Title: Implementing a Project (BOAT AND AEROPLANE).

***Description***:

* This is a basic experiment to study computer graphics.
* This project consist of following details:-
* It has two modes: BOAT and AEROPLANE.
* For switching to any of the Scenario make use of following keys:

F12=AERO PLANE SCENARIO.

F11=BOAT SCENARIO.

1. ***BOAT***

* In boat project, the scene is taken as an evening sunset initially.
* This scenario is made by using two polygon, one for sea and other for sky.
* Color of sky is changed by using the keyboard keys manually.
* Where sun falls from top to bottom with the help of manual commands (refer project).
* Boat has been translated from left to right with the help of translation function.
* As the boat moves from left to right, its size can be changed with the help of scaling function which is manually operated.
* As soon as sun sets at the bottom, moon rises with the same function used for settling of the sun.
* Half sun on the surface of sea is shown by using a user defined function(refer project).
* It reach at a particular distance and get stable.
* Timer function is used to manually reset all the transformations at its original value.
* Push & Pop matrixes along with matrix mode helps to do all individual transformations separately.
* User can manually make a star fall on the screen by using keyboard keys which will be given below (this is done by using Rotation function which rotate star about origin by 0, 0, 0).
* Multiple blinking stars are shown in the sky with the help of a function defined in the project (refer project).
* Following are the keyboard keys and their function in Boat project:-

1. ***Mouse left*** => Night mode.
2. ***Mouse right*** =>Day mode.
3. ***F5*** => scale to make object larger.
4. ***F8*** =>scale to make object smaller.
5. ***F6*** =>increase speed of sun fall and moon rise (long press F6).
6. ***F7*** =>decrease speed of sun fall and moon rise (long press F7).
7. ***F9*** =>Star fall from the sky (long press F9).
8. ***AERO PLANE***.

* In Airplane mode, the scene is taken as an airport scene.
* This scenario is made by using two polygons, one for runway and other for sky.
* Color of sky is changed by using the keyboard keys manually.
* In this scenario, aero plane takes off from a runway into the sky with the help of translation function.
* Size of aero plane can be manually changed during flying, this is done by using scaling transformation and translation together which are manually operated.
* A pair of birds flying in the sky gets smaller as they land up on the road, this is done by using scaling and translation together which are manually operated.
* Mountains shown in the background are done using triangle strip as shown in the project.
* “***Sun***” which is seen in the morning gets converted to “***Moon***” when the mode is changed from day to night.
* Push & Pop matrixes along with matrix mode helps to do all individual transformations separately.
* Timer function is used to manually reset all the transformations at its original value.
* Multiple blinking stars are shown in the sky with the help of a function defined in the project (refer project).
* Once aeroplane reaches 100 distance, car starts moving.
* Following are the keyboard keys and their function in aero plane project:-

1. ***Mouse left***=> Night mode.
2. ***Mouse right*** =>Day mode.
3. ***Up arrow key*** =>increase speed of aero plane (**translation**) and make it smaller (**scaling**).
4. ***Down arrow key*** =>decrease speed of aero plane (**translation**) and make it larger (**scaling**).
5. ***Left arrow key*** =>rotate moon/sun towards left (**Rotation**).
6. ***Right arrow key***=>rotate moon/sun towards right (**Rotation**).

***Conclusion***: The project of performing various transformation and operations is implemented and studied.

***THANK YOU***