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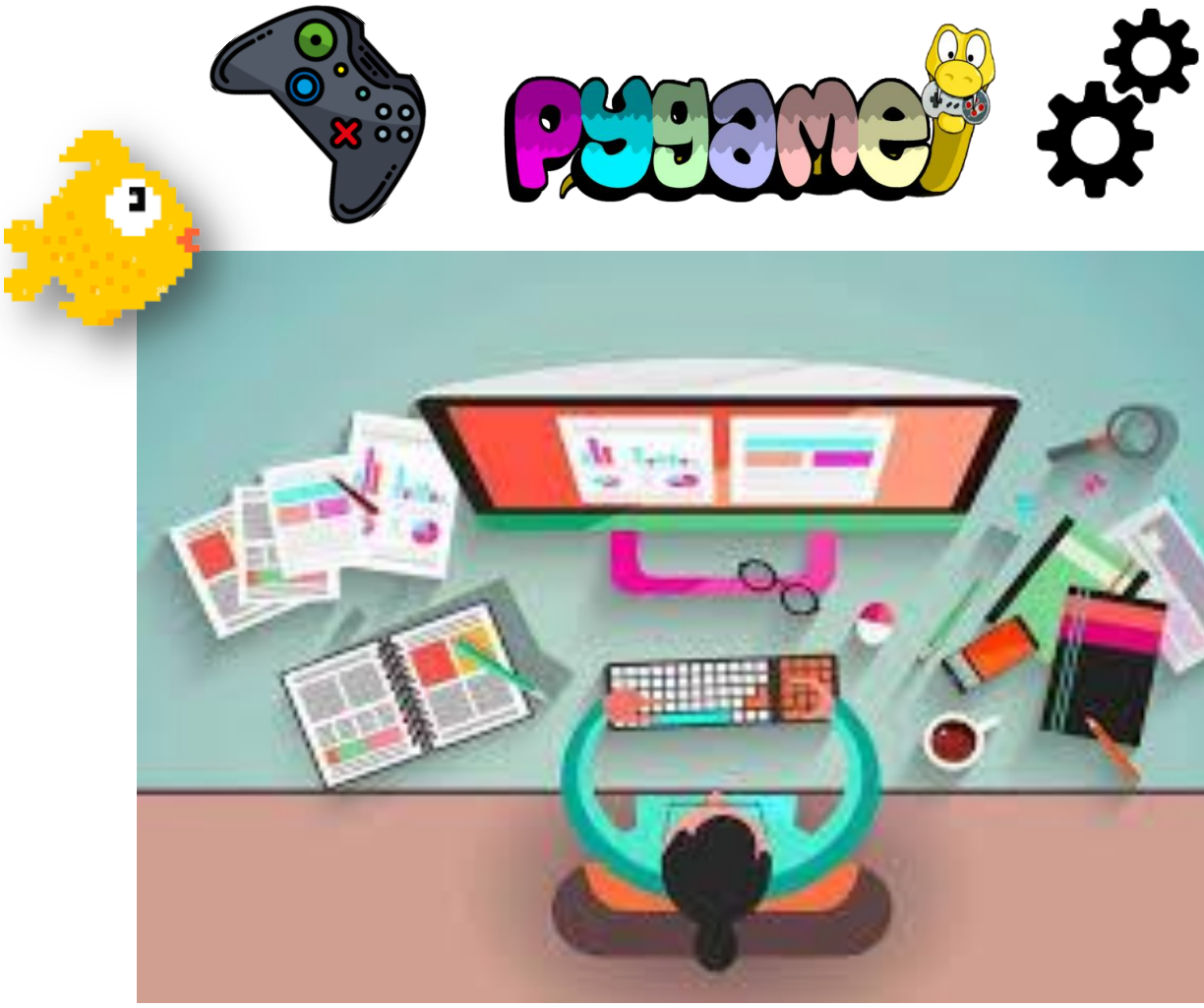

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# Underwater Adventure (Pygame)

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# Introduction

“Underwater Adventure” is a basic 2D game which is going to be made by using Pygame. Basically, Pygame is a set of python modules which can be used to design simple 2D games easily. Pygame is cross-platform module meaning the codes written in Pygame can run in any platform that supports Pygame without worrying about running into any complications. It is also open-source module with built in SDL which stands for Simple Direct Media Layer. Pygame is very efficient for game development as it does not require the programmer to worry about the complex backend problems that comes with video and audio (["PyGame: A Primer on Game Programming in Python – Real Python", 2021]).

As stated above, this project is going to be made by using Pygame. "Underwater Adventure" is a game inspired by popular game called "Flappy bird" which is known for being extremely hard game. "Underwater Adventure" is set in an ocean that follows a fish that has to dodge the obstacle which in this case are green pipes which appears on the top and bottom of the screen. Every time the fish passes through the pipes successfully, the player is awarded with a point and the goal of the game is to get as much point as possible and get on the top of the leaderboard.

