

## DOCUMENTATION

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Git Source Code : <https://github.com/ccxex29/game-collection>

The program is named game-collection but the real game inside is only one, Reversi or as some people call it Othello. The game is about flipping opponents disk until one conqueres bigger portion of the table/board. To make a valid move, player must flip at least one opponent's disk. In order to flip opponent's disk(s), the newly placed disk and player's already placed disk must surround opponent's disk(s) end to end. Flipping is allowed horizontally, vertically, and diagonally.

Because the game's named game-collection, we added two extra selections to the game. Caesar cipher and morse code encryptor and decryptor. Caesar cipher will only shift 25 characters and allow uppercase english alphabetical characters, lowercase english alphabetical characters, and standard english numerics. Caesar cipher will use the same dictionary for decryptor and will use brute force from -26 to 26 shift. Morse code will be able to encrypt from dots(.) and hyphens(-) for Alphanumeric and several special characters.

-- Program Details --

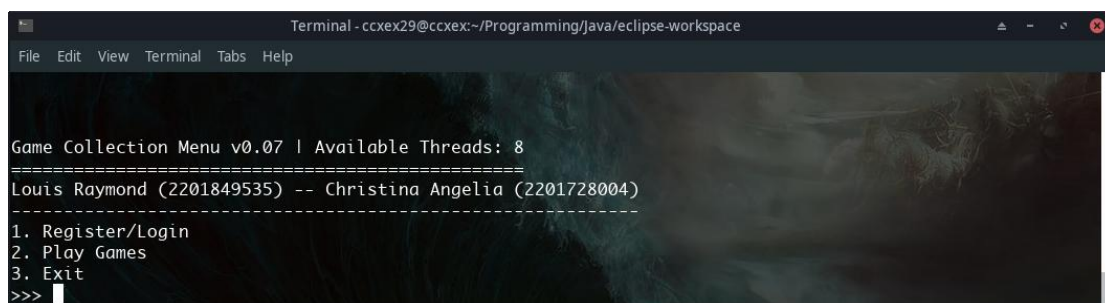
A screenshot of a terminal window titled "Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace". The terminal displays the "Game Collection Menu v0.07 | Available Threads: 8". Below this, it shows the names and student IDs of the developers: "Louis Raymond (2201849535) -- Christina Angelia (2201728004)". A menu with three options is listed: "1. Register/Login", "2. Play Games", and "3. Exit". At the bottom, there is a prompt ">>> " followed by a cursor.

Figure 1. Program Main Menu

Shows Title and available threads for debugging purposes, shows team member names with student id, and shows the option to register/login, play games, and exit the program. ">>> " is the user input hint which I also like to call it as 'command' and this will be shown almost everywhere in the program for prompting an input from user.

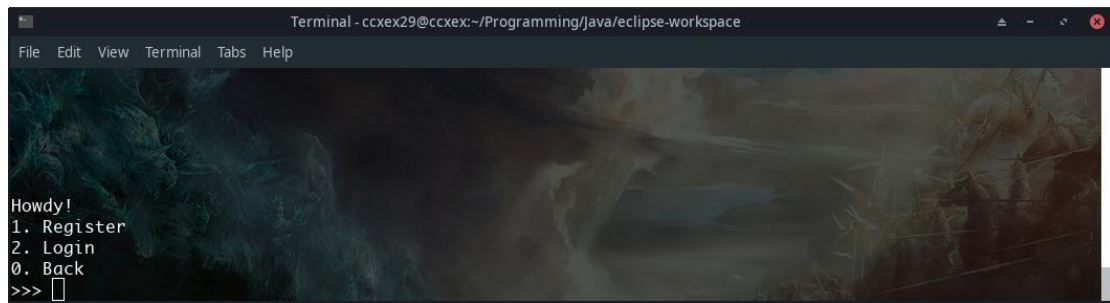


Figure 2. Register/Login Menu

Selecting option '1' on the main menu shows a simple menu for selecting whether the users want to register or log into their existing account.

