COMPUTER GRAPHICS SECTION: O

GROUP 1

GROUP MEMBERS

Name	ID
NAFINUR LEO	20-42195-1
ABIDUR RAHMAN NABIL	19-41607-3
ISTIAK MAHMUD TAMIM	19-41675-3
ZUBAIDA AKHTER	19-41541-3
ADETY SARKAR	19-41653-3

PROJECT TOPIC: VILLAGE SCENARIO

SUPERVISED BY: MD. KISHOR MOROL, LECTURER, AIUB

INTRODUCTION TO THE PROJECT

Our project is mainly based on a village scenario. We wanted to demonstrate a look of a village in a simple manner. The scenario contains different types of objects such as houses, trees, windmill, hills, river, boats, Christmas tree, sun and etc. The scenario also changes as time progress with three different effects for example sunny day, rainy day and night view. We wanted to use all of our knowledge gained through the course in our project. The project is based on opengl and glut we used mostly the primitive functions and algorithms to complete the project.

PROBLEM STATEMENT

Our project is mainly scenario based. And the scenario is based on a normal village with 3 types of views of it. The scenario should also contain different type of objects. We wanted to draw the village because we wanted to show the things a village can contain and how they change as the views change. The problem needs to be solved by the OpenGL API and glut's different library function and algorithms which has been learned on the theory classes.

OBJECTIVE OF THIS PROJECT

The object of this project is to demonstrate a village scenario and through that scenario-based project we wanted to show all the algorithms and theory topics we learned throughout the course. The whole project should reflect our learnings throughout the semester and it should contain all the topics implementation in a way in the project. The project will solidify how much familiar are we now with the opengl api and the glut library functions and the algorithms which computer graphics coding have.

METHODOLOGY

We used the opengl API and glut library to complete this project. We used different type of library functions to complete this project and those are demonstrated below:

Primitives Used

- GL_POLYGONS
- GL_LINES
- GL_POINTS
- GL_TRIANGLE
- GL_TRIANGLE_FAN
- GL_QUADS

NECESSARY FUNCTIONS USED

- glvertex2f -> For plotting the points
- glpushMatrix -> copies the top matrix and pushes it onto the stack
- glpopMatrix -> pops the top matrix off the stack
- gltranslatef -> to move the object in an axis
- glrotatef -> to rotate the object clockwise or anti clockwise
- gluttimerfunc -> to move the object at an interval
- glutPostRedisplay -> marks the current window as needing to be redisplayed
- glutIdleFunc -> sets the global idle callback to be func so a GLUT program can perform background processing tasks or continuous animation when window system
- glcolor3ub -> for coloring the object
- handleKeypress -> for handling the keyboard interaction
- handlemouse -> for handling the mouse interaction

HEADERS USED

- math.h -> for the math functions

We also used:

- Translation
- Rotation

They were used on different objects for reusing them.

These demonstrated functions, headers and primitives are must to complete this project there are also many more functions which were mostly pre-defined. Lastly, we also used Circles and Clouds which were drawn using different algorithms and they did not need any special functions.

