



***SHIV ASHISH SCHOOL***

**COMPUTER PROJECT**

**ON**

**“PYGAME”**

**TOPIC :** ***Pygame***

**GROUP :** ***Dev Radadia* *and* *Dheer Banker***

**CLASS :** ***XII (Science)***

**BATCH : *2020-21***



Index

1. Project Structure and Salient Features
2. Procedural Design
3. Game Logo
4. Game Screenshots
5. Modules Used
6. Functions Used
7. Limitations
8. Bibliography

# ping-pong-xiiProj

PingPong - A project made by Dev Radadia and Dheer Banker

The aim of the project is to create a ping-pong game with basic 1v1 options and a smooth, intuitive gameplay.

Salient Features:

1) The project is divided into 5 packages:

i) image - Contains the images used in the project

ii) r - Contains the screen-wise strings, resources and font styles used in the project

iii) screens - Contains the logic for every screen in the project, with a module for every screen

iv) sound - Contains the sounds used in the project

v) sprites - Contains the different pygame drawables that have been used frequently in the project, like ball, paddle, button, etc.

2) All the GUI Elements in the project are developed solely using pygame, from scratch, in order to keep a consistent GUI

3) The project also includes various sounds in it, which are played, for example, when a button is clicked, or when the ball bounces.

4) There are a total of 6 screens in the project

i) About - Tells the user about the developers and the basic controls of the game

ii) Main Menu - The main screen that has options to go to the other screens.

iii) Player Names - Where players can enter their names and choose their colours

iv) Game - The game screen, where the players play.

v) Pause - The screen which comes up when players choose to pause the game

vi) EndGame - The screen which declares the winner of the game just played

5) All the screens are then bound and controlled using "The Game.py", the main controller code of this project.

Procedural Design

1. To start the application, click on **The Game.py** or run **The Game.py** via a Python console.
2. The main screen appears, which has three options:
   1. **Start**: Takes the user to the **Player Names** screen (details mentioned below).
   2. **About**: Takes the user to the **About** screen, which contains information about the project and its basic controls.
   3. **Quit**: Exits the application.
3. **Player Names** screen: Here, the players can set their respective names and choose their colours (default White). From here they can either **Return to Main Menu** or press **Enter** to move to the **Game** screen.
4. **Game** screen: After an initial countdown from 3 to 1, the game starts. Players can:
   1. Move their paddles using the respective controls (mentioned in **About** screen).
   2. Pause the game using the **Pause** button or by pressing **P**.
   3. Go to the main screen by pressing **Esc**.
5. **Pause** screen: Shows the current scores and has the options to **Resume, Return to Main Menu** or **Quit**.
6. **Endgame** screen: The screen which follows when the game ends, showing the winner’s name, and the options to **Play Again, Return to Main Menu,** or **Quit**.

***The possible screens and transitions are shown in the image below***

Game Logo



Screenshots













# Modules Used

1. pygame
2. r.about
3. r.colors
4. r.endgame
5. r.font\_size
6. r.game
7. r.main
8. r.pause
9. r.playernames
10. screens.about
11. screens.endgame
12. screens.game
13. screens.main\_menu
14. screens.pause
15. screens.playernames
16. sprites.Ball
17. sprites.Border
18. sprites.Button
19. sprites.Label
20. sprites.Paddle
21. sprites.PauseButton
22. sprites.Textbox

# Functions Used

1. main
2. start\_menu
3. player\_details
4. start\_game
5. pause\_game
6. launch\_endgame
7. launch\_about
8. \_\_init\_\_
9. show\_menu
10. showAbout
11. setAboutText
12. setDisplay
13. PlayerNames
14. handleColorClick
15. getPlayer1Name
16. getColor1
17. getPlayer2Name
18. getColor2
19. setColorButtons
20. playersReset
21. gameReset
22. collides
23. play
24. countdown
25. setGameObjective
26. setMovables
27. setPaddleMargin
28. setPaddleSpeed
29. setBallResetMargin
30. setBounceBias
31. setPlayer1Name
32. setPlayer2Name
33. setBounceAcceleration
34. setPlayerColors
35. getWinnerColor
36. getWinnerName
37. getScores
38. pause\_game
39. setScores
40. setWinnerColor
41. setWinnerName
42. showEndScreen
43. bounce
44. same\_dir
45. crossed
46. ballReset
47. update
48. setResetMargin
49. setBallSpeed
50. getXSpeed
51. moveUp
52. moveDown
53. rectangle
54. draw
55. test\_surface
56. image
57. rect
58. setHighlightable
59. stayHighlighted
60. staysHighlighted
61. getTextRgb
62. handle\_event
63. define\_event
64. getText
65. setText

Limitations

The limitations of the projects are:

1. No option to play against the Computer
2. No option to change the Theme of the project
3. No option to turn off the sounds
4. The project screen cannot be resized
5. No leader-board maintained
6. Joysticks not supported
7. No settings screen present
8. No other game modes like Infinite Play, Timed Play etc.
9. To be continued…

Bibliography

1. <https://www.pygame.org/docs/>
2. <https://docs.python.org/3/>
3. <https://www.geeksforgeeks.org/>
4. <https://pythonprogramming.net/pygame-python-3-part-1-intro/>
5. NCERT Class-XII Computer Sciences book