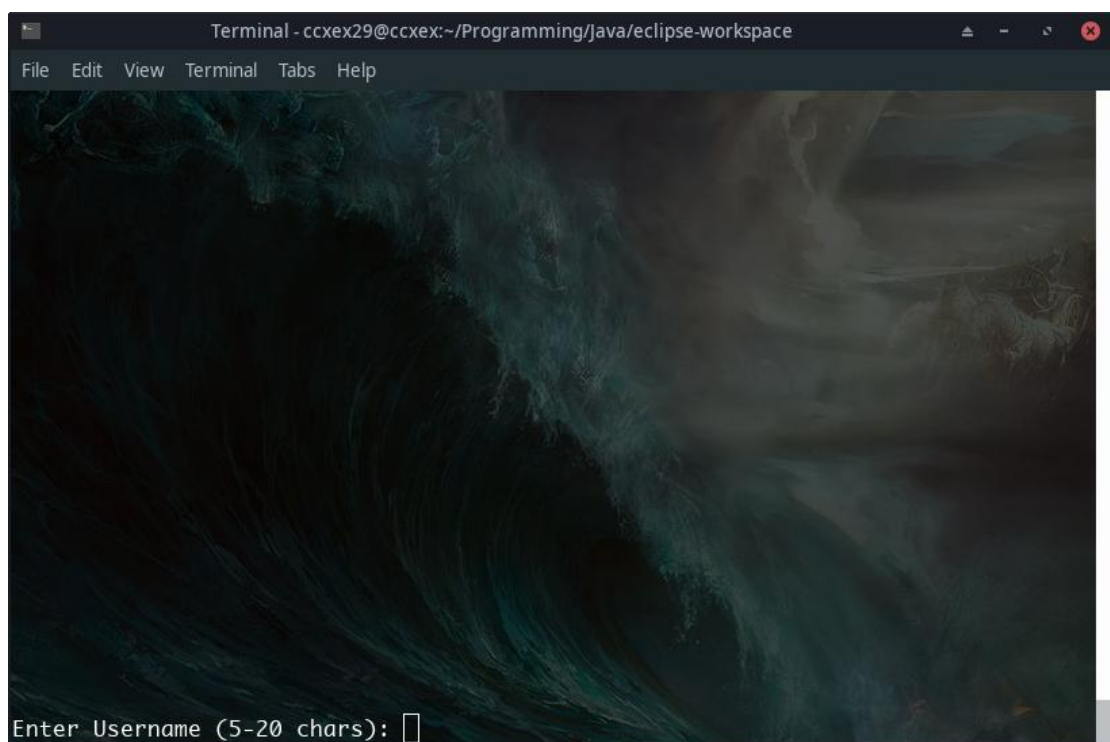


Figure 2.1.1. Adding User

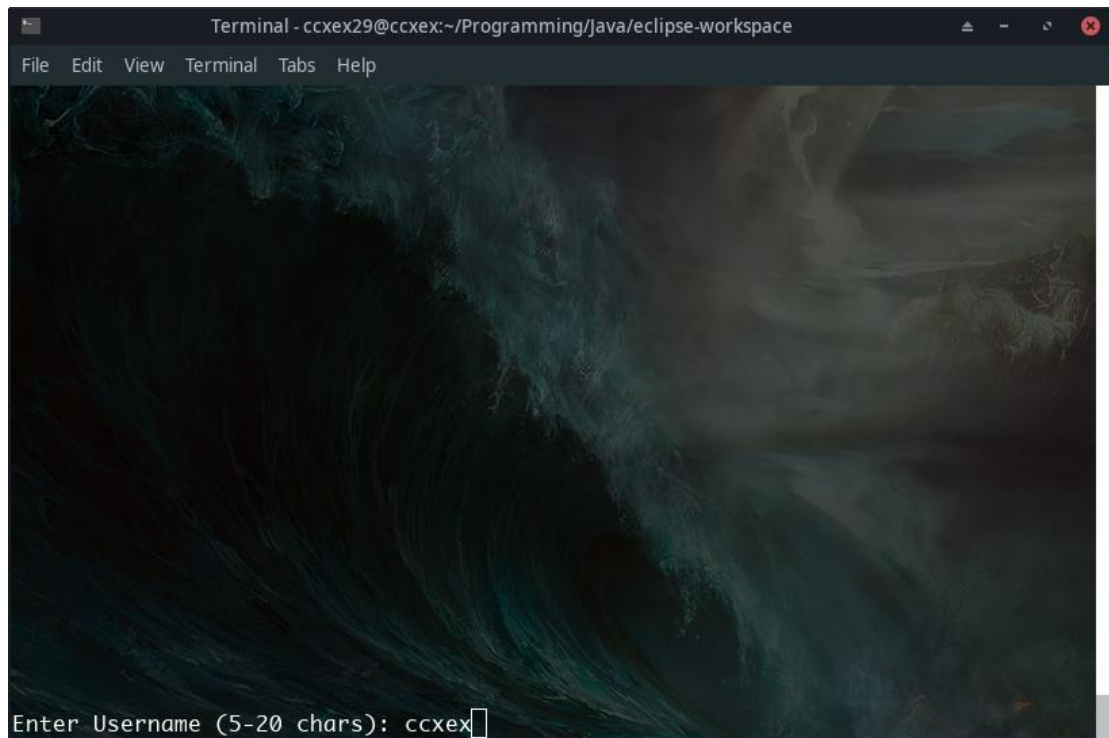


Figure 2.1.2. Entering Username

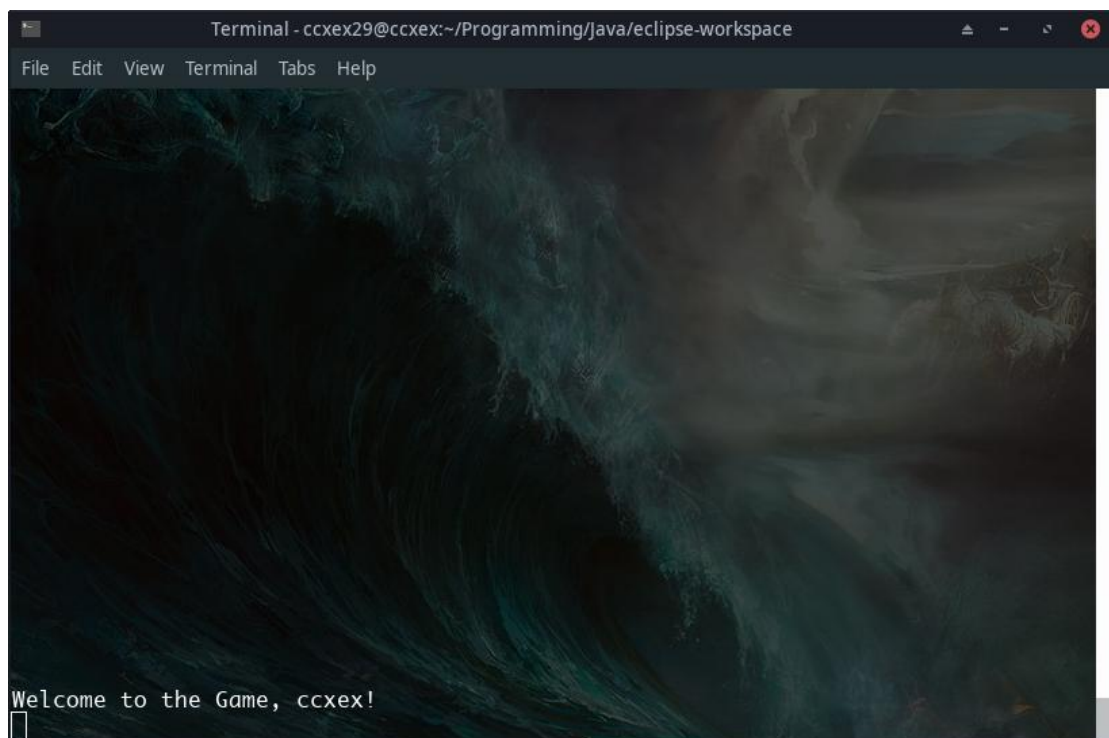


Figure 2.1.3. Welcome screen on Registration

Registration will simply validate the username. It will even go back when the user enters '0'.

