

Graphics- Assignment 2

Jet Fighter Plane Game

Steps for running the game-

- mkdir build
- cd build
- cmake .../
- make all
- ./graphics_asgn1

Controls-

- Speed up- W
- Tilt left and right- Q & E
- Roll clockwise and anti-clockwise - A & D
- Pitch up and down- Z & X
- Shoot Missiles- M or MOUSE BUTTON 1
- Drop bombs- B or MOUSE BUTTON 2
- Plane View- 1
- Top View- 2
- Tower View- 3
- Helicopter view- 4
- Exit- Esc or P
- Barrel Roll- L

Bonus

1. Barrel Roll on pressing L key
2. Functioning compass

- One of the important primary objects in the world will be the fighter airplane, which the player will be guiding through the land and sea obstacles located beneath to the final checkpoint to mark the obstacle course “completed”. The plane will have the capability to hover(not move but stay in the air), rise upwards and go downwards, go forward, turn left and right, tilt left and right and then of course, shoot missiles and drop bombs.
- Airplane dashboard. This will be displayed on the game screen in the bottom left corner. The dashboard must display the speed, current altitude and fuel remaining. This need not be textual but can be pictorial(like fuel bar or something). Zero fuel or zero altitude(hitting the ground) will result in crashing.
- The obstacle course will be divided into multiple checkpoints. The plane will be guided towards a checkpoint with the help of a shiny red arrow, pointing to the checkpoint just beneath it. This arrow must be visible from far far away even if the actual checkpoint isn't visible. Upon achieving that checkpoint the arrow will be updated according to the succeeding checkpoint. This arrow will help the player navigate through the obstacle course.

- Enemy cannons will be located on ground at each checkpoint attacking the player airplane. The fighter plane needs to destroy those enemy hideouts using missiles and bombs in order to mark that checkpoint completed and get the direction for next checkpoint.
- Random rings of smoke in the air, passing the airplane through which will guarantee bonus points for the player.
- Fuel ups on the way will guarantee that player has the opportunity to refill his tank for the long battle ahead.
- Volcanoes upon the islands beneath, a complete NO-FLYING-ZONE for the player. The game will end as soon as the airplane comes too close to the proximity of a volcano.
- Shooting enemy parachutes flying in the air is another way to earn some more points apart from the ones generated by the regular flying time. Missiles installed in the airplane could be used to shoot the flying targets ahead.

Camera Views

- Plane view: This is a view from the plane's position where only a part of the world in front is visible. In other words, in this view, we see what the plane sees, as if we were the plane.
- Top View: This is a top-down view, as if we were looking vertically downwards from a position in the sky. This gives a clear picture of the path.

- Tower view: Here, the camera is sitting on a tower, to the side of the plane of playing, observing it at an angle.
- Follow-cam view: This is a view of the plane and the region in front of it from a location behind and above it, as if the camera is following the plane.
- Helicopter-cam view: Here, the camera is movable with the mouse in an intuitive manner. Clicking and dragging should change the look angle, the up vector should remain up always, and the scroll wheel will move the camera closer or farther away from the scene. up vector should remain up always, and the scroll wheel will move the camera closer or farther away from the scene.