EEE 202: Computer Programming II Project
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# Process Documentation

Grid Duel (ft. Python's Playground) . Simple Computer Game with GUI.

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# 1. Introduction

**Project name** : Grid Duel (ft. Python's Playground)
**Project Alias** : Simple Computer Game with GUI

**Developers** :

| | |
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**Description**:

### Grid Duel

a classic, two-player board game that involves players taking turns to place their symbols on a grid of cells, aiming to align their symbols either horizontally, vertically, or diagonally.
The game is easy to learn and provides an ideal platform for strategy and competition. With a clean and intuitive user interface, players can enjoy this software version of the game with friends or test their skills against a computer opponent.

### Python's Playground

A basic snake Game, where the user controls a 'snake' that 'eats' a block and increases in size.
This is a popular classic that is fairly easy to implement in python.

# 2. Project Goals

Primary objectives are:

1. A functional multiplayer mode (Grid Duel).
2. A functional single player mode (Python's Playground)
3. Smooth running without errors.

Secondary objectives are:

1. Clear documentation of the Project.

## 3. Team Roles

The project tasks are identified as follows:

| Tasks | Member responsible | Status |
|---|---|---|
| Planning | Collaborative | Completed |
| Game Logic for Python's Playground | Duncan Begi | Completed |
| Game Logic for Grid Duel | Victor Murithi | Completed |
| Implementing a database | Duncan Begi | Completed |
| Implementing use of Modules | Victor Murithi | Completed |
| Writing Documentation | Collaborative | Completed |
| UI Development (Project GUI) | Collaborative | Completed |
| Debugging | Collaborative | Completed |

## 4. Development Environment

1. Programming Language: Python
2. External Libraries: Tkinter, Pygame
3. IDE: Visual studio Code ( Our preferred code editor)
4. OS: Windows 10, Ubuntu 23.10
5. Dependency Management: Pip (Installing external libraries)
6. Code Formatter: "Black Formatter Extension" (Visual studio Code)
7. Code analysis and Debugging: "Python Extension" (Visual studio Code)
8. Collaboration Tools: Github (Posting our project as a Github repo)

## 5. Project Timeline

*(This is just a rough estimate!)*

Week 1-2: Learning Tkinter and Pygame Libraries
Week 2-3: UI Development (Game Board GUI)
Week 3-4: Debugging
Week 4-5: Grid Duel, Python's Playground game logic
Week 5-6: Implementing a Database, Organizing Modules
Week 6-7: Debugging  Documentation

## 6. Implementation

### 6.1. User Interface (UI) Development

We will use the Tkinter library in Python to create the graphical user interface (GUI) for the Project. Tkinter offers widgets and tools for building interactive interfaces.
The UI will include a login page that is connected to a sqlite3 database for user authentication.

### 6.2. Game Logic

Game logic will be implemented using Classes and  functions.

### 6.3. Multiplayer Support

Multiplayer support will be achieved by Grid Duel. Single Player support will be achieved by Python's Playground

### 6.4. User Interaction

User interaction will be user-friendly and intuitive. A user guide will be implemented

## 7. Testing

### Grid Duel:

Ensure that the game follows the standard rules of classic "Tic-Tac-Toe".

1. Confirm that the game checks for a winning condition when a player forms a line (horizontal, vertical, or diagonal) of their symbols.
2. Confirm that the game recognizes a draw when the grid is full without a winner.
3. Ensure that the game announces the winner or a draw accurately.

### Python's Playground:

Ensure the game follows the conventional 'snake' game style:

1. Confirm players can move the snake.
2. Confirm the game ends when the snake hits the walls.
3. Confirm the game ends when the snake hits itself

## 8. Review and Feedback

During the semester, the project is to undergo periodic progress checks with the instructor, Mr. Gordon Agutu acting as the reviewer.
These reviews will provide us an opportunity to assess the project's development and ensure it aligns with the project's objectives and timeline and course requirements.
Here's how we anticipate our feedback and discussion phase will play out:

1. **Presentation**: Victor will act as the presenter. He will present the work completed thus far, including code, documentation, and any other relevant materials during the progress checks and upon final presentation of the project.
2. **Instructor Feedback:** The instructor as the primary reviewer will evaluate the project's progress, ask questions, and provide feedback based on the project's objectives and requirements.