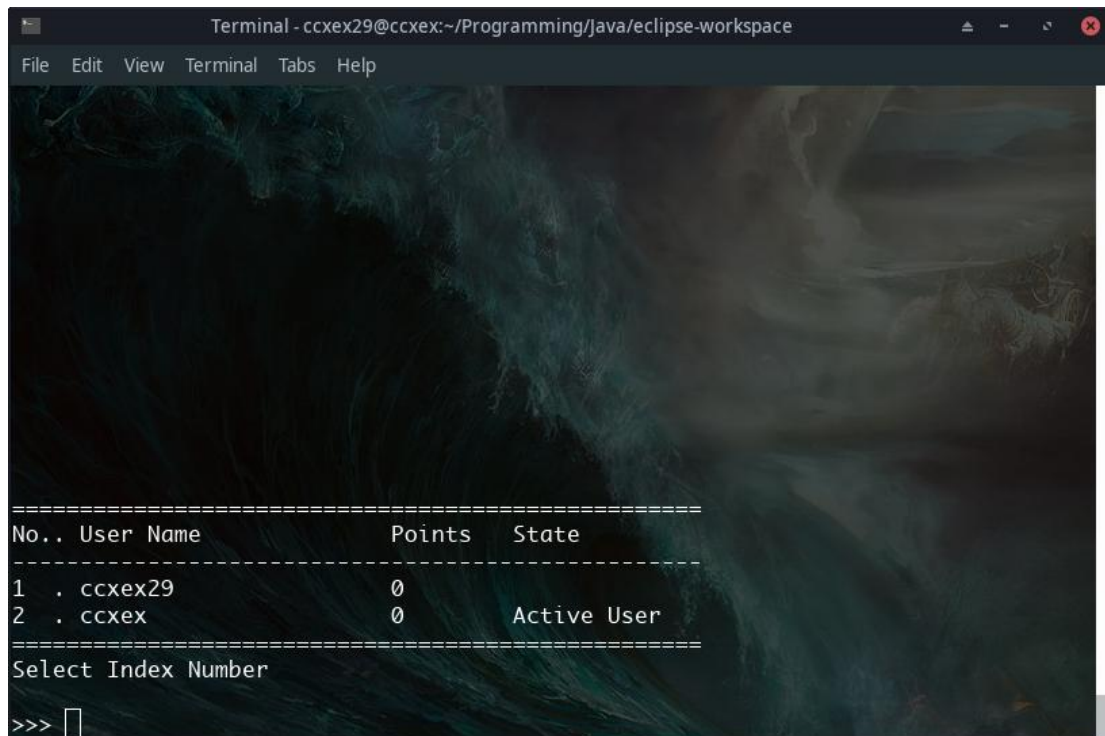


Figure 2.2.1. Login Screen

The login screen will show user name, user's points, and whether or not the user is currently active/selected. And yes, the user can go back with the legendary '0' command.

