

#1 CS/SE 2340 Assignment

FALL SEMESTER 2025, Sections 002, 004, 006, 501

INSTRUCTOR: DR. ALICE WANG

Submission (ZIP file):

- Answers to the questions and screenshots should be in a PDF document.
- Assembly code should be a .ASM file.

Submit all of your work in a ZIP file to eLearning by the due date. If you are not familiar with the ZIP file format you can find out more about it from this [link](#).

Note: name your ZIP files for homework submission as follows:

HW<hw#>_<FirstName>_<LastName>.ZIP, e.g. HW01_Jane_Doe.ZIP

IMPORTANT: do not use another archive format, e.g. RAR, because the grader will not be able to see your files, and you will get 0 points.

For assignments of this class you can submit your work unlimited times, the last submission will be graded.

MARS setup and assembly code (100pts)

Purpose: The goal of this project is to set up MARS and practice load/store/add/sub/addi instructions and syscalls.

Create a MIPS program that fulfills the following specifications:

.data Section Requirements

Declare the following variables

- a, b, c to hold the numbers 45, 32 and 90 respectively (use .word)
- username to hold the user's name (use .space)
- animal to hold the name of an animal (use .space)

Declare string messages using .asciiz:

- A prompt for username
- A prompt for favorite animal

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- Messages to display the results

.text Section Requirements

Write MIPS instructions to:

1. Prompt the user for their name and save it to memory (username)
2. Prompt the user for a name of their favorite animal and save it to memory (animal)
3. Prompt user for an integer between 1-50 (store word in variable c)
4. Calculate $\text{sum} = 2*a + b - c + 21$ (load word a, b and c to registers)
5. Display should look like

Aloha **<username>**

Your favorite animal is the **<animal>**

Our crystal ball says your favorite number is **<sum>**

Testing and Submission

- Assemble and run the program using MARS
- Capture screenshots of two different runs showing input and output
- Submit a ZIP file containing:
 - Your .asm file (named gift_delivery.asm)
 - SysCalls.asm
 - A PDF report with screenshots
- Ensure your .asm file includes:
 - Your name and header comments
 - Proper use of SysCalls.asm
 - A clean program exit using the exit syscall
 - Proper commenting on every line.

Here is an example run that you can use to debug your program, but you should use more complex and interesting data for your HW submission.

```
Enter your name: Alice
Enter the name of an animal: cheetah
Enter one integer from 1-50: 23
Aloha Alice
Your favorite animal is the cheetah
Our crystal ball says your favorite number is 120
-- program is finished running --
```

Bonus (+5pts)

Display one more line:

Aloha **<username>**

Your favorite animal is the **<animal>**

Our crystal ball says your favorite number is **<sum>**

This Christmas you will receive **<sum>** **<animal>** from Santa.

This will involve learning ahead about conditional operations and for-loops to detect and delete a newline character in the string, which we will learn about in future assignments.

Note

- Assume your user is smart not to enter an integer between 50 and 100.

Grading Rubric (found in syllabus)

Criteria	Points Deducted
Missing .asm extension	-5 pts
Missing or incorrect syscall usage SysCalls.asm not included in ZIP	-5 pts
Missing header or author info	-5 pts
Poor or missing comments on every line	-15 pts
Program does not exit properly	-5 pts
Program does not compile	-30 pts
Incorrect sum calculation	-5 pts
Missing screenshots	-15 pts each