# COMP 204 PROGRAMMING STUDIO COURSE PROJECT PLANNING FORM

## DEPARTMENT OF COMPUTER ENGINEERING

### Project Name

*Provide the title of your project.*

Tetris 2048

### Project Summary (Abstract)

*Briefly explain your project. Max 300 words, i.e., half-page.*

Tetris 2048 is a game that combines elements of the classic Tetris game with the popular 2048 game. We will write this game in Java programming language and uses the StdDraw library for graphical rendering.

The objective of the game is to stack falling shapes called tetrominoes in a way that forms complete rows. When a row is completed, it disappears and the player earns points. The game is won when the player reaches a score of 2048, similar to the original 2048 game. However, the game is over if the player runs out of space to stack the falling shapes.

The game is played on a 10x20 grid, and the shapes fall from the top of the grid toward the bottom. The player can move the shapes left or right, rotate them, or drop them down faster. The shapes come in seven different varieties, each with a different shape and color.

The game also features a scoring system, which rewards players for completing rows and reaching certain milestones. As the player's score increases, the game becomes more challenging with faster-falling shapes.

The game is implemented using Java and the StdDraw library, which provides a simple interface for drawing shapes and text on a canvas. The game logic is implemented using object-oriented programming concepts, with separate classes for the game board, tetrominoes, and game state.

### Keywords

*Provide at least three keywords.*

Game development, Java, StdDraw, Tetris, 2048, game, puzzle, score, tetrominoes, merging, clearing, horizontal rows

*Provide hardware and software requirements as a list. Briefly provide explanations.*

**Hardware Requirements:**

- Processor: Intel or AMD processor with a clock speed of at least 2GHz or higher
- RAM: Minimum of 4GB RAM
- Graphics Card: Any modern graphics card with 1GB VRAM or higher
- Display: Minimum resolution of 1280x720

**Software Requirements:**

- Java Development Kit (JDK) 8 or higher
- Integrated Development Environment (IDE) such as Eclipse or IntelliJ IDEA
- StdDraw library

**Explanation:**

- The Java Development Kit (JDK) provides the necessary tools and libraries to develop and run Java programs, including Tetris 2048.
- An Integrated Development Environment (IDE) provides a user-friendly interface to write, debug, and run Java code. Eclipse and IntelliJ IDEA are two popular IDEs used for Java development.

## Project Tasks, Time Plan, and Deliverables

*Provide information for the project tasks, e.g., the title of the task, dates, and deliverables. For each deliverable, provide evaluation criteria and objectives. Provide a Gantt chart after the table.*

| Task | Start Date<br>Due Date | Deliverable | Evaluation Criteria | Objective |
|---|---|---|---|---|
| Project Planning | 21/03/2023<br>28/03/2023 | Project Plan based on the planning form template | Completeness, Feasibility, and Clarity of the Plan | - To determine the scope, objective, timeline, resources, and risks of the project.<br>- To create a detailed plan that identifies tasks, subtasks, and dependencies. |
| Basic Tetris Game | 21/03/2023<br>28/03/2023 | Basic Tetris Game implementaton using StdDraw library | Functionality, Code Quality, and Code Reusability | - To create a basic version of Tetris Game.<br>- To implement the movement, rotation, and dropping of Tetrominoes.<br>- To design the user interface that displays the game grid, the score, and the incoming Tetromino. |

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| Tetris 2048 Implementation n | 04/04/2023<br>17/04/2023 | Tetris 2048 Game implementation by combining Tetris and 2048 | Functionality, Integration, and Performance | - To merge the Tetrominoes with numbers from the 2048 Game. - To implement the merging and clearing of tiles.<br>- To integrate the scoring system of the 2048 Game with Tetris.<br>- To handle game-over and game-won situations. |
| Project Report | 17/04/2023 | Project report including Title Page, Abstract, Description, etc. | Completeness, Clarity, and Quality of the report | - To create a report that provides a detailed description of the project, the solution, and the achievements. - To include UML diagrams that demonstrate the program.<br>- To provide screenshots that show how the program works.<br>- To list the achievements and what has been learned during the project.<br>- To provide references used in the project. |
| Video Presentation | /04/2023<br>17/04/2023 | 5-minute video presentation with a demo | Clarity, Quality, and Creativity of the presentation | - To prepare a presentation that demonstrates the gameplay and features of the game.<br>- To provide a demo of the game that shows how it works.<br>- To ensure that the presentation is clear, concise, and creative. |
| Self-Evaluation | 17/04/2023<br>17/04/2023 | Self-evaluation rubric submission | Self-reflection and evaluation of the individual contribution to the project | - To evaluate the individual contribution of each team member to the project.<br>- To reflect on the strengths and weaknesses and identify areas for improvement. |

## Project Team and Authority Information

*Provide proposal date, semester info, and signatures.*

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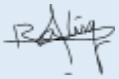
| **Proposal Date** | 24/03/2023 |
| **Academic Term of Project Delivery** | 2022-2023, Spring semester |
| **Project Team Members** | Bogdan Itsam Dorantes-Nikolaev, 042101002, Computer Engineering<br>  <br>Sena Güngörmez, 042101076, Computer Engineering<br>  <br>Rahiq Al Huslan, 042101140, Computer Engineering<br>  <br>Meliha Koç, 042101003, Computer Engineering<br>  |
| **Instructor(s)** | Prof. Dr. Muhittin Gökmen<br>TA: Mustafa Ersen, Aysenaz Ezgi Ergin |