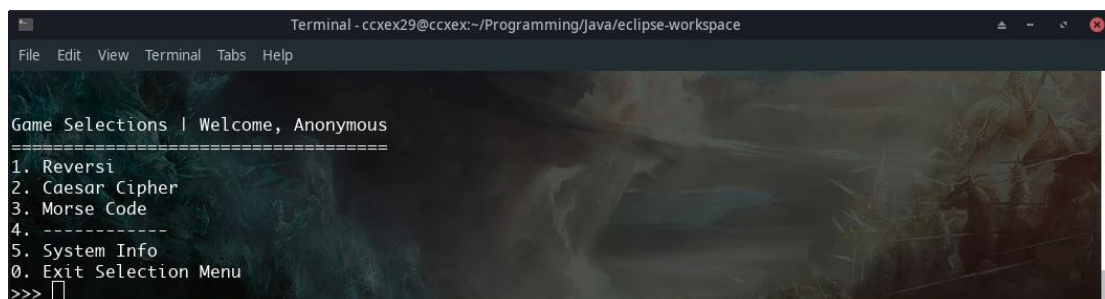


Figure 3. Game Selection Menu

Selecting option '2' on the main menu shows a menu to choose between Reversi, Caesar Cipher, Morse Code, System Info, or Exit Menu. Entering the correct number will open the corresponding application.



```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

< Welcome to reversi >
-----
  /   ^   ^
 /   (oo)\-----
/   (..)\      )\^
      ||----w |
      ||      ||

1. Normal Game
2. Custom Game
>>> 
```

Figure 3.1. Welcome to Reversi!

Upon selecting reversi, the user will be greeted by the legendary cowsay. This welcome message is to give special touch to the main game and give the option to play normal game or play custom game the user will be asked to create. By selecting custom game, the user will be brought to what I like to call Architect.

```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

#ABCDEFGH#   B Black Disk - W White Disk
1 |         #
2 |         #   User      : Anonymous
3 |         #
4 | BW      #   Black's Turn!
5 | WB      #   Black Moves : 0   Black Points : 0
6 |         #   White Moves : 0   White Points : 0
7 |         #
8 |         #   MOTD      : If black and white seems off, you can try entering "invert" on the command.
#####
>>> 
```

Figure 3.1.1.1. Normal Gameplay First run

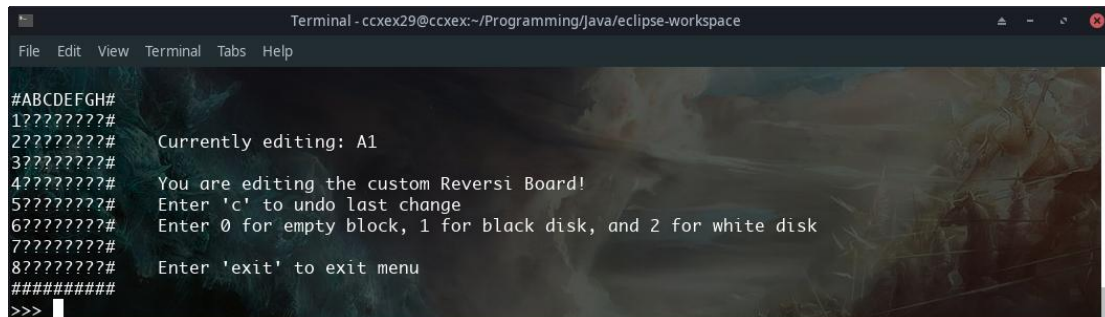
The Reversi Game Interface consists of reversi board on the left side, and status board on the right and the game was made for local multiplayer. The status board shows the information of disk symbols, username, turn state, move counts for black and white, points for black and white, and just an additional Message of the Day.

```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

#ABCDEFGH#   B Black Disk - W White Disk
1 |         #
2 |         #   User      : Anonymous
3 | WWW      #   Black's Turn!
4 | BWW      #   Black Moves : 3   Black Points : 1
5 | BWW      #   White Moves : 3   White Points : 5
6 | B        #
7 |         #   MOTD      : Alright Alright Alright!
8 |         #
#####
>>> 
```

