CSE212: SOFTWARE DEVELOPMENT METHODOLOGIES

YEDITEPE UNIVERSITY

SPRING 2025

TERM PROJECT – DUE DATE JUNE 4TH, 2025

As a term project, this semester you are required to develop a Pang arcade game with multiple difficulty levels. The game should be simple and user-friendly, controlled via the four arrow keys and/or the WASD keys on the keyboard. Your application must keep track of user scores and store them in a file. To achieve this, players should be required to register with a login name and password; and must log in before playing the game.

You can use the following statements and figures as guidelines:

- For usability purposes, you are required to implement a graphical user interface (GUI) for your application (see Fig. 1).

- Your application should have a menu bar on the top of the window which contains *Game*, *Options* and *Help*.

Fig. 1: Example Pang game screenshot

- In order to be able to play the game, the user should register first (through *Game-> Register*) using a simple pop-up window (see Fig. 2).

Fig. 2: Registration and Login Pop-up Window

- All registered users' data should be kept in a file. The file can be in TXT, DAT or CSV format.

- When a new game is initiated (*Game->New*), the application should check whether or not the user is logged before starting the game. If the user is not logged in then it should pop-up the login window (see Fig. 2) otherwise it should start the game.

- At the end of each game, it should record the user's game details (*time, date and score*) into a data store file.

- The user should be able to quit the game by clicking on the appropriate menu item (*Game->Quit*).
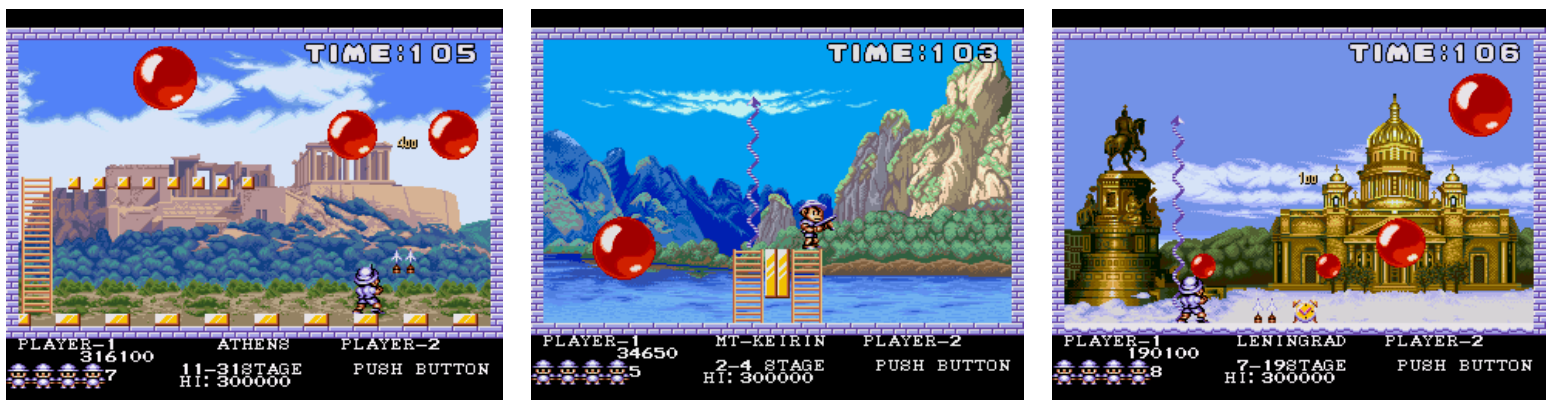

Fig. 3: Three levels with different designs

- Your game should have at least four levels of difficulty (see Fig. 1 and 3). You can increase the difficulty by adding more bubbles, sliding pavement and increasing the speed of the game.

- Your application should show the number of lives you have on the left bottom corner of the game window. On the right bottom corner

it should show the last bonus item the user has obtained (*single arrow*, *double arrow* and *fixed arrow* – for details, see video link below).

- The bubbles do not need to have any level of intelligence, they can just move around constantly. They should have four sizes – namely *extra large, large, medium* and *small.* When the player shoots a small size bubble it should disappear, else it should split into two smaller bubbles.

- Each one of the stages should have at least 90 seconds (or more) time frame to complete, which is indicated with a countdown on the top right corner of the screen.

- **[Bonus]** Your application could also have the audio effects for bubble burst and any bonus item collected by the shooter character.

- **[Bonus]** You can add extra features that are present in the original game. For example, if the player collects *dynamite items,* all the bubbles should split into small bubbles. On the other hand, when the user collects a *clock item* all the on screen bubbles should freeze for 10 seconds.

- You can watch the game and download its audio from the following video link: https://tinyurl.com/panggame

- Users should be able to see their gaming history (time, date and score) on a separate window by clicking the appropriate menu item (*Options->History*).

- Users should also be able to see the high score list, which contains the list of ten highest scores on a separate window by clicking the appropriate menu item (*Options->High Score*).

- Users should be able to choose among three difficulty levels (*Options -> Novice, Intermediate and Advanced*) and start playing the game at that level.

- The help menu option should only contain one item called About (*Help->About*) which will pop-up a small window that contains information (*Name, Surname, School Number and Email*) about the application developer.

- All the assets used as part of the original game can be found at the following link https://tinyurl.com/PangAssets

- More information about the game, along with assets and other resources can be found at the following link: https://tinyurl.com/pangresource

- While you can use additional assets and add creativity, you are encouraged to stay aligned with the game's core mechanics, natural game play cycle, and the *project requirements* listed above.

Submit your assignments in a ZIP file named with your student number through the YULearn platform latest by Wednesday, June 4th, 2025. All submitted source files will be checked for plagiarism; among classmates and AI generated content. DO NOT submit work that is not your own. Additionally, all students are required to demonstrate their work in a 15-minute presentation. Grading will be based primarily on your project demonstration, not just the code itself.