**Team Name:** **Optimistic Geeks**

* Name of group members:

BHUSHAN SURJUSE

ANUSHREE BHURE

1. Topic of the Game: CAR GAME USING PYTHON
2. Learning objectives of the game:

* To Understand game development using python.
* Gain an understanding and apply various methods, event handlers, functions on real world scenario.
* Have an appreciation of different modules of Python such as pygame, random, time…etc
* Enhance self-learning and problem-solving skills to a great extent.
* Explore the various modules, libraries, functions in python and its strategies depending on problem statement.

1. Proposed Technology for the game development:

We had build out game using Pygame module of Python and some of it’s different Libraries and Pycharm software for developing the game.

1. A few details about the game:

Name of the game: Car Game

Steps used while developing game:

* First of all, we have to install pygame using ‘pip install pygame’ in the terminal of PyCharm
* After that, we have to import pygame in the .py file where we are writing the code for the development of game.
* Pygame.init() method is used to initialize all the required module of the pygame
* **pygame.display.set\_mode((width, height))  is used to display a window of the desired size. Return value is a surface object which is the object where we perform graphical operations.**
* **pygame.event.get(): This should be called or else the game will become unresponsive.**
* **Pygame.quit() is used to terminate the event when we click on the close button at the corner of the window.**
* **Screen is created using specified width and height**
* **Blit() is one of the important method used in the game to draw the objects on the screen.**
* **Different pygame keys are used like KEYDOWN, KEYUP where KEYDOWN detects the key press and KEYUP detects the key release. Many more keys are used to give the functionality when we press the arrow keys from keyboard.**
* Pygame.draw.rect() is used to draw rectangle on the surface
* Pygame provides no way for directly drawing text on the existing surface

-for adding the text on the surface we use render() method inside the pygame.font module

-render method will create a image of the text or the surface the text(a text image)

-then using blit method we can display the text as image

* **pygame.font.SysFont()** function is used to load the default fonts from the system i.e. in-built fonts can be loaded. These function is used to display various details about the game to the user.
* Sys module was also imported which was used to exit from the game when user presses quit button(sys.exit())
* Clock.tick() is used to slower down the movement of the car(in the game) i.e. tick() can be used to slower down the functionality.
* We have used different button in the game like START, INSTRUCTIONS, QUIT.
* The user can pause the game as well when it is running.
* Different cars are used as obstacles i.e. enemy cars in the game.
* Score gets updated as the user plays and the level gets updated after the user crosses 90 score mark.
* Also, when the player car crashes with the enemy car; then crashed message comes and the game stops. The game resumes after 5 seconds automatically.
* Countdown timer is added so that the player can start playing the game as soon as the timer expires.

Various activities player has to perform:

* First of all when we run our game we will get a game screen that is our home screen(dashboard) of our game where player have to click one of those three buttons(start, instruction, quit)
* If player click on the start button the game will start, if it clicks on Instruction button it will render us to Instructions page where all the instructions about the game is given like which key to press for moving right,left and all then there is a back button that takes us to previous screen. After clicking the ‘quit’ button the game stops and the game screen vanishes.
* If a player starts the game then it will take to main gaming screen where player has to dodge from incoming cars.
* On Top left side score will appears if you crossed one car without crashing it you will get 10 points and it will go on increasing as many number of cars you passed without crashing, also there will be mention that how many cars the player has dodged. Player has to use left and right arrow keys for controlling the car.
* On top right hand side there will a pause button after clicking that the game is paused and it will takes us to pause screen where there will be 3 buttons(continue, restart, mainmenu). Continue button will continue the game, Restart button will restart the game and mainmenu will takes us to home page where those 3 buttons(start, instruction, quit) are present.
* Using arrow keys player can dodge from incoming cars, if player dogged 7 cars the he will enter in the “Leve1” where incoming car speed in increased by 2 units, at each further levels incoming cars speed will be increased and the possibility of carshing car will also be increased.
* If you crashed it will show message that “YOU CRASHED” then it will automatically paused for 3 seconds. After 3 seconds the game will start again.
* Player can click the Pause button to pause the game, then can continue, restart or the game anytime he wants.
* Player can increase the speed of the car and also take the car backwards.  
  Press ‘A’ for increasing the car’s(of player) speed by 60 ticks if you press that ‘A’ 2 times the it’s speed will increase again by 60 i.e now the speed will become 120 ticks. Press ‘B’ for Break or press multiple for moving backwards.

**Git-hub Repository Link:**