Figure 3.1.1.2. Normal Gameplay in-Game

The Reversi Normal Board gameplay. The players will have to enter position for their disk to be placed. Entering '0' will still be counted as exiting the game and "Game over!" will be printed before game exits.



```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

#ABCDEFGH#
1???????#
2???????#
3???????#
4???????#
5???????#
6???????#
7???????#
8???????#
#####
>>>

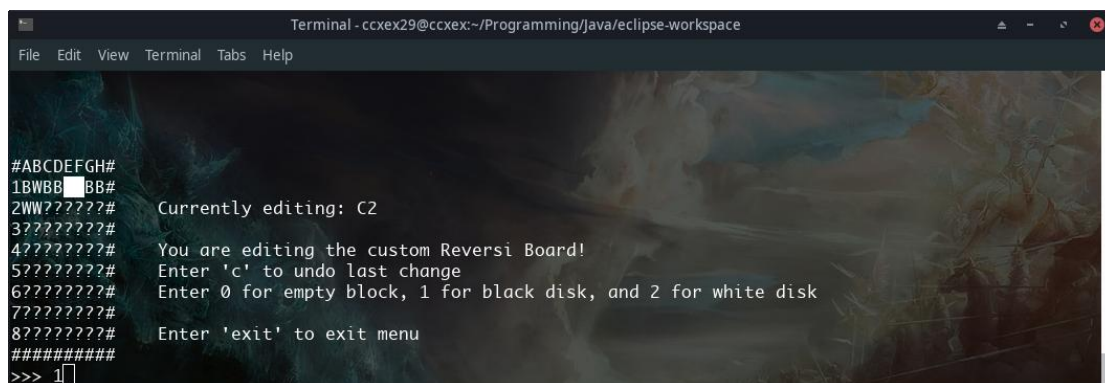
Currently editing: A1

You are editing the custom Reversi Board!
Enter 'c' to undo last change
Enter 0 for empty block, 1 for black disk, and 2 for white disk

Enter 'exit' to exit menu
```

Figure 3.1.2.1. Architect Board Without Edit

If the user selects '2' on the "Welcome to Reversi" screen, the user will be shown the empty Architect Board.



```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

#ABCDEFGH#
1BWB B BB#
2W???????#
3???????#
4???????#
5???????#
6???????#
7???????#
8???????#
#####
>>>

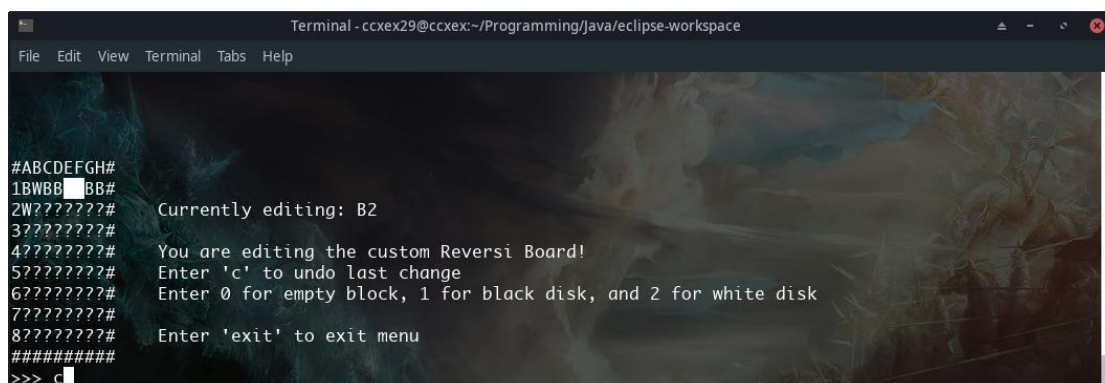
Currently editing: C2

You are editing the custom Reversi Board!
Enter 'c' to undo last change
Enter 0 for empty block, 1 for black disk, and 2 for white disk

Enter 'exit' to exit menu
```

Figure 3.1.2.2. Editing Custom Board

The Architect Board will have similar icons as in-game reversi board. The right side is however have different informations. There are currently being edited block, editing message, and useful info about valid commands.



```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

#ABCDEFGH#
1BWB B BB#
2W???????#
3???????#
4???????#
5???????#
6???????#
7???????#
8???????#
#####
>>>

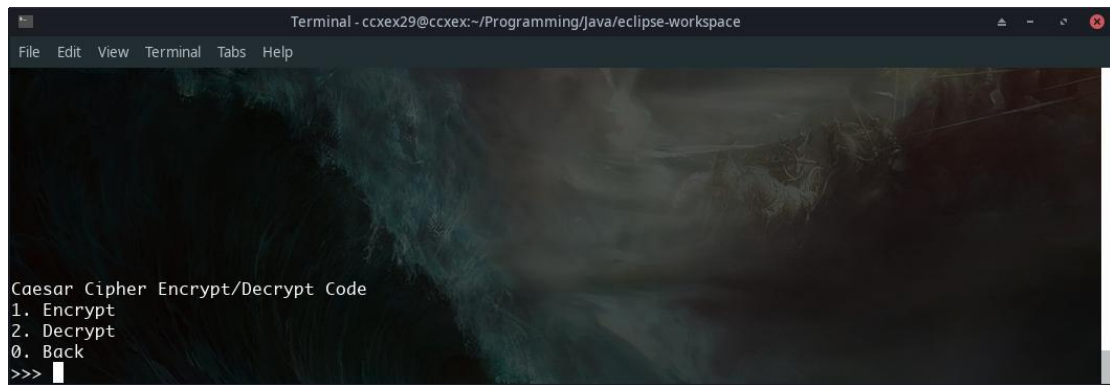
Currently editing: B2

You are editing the custom Reversi Board!
Enter 'c' to undo last change
Enter 0 for empty block, 1 for black disk, and 2 for white disk

Enter 'exit' to exit menu
```

Figure 3.1.2.3. Useful 'c' command

There are several predefined command for the Architect Board, however 'c' is crucial and used for undoing last change.

