MEF ÜNİVERSİTESİ

ÖĞRENMEYE SINIRSIZ ÖZGÜRLÜK

COMP 206 - COMPUTER ARCHITECTURE
SEMESTER PROJECT PROPOSAL

Project Name: MIPS Pong Game

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Project Description:

The primary objective of this project is to create a unique Pong-like game using the MIPS assembly language. To cater to players with varying skill levels, the game will have an adjustable speed feature, allowing players to modify the speed of the ball movement or the delay between frames. Additionally, the game will include score multipliers, simple visual effects, and multiple visual themes to enhance the overall gaming experience and keep players engaged.

The project will follow a five-step methodology, starting with a two-week study of the MIPS architecture to establish a solid foundation for designing and implementing the game. The next phase involves designing the game logic, which includes ball and paddle movement, collision detection, scorekeeping, power-ups, and customizable game modes. This stage will also last for two weeks and will involve the use of flowcharts and pseudocode. The following two weeks will focus on implementing graphics using the MIPS assembly language, such as drawing sprites, designing screen layouts, and incorporating visual themes. The final stages of the project will include one week of testing, debugging, and optimizing the game code for performance on the MIPS architecture.

Upon completion of the project, the expected deliverables will consist of the game's source code, technical documentation detailing the game design, logic, and implementation, a user manual explaining gameplay customization, and a demonstration video showcasing the game's unique features. These deliverables will provide a comprehensive understanding of the Pong-like game and its innovative elements, while demonstrating the practical applications of MIPS assembly language and computer architecture concepts.

Resources:

[1] C. Kann, “Introduction To MIPS Assembly Language Programming,” LibreTexts. [Online]. Available: https://eng.libretexts.org/Bookshelves/Computer_Science/Programming_Languages/Introduction_To_MIPS_Assembly_Language_Programming_(Kann)

[2] “Introduction to MIPS Assembly Language Programming,” Open Textbook Library. [Online]. Available: https://open.umn.edu/opentextbooks/textbooks/497

[3] “MIPS Reference Sheet,” University of Arizona. [Online]. Available: https://uweb.engr.arizona.edu/~ece369/Resources/spim/MIPSReference.pdf

[4] A. Hamm, “MIPS-Pong,” GitHub. [Online]. Available: https://github.com/AndrewHamm/MIPS-Pong