SIGNIFICANCE OF THIS PROJECT

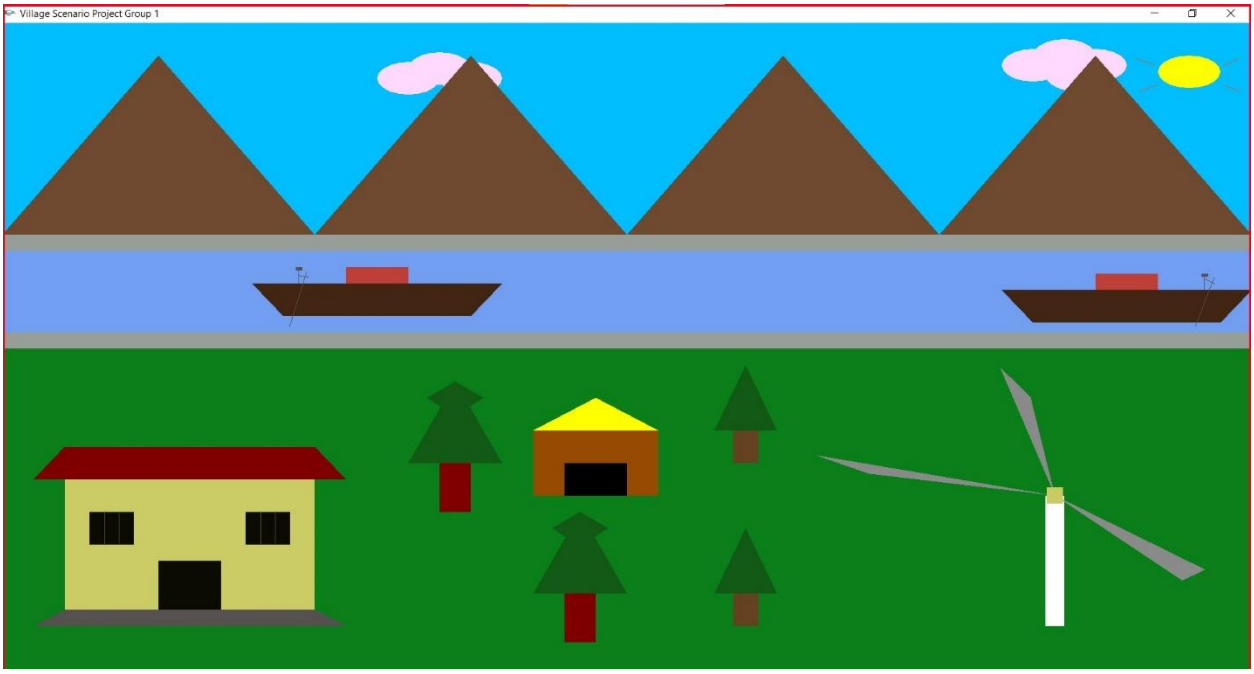
This project was very significant to demonstrate our learnings. As we were taught different topics of computer graphics and opengl we needed to apply all those learnings in to a greater something. So, we applied all of those learnings in our project. With the project we were able to learn about different primitives of opengl, different functions of opengl and when and how to use them and what is their workings. We also learned about different algorithms which we learned throughout the course. Overall this project was very essential for our learnings.

CONCLUSION

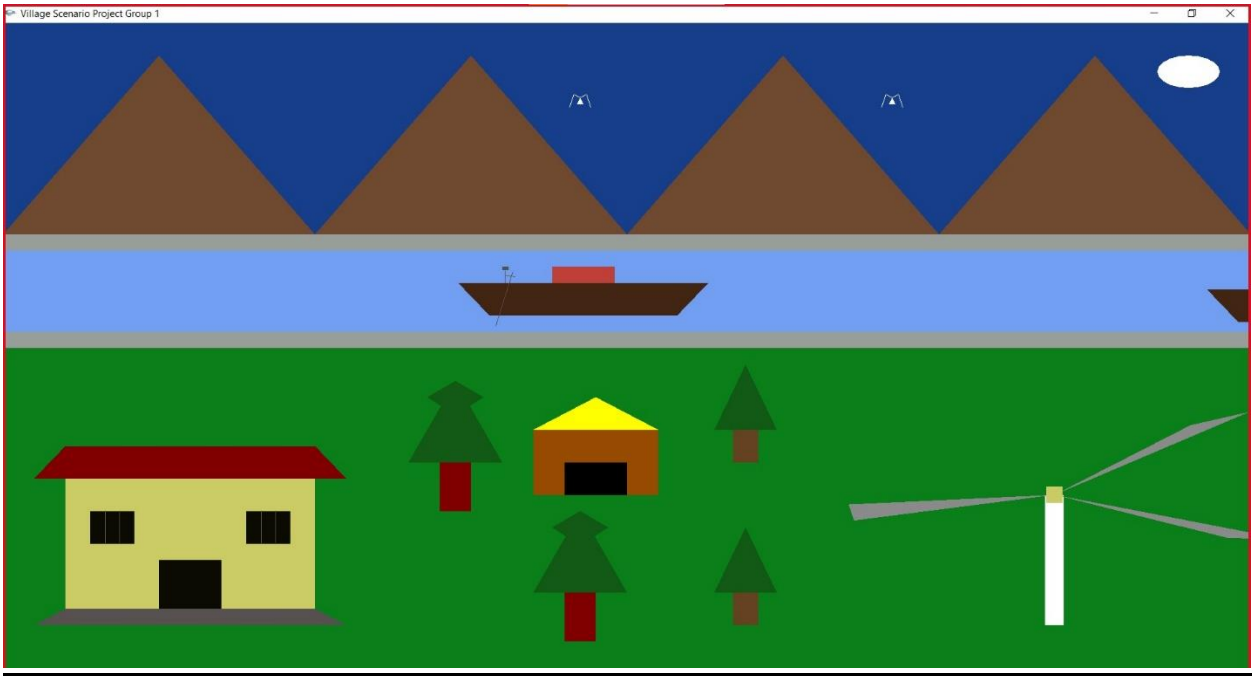
The project was about a village scenario with different types of views. We used different types of functions and primitives to do our project and this project was very important for our learnings. During the completion of this project we faced some difficulties but we solved it as time progressed and we were able to get the output as we wanted. We tried our best to include all the things we learned in the course in this one project. In the end it can be said that this project helped us to get a greater understanding on the computer graphics course.

