**Team Multiplexers Project 4 Proposal: Hangman**

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**Overview:**

We will create a version of the game “hangman” on an FPGA. We will use keyboard input and VGA output alongside a button for resetting the game.

**Game Description:**

Upon starting the game, user will be prompted to enter a word with up to 10 letters which will be displayed on the screen. If the user does not use all 10 letters, the unused letters will be treated as empty and not counted in the rest of the game. When starting the game, one user will enter letters for the word which will be displayed on the screen. After hitting the correct key to submit the word, the letters will be hidden as a placeholder character. A second user will then have a chance to guess the letters one at a time according to traditional hangman rules.

**Grading Rubric:**

VGA output (15%) - Game is capable of being rendered to the screen through the VGA output on the FPGA.

Graphics (15%) - Features all 26 letters of the english alphabet alongside graphics for the gallows, and hanged man as well as a few special characters to indicate unfilled spaces and unused spaces.

New Word Functionality (15%) - Players are capable of entering a new word up to 10 characters long that will be used for the duration of the current game.

Serial Input from keyboard (20%) - Keyboard input is delivered serially utilizing the onboard UART and a connection through putty. Inputs to putty will automatically be sent to the board.

Winning/Losing Display (10%) - Upon running out of guesses the player is informed of having lost. Upon correctly finishing the word, the player is told they have won. Each are accompanied by different graphics.

Word Setting (10%) - Upon start of the game, input from the keyboard is used to indicate what the current word is. Upon receipt of an enter, the game begins with what has been typed. Upon receipt of a backspace, the word displayed will remove

Word Guessing (10%) - When entering a new key on the keyboard, all letters associated to that keypress are revealed on the bottom. If no new letters get revealed, a new segment of the hanged man is added.

New Game/Reset Functionality (5%) - Upon completion of a game or when the reset button is pressed, a player is brought back to the word setting phase of the game.