

Nintendo Entertainment System Emulator

User Personas and Use Cases

Kajetan Lach

November 10, 2024

1 Introduction

2 Alex - Computer Science Student and Aspiring Developer

Alex is a 21-year-old undergraduate Computer Science student. Exposed to computers from an early age, he developed a natural interest in programming, which aligns with his lifelong passion for computer games, problem-solving and engineering mindset.

2.1 User Goals and Motivations

Alex's main motivation to use our NES emulator is to gain practical experience in computer architecture and low-level programming while staying engaged with retro games and well-known franchises. He aims to develop a solid understanding of CPU instructions, memory management and system emulation. Alex plans to use the emulator's tools and documentation as study aids for coursework and personal projects. He might pick emulation for his next free-time project's theme.

2.2 Product Value for the User

Our product offers Alex a clean, well-organized and open codebase, along with detailed documentation, debugging tools and tutorials on emulator development. The program's open structure allows Alex to step through code execution in detail, helping him deepen his understanding of system architecture and memory management.

2.3 Use Cases

Alex wants to explore CPU emulation for studying purposes. He opens the emulator, loads a simple ROM and observes program execution. He follows instruction cycles, monitors memory usage and check registers content. Using the documentation, he cross-references CPU behavior to understand how the emulator translates instructions. In the process, he gains real-time insights into CPU architecture and operation cycles, directly linking this knowledge to his coursework.

3 Alice - Computer Science Lecturer or Teacher

Alice is a 45-year-old university lecturer in computer science, teaching introductory courses on programming, computer architecture, and embedded systems.

3.1 User Goals and Motivations

Alice is passionate about teaching and seeks practical resources to keep students engaged and make technical concepts easier for them to grasp. She believes that with hands-on experience and demonstration, even the toughest concepts can be understood.

3.2 Product Value for the User

Our emulator provides Alice with an effective educational tool to demonstrate fundamental computing concepts and offer practical experience, all within an engaging retro games theme. It enables her to present abstract concepts in an accessible, visual format that makes technical learning memorable.

3.3 Use Cases

Alice provides students with an assignment to load a simple NES program and analyze memory usage. She requires them to use the emulator's debugging tools to observe and document how the program manages memory. Afterward, she collects and reviews students' findings, using their analyses to discuss course topics.

4 Bob - Casual Gamer

4.1 User Goals and Motivations

4.2 Product Value for the User

4.3 Use Cases