Project Report

Problem Statement

For this project, we have decided to create a number to name translator which will transform the input from the user. For example, the user will input any number, ex. 9, and the number to name translator will then take the input, and return the output in word format, ex. “Nine”. Our project will also work the other way around. If the user enters the text of a number, ex. “nine”, our output will be the integer in digit form, ex. 9. Overall, we hope to use these functions to create a system that will take an input file of these digits or names and output the opposite form. This idea could target anyone willing to take in data and make it more readable rather than having letters with numbers, it will have letters all around. This can be convenient for professional letters, cashing checks, and much more.

Solution

For this project, our group deems our minimum viable product as a program that will translate numbers in integer form into its word form. (Ex. 10 → “Ten”) Ideally we will be able to create a program that will translate numbers both ways (Ex. “Twenty” → 20) and the functions that we will need to create in order to do that will need to consist of a function that will be able to recognize what number we are looking at through finding the remainder after dividing by 10, we will need an array of numbers in word form to assign to each number, and we will need a function that will be able to understand numbers in word form and which word corresponds to which place in decimal form and will be able to return an integer.

Group Agreement Statement

For this group project, our group will meet on Wednesdays at 10 am every week to work on the assignment. If more time is needed, we will figure out another time and date during the week to meet. We will create a document that will list our detailed plan and keep track of our progress on that same document. We will list who has what tasks on the document and when each task should be completed by. We will also update our C Code folder every week before our Wednesday meetings in order to be able to discuss what is the next step in our project.

Meeting Minutes

Zoom Link:
https://zoom.us/j/93672473757?pwd=K1JiZ2JoaTF1SEN4aEMvS0JwZURNZz09

https://zoom.us/j/91265017136?pwd=MnNWeW9PZytnd2F2R0ZRRGxZRnJEQT09
Use this one ^^^

Password: GroupK
Meeting Time: Wednesday:10:00am

Date: 05/11/2022
Participants:
Cory Greer
Jennasea Whitworth
Adam Woolery
Ivan Martinez

Discussion: Today, we discussed issues with the project we've encountered so far. For Jennasea and Ivan, they are going to work on their numberToWord/wordToNumber functions. For Adam, he is going to convert word inputs to lowercase and Cory is going to work on her file input and tokenization functions. We hope to have these functions completed by Sunday so we can create a single working MIPS file.

Date: 05/05/2022
Participants:
Cory Greer
Jennasea Whitworth
Adam Woolery

Cory: I plan to finish my mips code by this weekend/ have most of it done and ready to execute the final program. I need to finish writing the tokenization function and clean up the file reading function. I have finished file reading, tokenization is still a work in progress for this week.
Ivan Martinez: I plan on figuring out how to have multiple large string arrays for my numberToWord function and how to use pointer arrays like I did in my C code in order to traverse through the array.
Jennasea: I plan on messaging the professor and/or TA about my code to figure out how to implement a better functioning wordToNumber function. I also plan on finishing my MIPS code.

Adam: I plan to finish my code and begin the process on the final submission. I plan on doing some detailed analysis to make the implementation better of my contribution. The output function in specific is what I'm going to work on.

Date: 04/27/2022
Participants:
Cory Greer
Jennasea Whitworth
Adam Woolery
Ivan Martinez

Discussion: This week we talked about lab 6 and what needs to be done for this assignment. We also talked about the final review session and any topics that we may have found a bit harder and discussed how to go about those. We also talked about the take home quiz mentioned in class. We also looked at the syllabus and discussed due dates.

Date: 04/20/2022
Participants:
Cory Greer
Jennasea Whitworth
Adam Woolery
Ivan Martinez

Discussion: Today we created a MIPS Code folder and said that we will code 50% of our C code into MIPS by Sunday. We also updated out project progress sheet for the MIPS code and discussed what code everyone will work on. Two issues we have encountered are not knowing how to code file reading in MIPS as well as our word to number function does not contain the same number set as the number to word function. We will work together to try to fix these issues and ask for help if needed. We talked about possibly doing certain numbers to fix the issue, for example only do 0-40 or 0-60 and see how the program responds to those numbers.

