User Manual

The Binary Game is an interactive learning program designed to help users practice conversions between binary and decimal number systems. The game presents a series of problems across 10 levels, where the player must either convert an 8-bit binary number to its decimal equivalent or convert a decimal number (0–255) into an 8-bit binary value.

How to Run the Program

Step1: Open the MARS MIPS Simulator.
Step2: Load all project .asm files into the simulator.
Step3: Ensure the following MARS settings are enabled:
→ Assemble all files in directory
→ Initialize Program Counter to global ‘main’ if defined
→ Default memory configuration (Compact, Data at 0x10010000)
→ Delayed branching disabled (default setting)

Assemble the program by clicking Assemble or pressing F3.
Run the program by clicking Run or pressing F5.
The game will begin automatically.

How to Use the Program

During gameplay, follow the printed instructions on the screen. The program may display one of two types of challenges. Either an 8 bit binary number is shown or a decimal number is shown. Whenever a decimal number is shown, the user is supposed to enter 8 binary digits of the binary equivalent of the decimal number. When the binary input is shown, it’s decimal equivalent is supposed to be displayed.

Scoring and Game Flow

→ The game consists of 10 levels.
→ Each correct answer increases the score.
→ Incorrect answers result in the correct solution being displayed.
→ After the 10th level, the program will show the final score and end.

Optional Features

Depending on configuration settings in the utils.asm file, the following features may be enabled:
→ ASCII-enhanced board graphics
→ Audible sound alerts for correct or incorrect answers
→ Timeout for answering questions (a countdown in milliseconds)