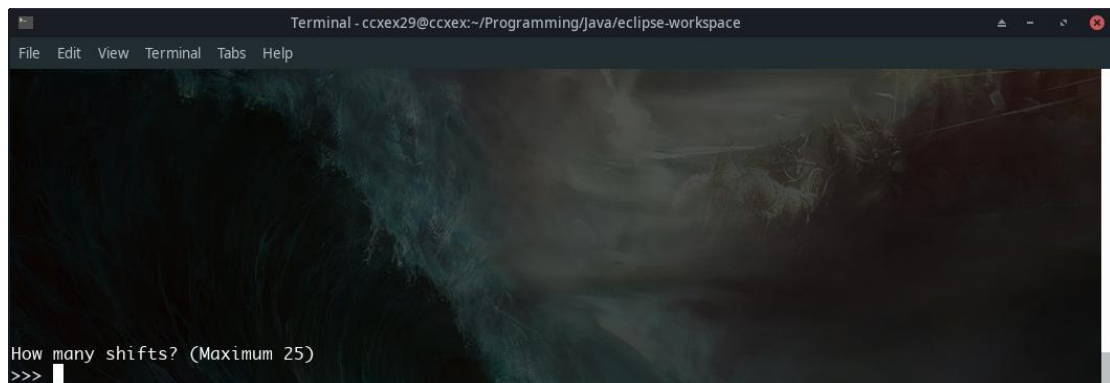
A terminal window titled "Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The background is a dark, abstract image. The text in the terminal reads: "Caesar Cipher Encrypt/Decrypt Code", "1. Encrypt", "2. Decrypt", "0. Back", and a prompt ">>> " with a cursor.

```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

Caesar Cipher Encrypt/Decrypt Code
1. Encrypt
2. Decrypt
0. Back
>>> 
```

Figure 3.2. Caesar Cipher Menu

Upon entering Caesar Cipher, the user will be greeted with a rather simple menu. The user can do encryption or decryption.

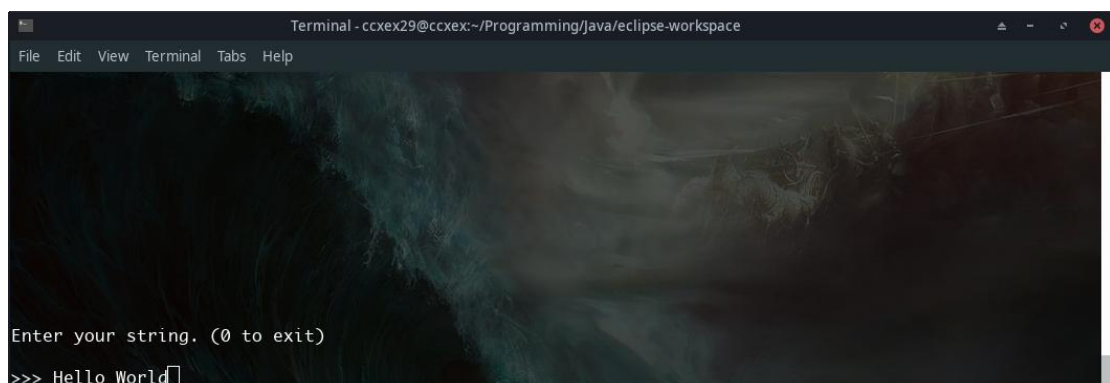
A terminal window titled "Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The background is a dark, abstract image. The text in the terminal reads: "How many shifts? (Maximum 25)" and a prompt ">>> " with a cursor.

```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

How many shifts? (Maximum 25)
>>> 
```

Figure 3.2.1.1. Determining the Shift

Encryption will need number of shifts for all alphanumeric characters.

