**Hangman**

**Assumptions**

Use an array or file to store guess words (I used an array of pointers)

Randomly pick a guess word from the array

Draw a hangman graphic

Store the leader board as a structure in a file

**Design**

I used an array of pointers to store film titles that player has to guess while playing the game, and to store the hangman graphic. The very first hangman graphic that is displayed is read from a text file (hangman.txt)

I calculated a score for the players based on the number of lives, divided by the number of guesses, and multiplied by the difficulty level and 100. This score is appended to the leader board file (leaderboard.txt) along with the number of guesses, number of correct guesses, number of vowels and number of consonants entered.

I used a menu for playing the game / displaying high scores, for selecting difficulty levels, and selecting which body part to sever from the hangman graphic. There are 2 answer hints for easy, 1 for medium and none for hard. The scores are higher for hard (3 x player score), lower for medium (2 x player score), and lower again for easy (1 x player score).

The player can choose whether to chop off an arm or a leg off the hangman graphic, if they guess a letter incorrectly. If the arm or leg is already missing it cuts off the other arm or leg, or nothing if both are gone. The hangman body can’t be cut off until last, this is on purpose, because you shouldn’t be able to cut off the body before the legs.

The game is won if the number of correct guessed letters (including recurring letters) is equal to the string length of the film title, or the player guesses the sting correctly, the player can guess the string by entering ‘0’ instead of a letter. The game is lost when the player has lost 5 lives (cut off the 5 body parts).

I added colour to the screens for winning and losing, and a beep (\a) for when a letter is repeated, or an incorrect letter or string guess.

**Functions**

**C Library:** main(), getch(), return(),fopen(), fclose(), fgets(), printf(), scanf(), srand(), strlen(), strcpy(), memset(), tolower(), strcomp(), strchr, strcat(), toupper(), fprintf(), fscanf()

**User Defined:**

**drawFileHangman()** displays the hangman graphic from a file

**mainMenu()** Play game / view high scores / exit game

**difficultyMenu** Select the difficulty level for the game

**playGame()** The game functions in order, with a while loop deciding when the game is finished

**selectFilm()** randomly selects one of 6 films from an array of pointers

**hints()** outputs hints based on the difficulty level

**outputDashes()** set an output string of underscores the same length as film title

**outputGuessLine()** An underscore is replaced with a correct letter and output to screen

**resetVariables()** reset the game variables for a new game

**enterLetter()** scan letter, set to lower case,

**checkString()** check if the string entered matches the film name

**letterStats()** count number of vowels and consonants used

**checkLetter()** check was letter used already

**amputateLimb()** display menu for selecting body part to remove from hangman

**optionCheck()** check if body part can be removed

**Bodyparts:** cutLLeg(), cutRLeg(), cutLArm(), cutRArm(),

**drawHangman()** output hangman array

**checkLives()** check and display number of lives left

**gameOverCheck()** check how many lives left, and if game is won / lost

**stats()** output game stats (numbers of guesses, vowels, and consonants)

**Deleted:**

**writeHighScore()** write high score to file

**Changed:**

**highScore()** display score / stats from leaderboard.txt

I moved combined writeHighScore() with highScore() and added a sort mechanism to the leaderboard.

**Difficulties**

Sorting the leader board, I hadn’t time to sort the structure, so that when a new score was added to the leader board it would be placed in position by score. I left the leader board so that it just appends the next player score to the end of the list, but it only displays the first 10 player’s details. I could fix it by sorting with a temp structure.

It was pointed out to me that you add on the arms and legs in hangman when drawing it, not take them away like I did, but I’m just going to count that as a unique feature, because it worked fine the way it is, and I don’t think it was required anyway.

I wanted to use colour in the hangman graphic changing the missing arms and legs to red, but I couldn’t get it to work right, I could only find custom header files for doing it. So I just used coloured screen for when the game is won or lost.

Clearing a char array for a new word in a new game, I used a for loop with spaces to reset the array.

**Updates**

In version 2 or the hangman game, I moved a curly bracket that was causing letters entered to be set as incorrect in the checkString() function. I reset stringGuessCorrect to 1 in resetVariables(), the game was crashing, when a string was entered. I added a sort mechanism to the leader board in highScore(). I added Player Name to stats output at end of game in stats(), and the player score. I fixed the score calculations, I had been using integers instead of floats. And I added colour to the high score menu.