

# Team Arch

**Creators:** Veerendranath Korrapati, Luis Flores, Nikhil Pareek, Vedant Kumar

**Class:** CS 3340.501 Computer Architecture, Prof. Nhut Nguyen

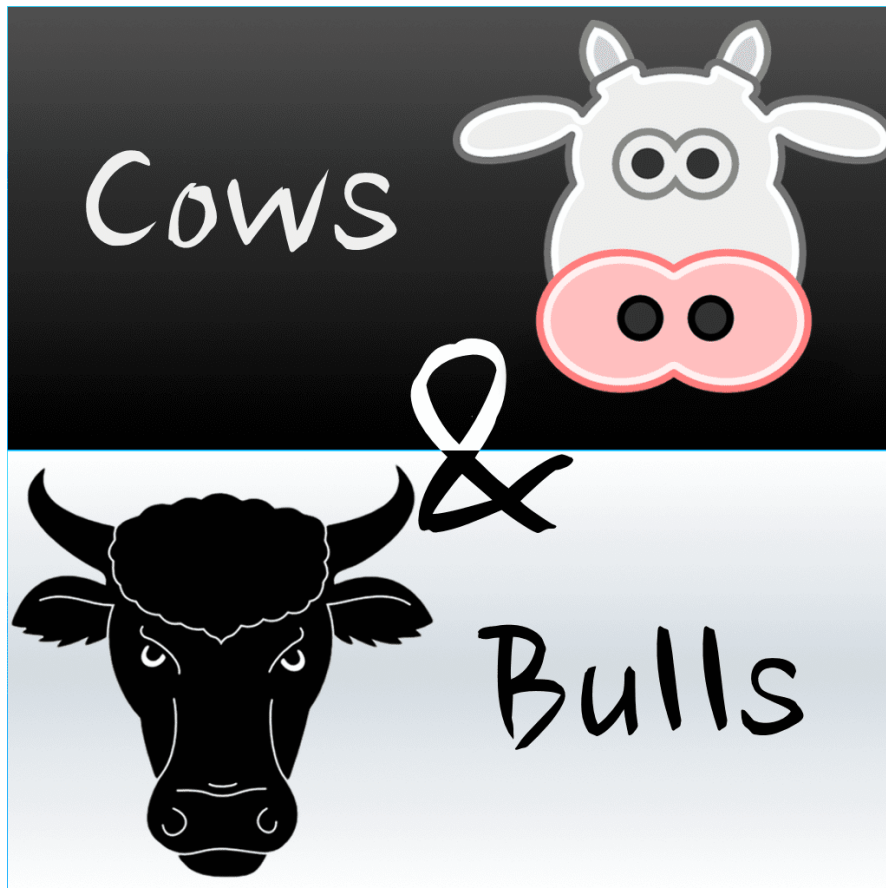
## Cows & Bulls

### User Manual

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Version 1.0

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# 1. Introduction

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*Introduction: User manual for the Bulls and Cows on MIPS MARS created by Veerendranath Korrapati, Luis Flores, Nikhil Pareek, Vedant Kumar for FALL 2018 class project for CS 3340.501 Computer Arch. (Nhut Nguyen, Ph.D). In this document we will provide step by step instruction on how to navigate the main menu, play the game, and recognize any errors that the user might come across.*

This User Manual (UM) provides the information necessary for players to effectively use the Cows & Bulls (version 1.0).

## 2. Requirements

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*Basic requirements for running Cows and Bulls (v.1)*

### 2.1 System Requirements

- *Latest Version of MARS MIPS (4.5)*  
<https://courses.missouristate.edu/KenVollmar/mars/download.htm>
- *Computer, Mouse, and Keyboard*
- *Operating System Windows or MacOS*
- *.asm file that can be found in the folder*

### 3. Getting Started

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*Section provides the user instruction on how to run the game and navigate the Main Menu*

#### 3.1 Set-up

1. Download and open Cows&Bulls.asm
2. Click on Run → Assemble



3. Then Click on the Green Arrow



#### 3.2 Navigate Main Menu

*Instructions on how to navigate the main menu which has 3 options (Start game, how to play, and Exit Game)*

```
Bulls & Cows
Please select from one of the following menu options:
(press 1) Start new game
(press 2) How to play
(press 3) Exit Game
Please enter your choice:
```

- (Option 1) Enter 1 to start the game
- (Option 2) Enter 2 will give a user a URL to a webpage with information about Cows & Bulls
- (Option 3) Enter 3 to exit the program
- Entering an invalid will prompt the menu again

## 4. How to Play

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*Instructions on how to use the program and help user understand the game logic and issues that might occur*

The following sub-sections provide detailed, step-by-step instructions on how to use the various functions or features of Bulls & Cows.

### 4.1 Cows and Bulls Quick Description

*Instructions: What/How Cows and Bulls works.*

One Program loads a random four-letter word and the player, the User, tries to guess it.

At each turn the User tries a four-letter word, and the program says how close it is to the answer by giving:

- The number of Bulls - digits correct in the right position.
- The number of Cows - digits correct but in the wrong position.


The User tries to guess the answer in under 10 turns.

The user can't guess a letter a word with repeating letters, non-letters, and letters with more/less the 4 letters.

### 4.2 Game UI

*How to play the game and use the UI*

```
You will have ten tries to get the correct answer, good luck  
Please enter a 4-letter word (enter 0 to give up): |
```



(Image above) Green arrow shows where the user will input his 4-letter word. There's also an option for the user to give up, if he enters 0 a prompt will appear showing the user the correct word. An error will prompt will appear if the user inputs a word with a repeating letters, non-letters, or words more/less than 4 letters.

**Output after user has guessed a word**

```
Please enter a 4-letter word (enter 0 to give up): frog
frog
Attempt number 1
Bulls: 0
Cows: 2
Remaining Tries: 9
```

```
Please enter a 4-letter word (enter 0 to give up): |
```

- (Red) Shows the user what word he guessed
- (Yellow) Shows how many attempts the user has guessed
- (Green) Displays the Bulls
- (Blue) Displays the Cows
- (Purple) The number of tries left

**Output if user can't guess the word after 10 tries**

```
You have used all 10 chances to guess the word
Here is the correct word: lane
Time Elapsed: 41 seconds
|Press 1 to return to the menu|
|Press 2 to quit|
```

(Green) Shows the correct word

(Red) Displays how many seconds it took for the user to guess it correctly

(Yellow) (Enter 1) For the user to return to the main menu

(Blue) (Enter 2) For the user to end the program

**Output if the user guesses the correct answer**

```
You got it correct!

Time Elapsed: 20 seconds
|Press 1 to return to the menu|
|Press 2 to quit|
```

The display is like the pervious image but displays “You got it correct!” instead. If the user returns to the main menu and decides to play a game, then a new word will be generated.

## 5. Extra Information

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*Information about the people behind the code, common error messages and more.*

### 5.1 Error Messages

*Common error messages that user might come across and how to identify them.*

**(Image on the bottom)** This error appears when the user does not input a valid key in the main menu.

```
Bulls & Cows
Please select from one of the following menu options:
(press 1) Start new game
(press 2) How to play
(press 3) Exit Game
Please enter your choice: 5
not a valid input (Try Again):
```

**(Image on the bottom)** Error appears when the user inputs a word greater/less than 4 letters.

```
You will have ten tries to get the correct answer, good luck
Please enter a 4-letter word (enter 0 to give up): women

More than 4 character word
n
Please enter a 4-letter word (enter 0 to give up):
```

### 5.2 Credit

- Luis Flores
- Veerendranath Korrapati
- Nikhil Pareek
- Vedant Kumar