

# AIM

The aim of our game **Tartarus** is-

1. To develop a fun way for players to test their intelligence, problem solving skills, motor skills and quick response.
2. To make the game as user friendly, interactive and fun as possible.
3. To gain deeper understanding of the Python programming language and its modules.

# INTRODUCTION

The name of our game is '**Tartarus**'. It is a single player role-playing game which is developed in Python 3.x using its module pygame. The fundamental ideas and inspiration are taken from the game 'Dangerous Dave' developed by John Romero. This game is a good source of entertainment where the player has to rely on his decision making skills and motor skills.

The game extensively uses pygame functions, features of python such as loops, conditional statements, class, functions, etc.

We tried our best to make the game visually attractive, user friendly and exciting. We hope that the player has an exciting and nail biting experience playing our game.

# BASIC PRINCIPLES AND WORKING

## **Basic Principles:**

In the game the player has to go through 5 levels by avoiding monsters and other opponents, collecting coins, treasure, etc. When the game starts, the main menu will be displayed and the player will have to start from level 5, which is at the bottom of hell and make his way to the surface by clearing all the levels. There is a timer with a 90 seconds countdown, in this time the player has to reach the exit to move on to the next level. The player will have 3 lives throughout the game.

After the first level is defeated the player will have won the game and reached the surface.

## **Working:**

The game is set up and run using Python module named 'pygame'.

There are 2 files where one contains the main menu code and the other one contains the main game code.

Arrow keys can be used to move the character in the game in all four directions.

Mouse can be used to select start, quit, options, pause, menu, back, instructions and help buttons.

Space bar key can be used to unpause the game.

The functions of enemies, player, coins, treasure, portal and door sprites, etc. are defined in user defined class objects.

All this is done with the help of pygame functions and user defined class objects.

# ALGORITHM

- Step 1 : Display Menu screen
- Step 2 : If choice is play. Step 8 is executed.
- Step 3 : Else if choice is options, Display options window.
- Step 4 : If choice is help, Display Help window.
- Step 5 : If choice is instructions, Display Instructions window.
- Step 6 : If choice is quit, exit from game  
And return to Windows
- Step 7 : Repeat steps 9 to 15 till life = 0.
- Step 8 : Run the game window.
- Step 9 : Display Player, Enemies, Score, Coins and Treasures.
- Step 10 : Move the player, Collect coins, Complete the level.

- Step 11 : Display next level screen.
- Step 12 : If choice is menu, Step 1 is executed.
- Step 13 : If choice is pause, Display pause screen.
- Step 14 : Press Spacebar to continue.
- Step 15 : If player comes in contact with Enemy, life: -1
- Step 16 : When life = 0. Display end screen.
- Step 17 : If player completes 5 levels, Display win screen.
- Step 18 : End

# **LIMITATIONS/ POSSIBLE MODIFICATIONS**

Games are a product of imagination and imagination has no limit. We have tried our best given the time constraint to bring this game to its best. In spite of this, there exist some limitations and areas which have scope for further development.

1. Player can only move through arrow keys  
This decreases efficiency.
2. The rect() function of pygame sometimes creates glitches among the entities.

## **Possible Modifications:**

1. More levels can be added.
2. New features including high score and projectiles can be added.

# SYSTEM REQUIREMENTS

## HARDWARE:

1. 1 Gb RAM
2. 1.5 Ghz Processor or higher
3. 30 mb storage space
4. Mouse and Keyboard

## SOFTWARE:

1. Windows 7 or higher or Ubuntu 18.04 or higher
2. Python 3.1 or higher



# CONCLUSION

**Tartarus** was an extremely challenging project to undertake as there were so many elements in this project. Even though it was a challenging task, we really enjoyed working on it and it has helped us gain a broader and deeper understanding of the Python programming language and its pygame module.

We have gained a lot of experience from this task such as teamwork, programming knowledge, time handling, etc. which will definitely help us in our future projects and endeavors.

We wanted to add more elements to the project and make it more visually appealing but we are very satisfied with our work.

If you come across any bugs or suggestions we would be more than happy if you informed us.

We hope you have a wonderful experience playing **Tartarus**.

# REFERENCES

1. <https://www.geeksforgeeks.org/>
2. <https://www.pygame.org/>
3. <https://www.youtube.com/channel/UCPrRYOS-VzokrJK7I7F4-Mg>
4. <https://www.youtube.com/c/ChristianDuenas>