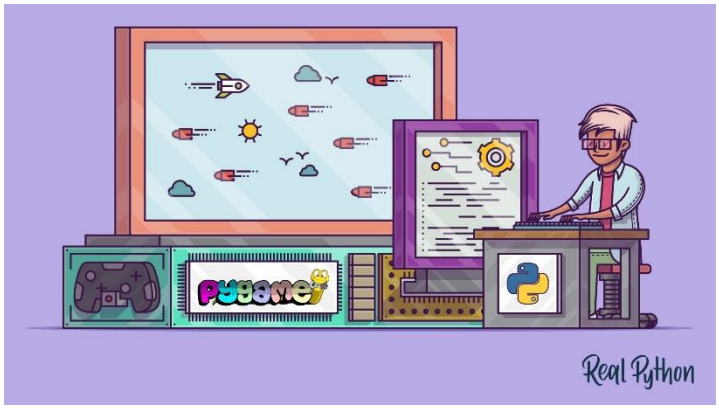

*Figure 1: Pygame Project Reference*

# Aim

Learn Pygame in depth and create a simple game.

# Objectives

- Understand the python language in more advance level.
- Create easy and simple game using Pygame.
- Implement database into the game with CRUD.
- Make a simple but compelling UI.

*Figure 2: Objectives*

- Make a busy person rid of their stress with the game.
- Make profit by selling the game to a corporate company.

## Features

- The player can pause the game in middle and return to it whenever ready.
- The player can see their points on top middle of the screen.
- To make the game more competitive, a leaderboard is designed with the name of highest scorers.
- The player can also search for their name in the leaderboard which allows them to see their placement easily.
- Multiple people can play in a single device with their own unique username.
- A player can delete or edit their profile.

## Functional Requirements

- A player should be able to login or register before the game.
- Space button should be used to control the fish.
- If the fish passed the obstacle, the player should get a point.
- If the fish collides with the obstacle, the game ends.
- The final score should be displayed at the end screen.
- Logging into the game should require a form of authentication like password protection in order to prevent a player from messing up someone else's profile.

## Non-Functional Requirements

- The average frame rate of the game must be at least 30 fps.
- A player should not have to click more than a couple of times to complete a simple function like deleting an account.
- The must be able to run in windows-based computer.
- The written code should be easily maintainable.

## Scope

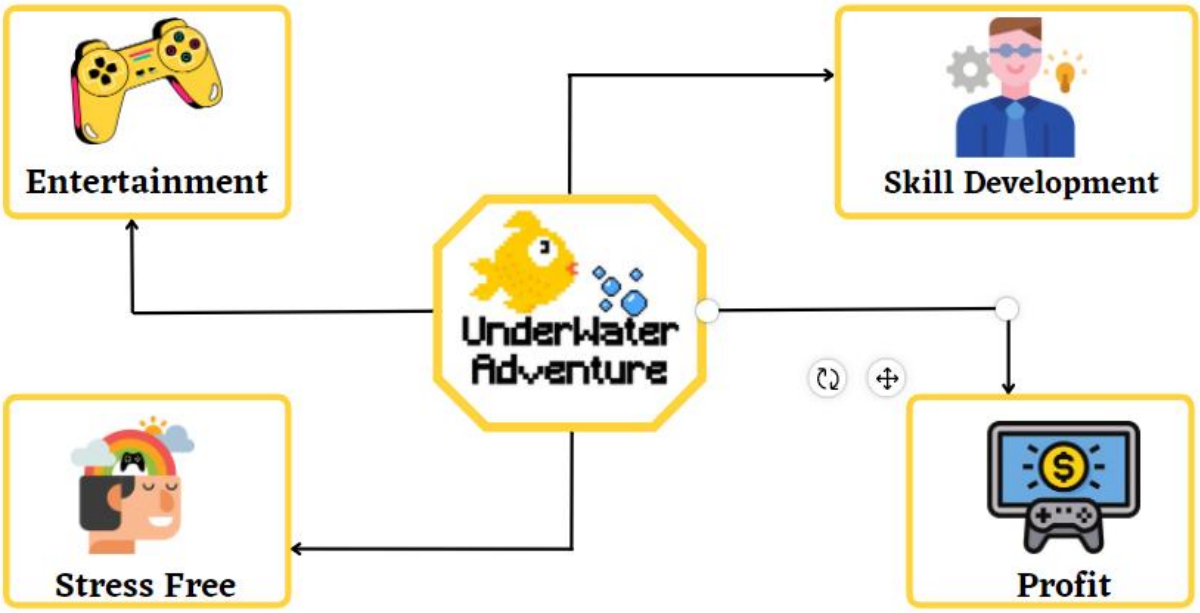


*Figure 3: Scope of Underwater Adventure (Pygame)*

## Conclusion

This project is going to help by get familiar with the world of game development and designing which is quite a good field from the above image of scope.

# References

*PyGame: A Primer on Game Programming in Python – Real Python*. Realpython.com. (2021). Retrieved 29 November 2021, from https://realpython.com/pygame-a-primer/.