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SE 3340.501

**Final Project Report for SE 3340.501**

**Topic- Word version of Bulls and Cows game.**

1. *Description*

A programming project using assembly language with MIPS Architecture. The program takes a random four letter word from a list and asks user to guess it. The user must input 4 letter word, all capitalized, non-repeating characters. After reading user input, the program checks for the word that it has already taken. How it checks is by comparing letter by letter. If the user had any word in the input with the selected word, the program will display the number of correct word using cows. On the other hand, if the user had the letter in the exact position as the selected word, the program will display how many letters are matched using bulls. The user continues to guess the word with the bulls and cows information and also has the option to quit the program if the user wants to gives up. User input validation is also checked.

1. *Challenges*

Speaking about me, I did have some challenges to do my part. The most challenging part for me was the validation of user input. How I overcame that was with researching and also with some help from my team members. Speaking about the team, I feel like we did not had any major challenges. The only little part was that putting everything together after doing individual part was kind of tricky because we did not meet often.

1. *Learned*

What I learned with this project was how to program in assembly language, using MIPS, MARS. I also learned different types of functions and most importantly subroutines. I had to use subroutines a lot in my part and now, I have learned how to use j and jal and also know what they are doing.

1. *Algorithm and Techniques*

For my part, to check whether the next word is valid, I simply checked the letters one at time and moved to the next letter. To jump back to different portions in project, I used subroutines and some recursion.

1. ***Aden***- Aden was responsible for randomizing and getting the list of words. He did his part on time and was never hesitant to take another part which was to do the manual. He did all his work on time. He was available for more help.

***Josh***- Josh was responsible with getting the number of bulls and cows and also was responsible for some user validation. He also did his part on time. He gave suggestions to my part which helped me. He combined all the parts together.

1. This was a great project. Thanks for giving it to us early. The team I worked with was awesome. Everyone was on time submitting their part and didn’t had to push them. The only part was I wish we met more often (Even though it did not affect our project in any way).