SCREENSHOTS

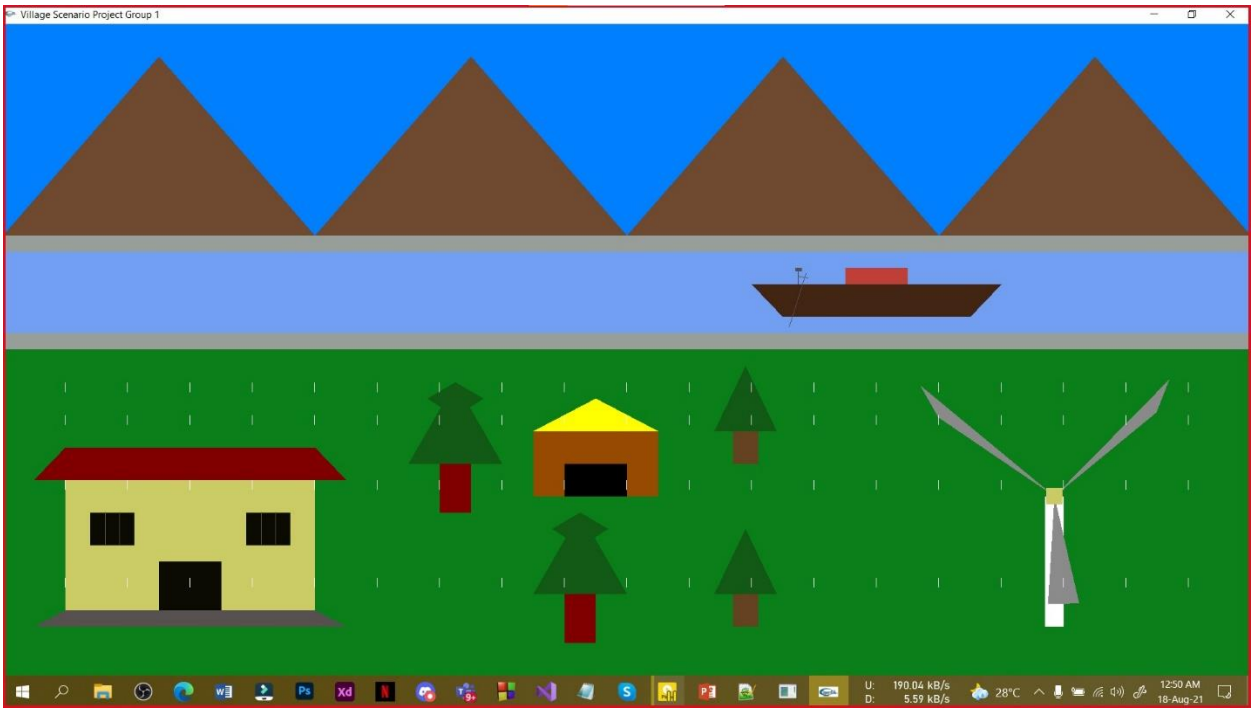
DAY VIEW



NIGHT VIEW



RAIN VIEW


Village Scenario Project Group 1
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