

## **Project report:**

### *Space War Game*

#### **Introduction:**

The Space War Game is an arcade-like game also done in Python with the Turtle module. The game objective is to control spacecraft and make them destroy the enemies while not hitting either the enemies or the allies.

#### **Features:**

##### Game Environment Setup:

The game environment is created using the Turtle module, which is a simple graphics module for the creation of games and simulations.

It is now the background color of the game window which is black and a background image is loaded via the bgcolor() and bgpic() functions, respectively.

To gain the maximum animation speed for the smooth movement of sprites, the animation speed is set to the maximum.

The default turtle is concealed and memory optimization techniques are used to improve the performance.

##### Sprite Classes:

The Sprite class is created to represent various elements in the game such as the players spaceship, the bad guys, the friends, missiles, and particles for explosion effects.

The turtle class appears to be the main parent class for all sprites. Turtle class is implemented and the class is provided with specific attributes and behaviors.

The classes handling sprites already have functions, which will implement the movement, collision detection and other actions for their role in the game.

##### Game Logic:

The game class keeps track of basic game information, such as the player's score, lives left, and the current level.

The game area is surrounded by a border, which is drawn by the draw\_border() method.

A keyboard is used to control the spaceship by pressing the left/right keys to rotate it, and accelerating/decelerating by keying up or down.

Enemies and allies appear randomly anyplace in the in-game background.

The game is constantly updated, it checks for the collisions between the sprites and does the necessary actions.

Score is updated to increase with collision and show explosion effect when the missile hits the target.

### **Conclusion:**

Space War Game shows how to apply Python and Turtle library features to create a simple arcade-style game with amateur graphics and fair game logic. Player can maneuver a space ship with the sole purpose of taking out opponents and overcoming frustrations of crashing into friendly troops. The game consists of many elements like keyboard controls, collision detection, scoring, and sound effects, which make the game very interesting. Such interesting add-ons could include the addition of new levels, power-ups, or some other gameplay features which would make the game more difficult and engaging.