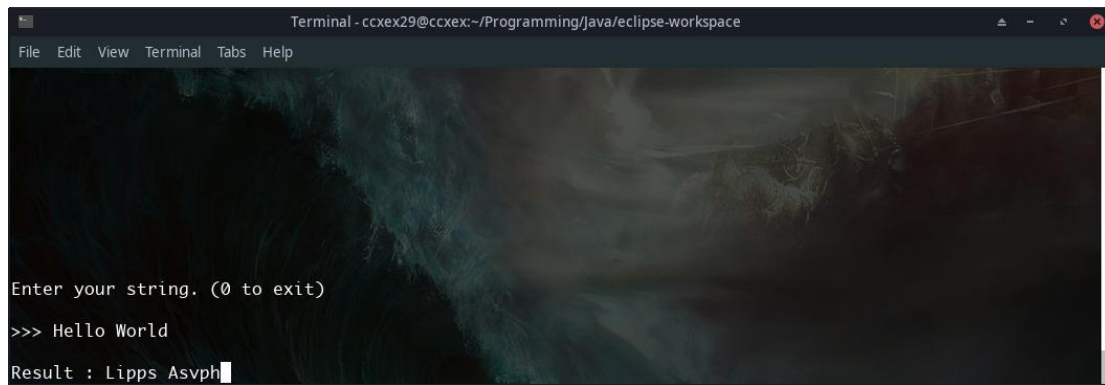
A terminal window titled "Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The background is a dark, abstract image. The text in the terminal reads: "Enter your string. (0 to exit)" and a prompt ">>> " followed by the input "Hello World" and a cursor.

```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

Enter your string. (0 to exit)
>>> Hello World
```

Figure 3.2.1.2. Enter String



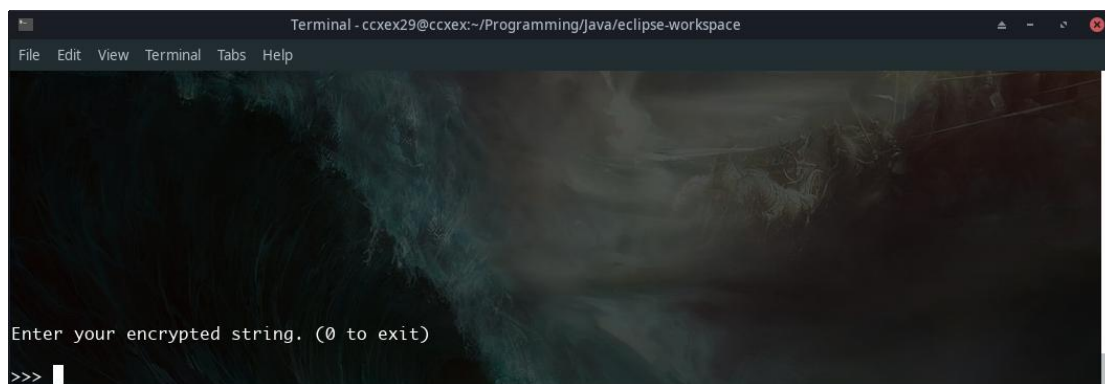


```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

Enter your string. (0 to exit)
>>> Hello World
Result : Lipps Asvph
```

Figure 3.2.1.3. Showing Result

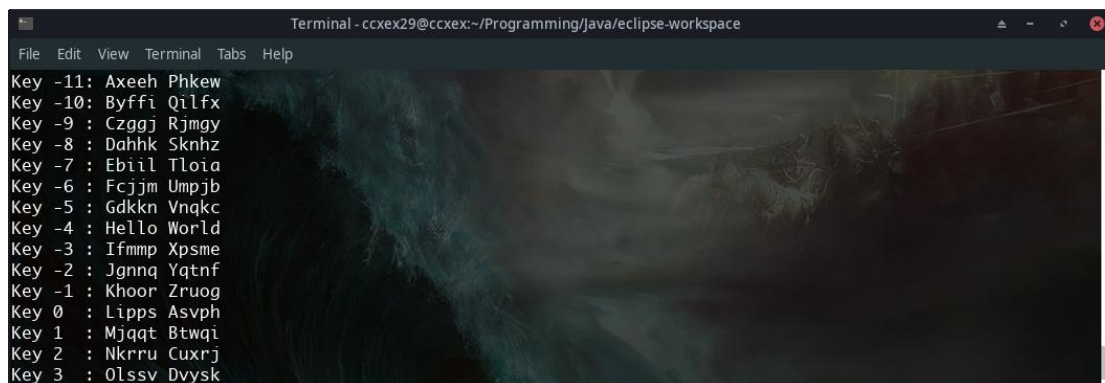
The Encryption is rather simple since it will only shift + and not -.



```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

Enter your encrypted string. (0 to exit)
>>> 
```

Figure 3.2.2.1. Enter String



```
Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace
File Edit View Terminal Tabs Help

Key -11: Axeeh Phkew
Key -10: Byffi Qilfx
Key -9 : Czggj Rjmgy
Key -8 : Dahhk Sknhz
Key -7 : Ebiil Tloia
Key -6 : Fcjjm Umpjb
Key -5 : Gdkkn Vnqkc
Key -4 : Hello World
Key -3 : Ifmmp Xpsme
Key -2 : Jgnnq Yqtnf
Key -1 : Khoor Zruog
Key 0 : Lipps Asvph
Key 1 : Mjqqt Btwqi
Key 2 : Nkrru Cuxrj
Key 3 : Olssv Dvysk
```

Figure 3.2.2.2. Bruteforce Decrypt

The Caesar Cipher decryptor will only do brute force from -26 to 26. since the "Hello World" was encrypted 4 shifts, the decryptor on the figure prints "Hello World" with Key -4.