Date: 04/13/2022
Participants:
Cory Greer
Jennasea Whitworth
Adam Woolery
Ivan Martinez

Discussion: Today we looked over lab 5 and decided how we would go about doing it. We think it would be best to have each of us work on 4 particular slides of work. Cory is doing slides

5,12,13,18. Jennasea will do slides 19,24,27,29. Ivan will do slides 33,36, 39, 42. Adam will do slides 43,44,45 ,46. We also discussed that each team member will start their conversion from their C Code to MIPS. One issue we have right now is the C Code for the word to number function is not optimized, so we will have everyone look it over to try to optimize the code.

Date: 04/06/2022
Participants:
Cory Greer
Jennasea Whitworth
Adam Woolery
Ivan Martinez

Discussion: Today we looked over all our documents in our group file and made sure they are all up to date. We first made a document witht the list of functions we need to implement. We then went to our project progress excel sheet and discussed who will be implementing them. We also agreed that we will all put our C code in the group folder by our next meeting, so we can discuss who needs help and what still needs to be worked on. We decided that one of our main functions we will need to work on as a team and the others we will do individually and ask for assistance next meeting if needed. We are going to continue to update all documents throughout our work.

Date: 03/22/2022
Participants:
Cory Greer
Jennasea Whitworth
Ivan Martinez
Adam Woolery

Discussion: Today we created our excel spreadsheet that will show our progress of project. We also created a folder for our C code. We are going to update our folder every week. Talked about when given a text file, it will convert to the numbers and vice versa. We also talked about more features to add into our project. One of the functions we will need is a tokenization function similar to the HW to recognize what character we are currently looking at.

Date: 03/16/2022
Participants:
Cory Greer
Adam Woolery
Ivan Martinez

Discussion: In this meeting we discussed how we want to go about doing the project. We want to use the ideas given, right now we do not have any of our own. We tried to look for the lab but it had not been assigned yet.

Date: 03/09/2022
Participants:
Cory Greer
Adam Woolery
Discussion: In this meeting we went over the lab again to decide how we would go about doing it. We talked about how we would tell the rest of the group what we should do. We also talked about the test and what went well and what did not.

Date: 03/02/2022
Participants:
Cory Greer
Ivan Martinez
Jennasea Whitworth
Adam Woolery

Discussion: We discussed what gates we have learned about for the lab and which ones we still need to learn. We are unsure about how to draw bit and register so we will ask questions.

Date: 02/23/2022
Participants:
Cory Greer
Ivan Martinez
Jennasea Whitworth

Discussion:
Today we worked on halfAdder and fullAdder and discussed how we would work on the remaining gates. We also asked what components we need to add to the ALU hdl/diagram.
How does MUX work?

Date: 02/16/2022
Participants:
Jennasea
Ivan
Adam
Cory

Discussion: We looked over the Lab 1 instructions and made sure that each of us understood what needed to be done. We will slack each other if additional help is needed or if we need to meet again.

Contributions and Challenges

Cory: Some of the challenges that I faced were in the MIPS code for creating the file reading function. I tried to google and watch many youtube videos, but I think the problem had something to do with the pathway to opening the file. I tried to save the file in many different places to get it to work properly, but I was unable to figure it out. I worked on the C code and MIPS code for the file reading and tokenization functions.

Jennasea: A challenge I faced with the C code was how to identify two worded numbers like "twenty one" in my wordToNumber function. It was difficult to understand how to read in the two words and then to separate them into two different arrays. Another issue I faced was with MIPS code. I was unable to figure out how to compare the inputted word(s) to the words in the defined arrays. I worked on the function, wordToNumber, and also created the list of functions in which we would all work on.

Ivan: The challenges that I had faced during the project was figuring out how C was different from C++, and figuring out how to finish my numToWord C program without using any libraries. My contributions to the project was the numToWord function in both C and MIPS as well as putting together all of the working MIPS code at the end of the project.

Adam: Challenges faced included determining how to properly write in C after being used to only writing in C++ and a bit of Java up to this point, understanding MIPS code and the relationship between machine language and lower level programming languages. I attended the group meetings and discussions and attempted to contribute where I was able to. I believe that with further analysis and understanding of the topic I would be able to add more contributions.

Works Cited

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