User can rotate, zoom-in and zoom-out [5]
3. If a user clicks on a location. It shows the longitude, latitude and altitude of that location. [5]
4. If user enables exploration mode and then clicks on a location, your system shows the highest point, lowest point, average altitude in a specified area around the click position. [10]
5. Add a “radar watch” that tells the user what is the best placement position for a radar in a given area. User can specify a rectangle and your program shows the best location for installing the radar. [20]
6. Add a globe narration. User inputs a list of locations with a description for each location. Your program then goes from one location to another and zooms-in into each location and display the description before moving on to the next position on a user event. Imagine showing the locations where the world cups took place since 1900, with brief description, or creating an educational video to teach continents to children. [30]



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7. Add an option to include an image with the description in part 6 above. [15]
8. Usability and giving a finished-product look and feel to the project. [10]

This assignment is easier than it looks. You will find out when you explore the libraries that there is a lot of things that are already built in.

You are free to use different libraries for this assignment. I encourage you to not use basic WebGL but a library built on top of it like THREE.js, or Cesium. Choose a library that will support the features that you plan to incorporate.

You can work in groups of three.

You also need to submit a document that specifies the features that were provided by the framework you chose, the sites that you used to gather data like textures, coordinates, altitudes and the challenges that you faced.

The following links might help you:

<http://www.webglearth.org>

<http://cesiumjs.org>

<http://asterweb.jpl.nasa.gov/GDEM.ASP>

Deliverables

Submit only ONE zip file on the given LMS link. Make sure to bundle all the dependent libraries in the zip file so your program is ready to run. Your file should be named as asg2[FIRST_NAME-FIRST_NAME].zip

Always submit 1 day before the deadline to avoid any last minute delays.