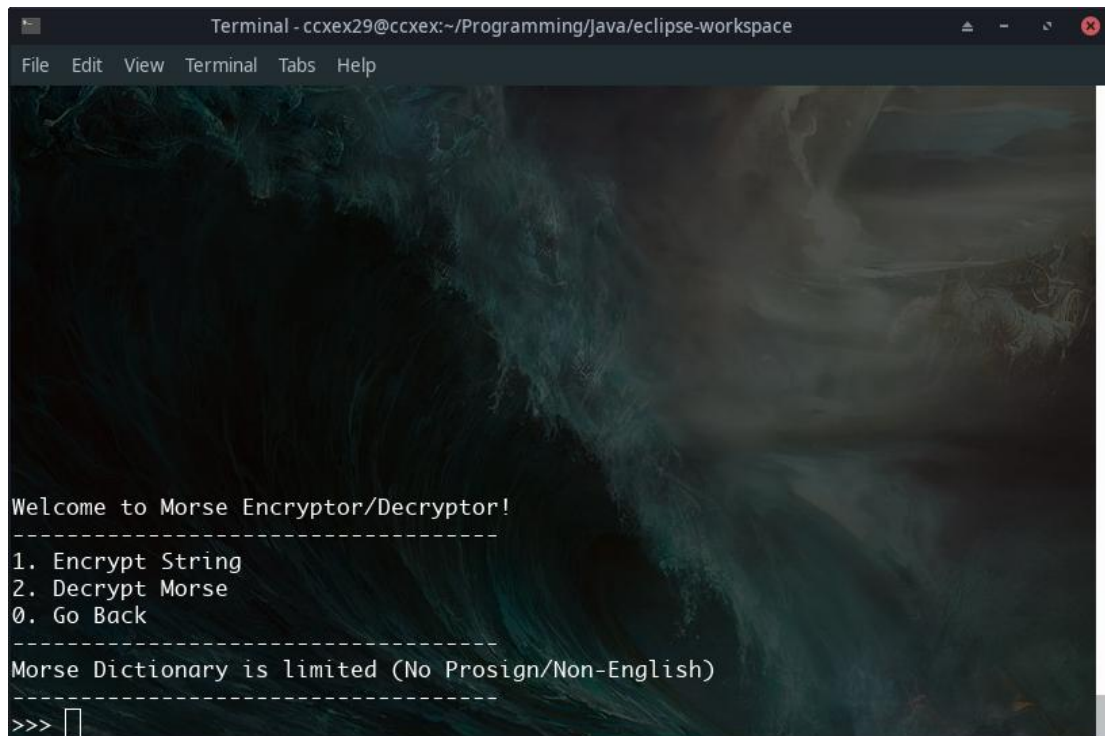


Figure 3.3.1. Welcome to Morse <sup>^</sup><sub>-</sub><sup>^</sup>

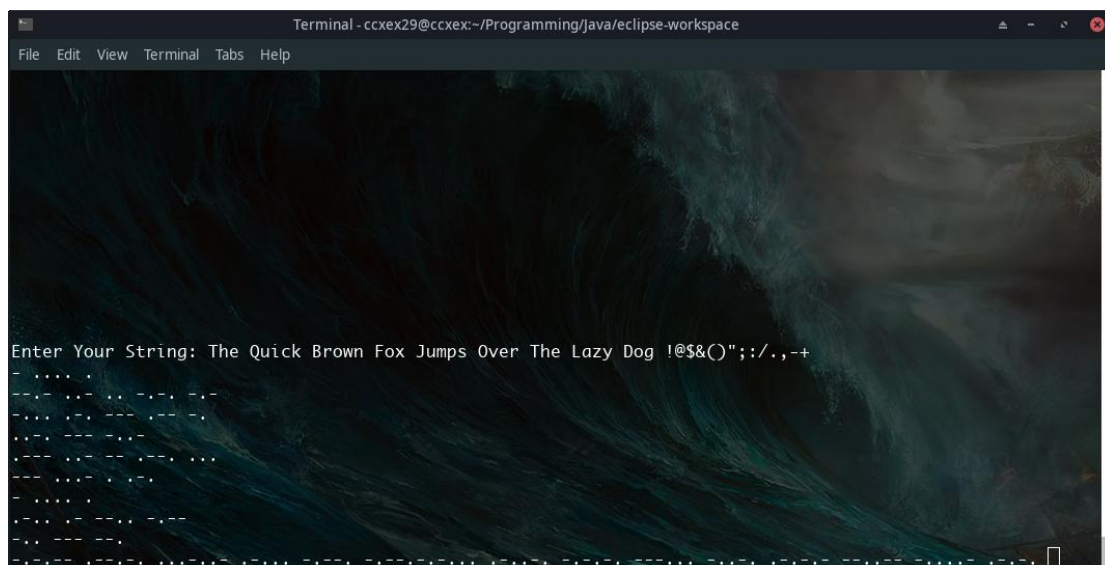


Figure 3.3.2. Morse Encryption on the Work

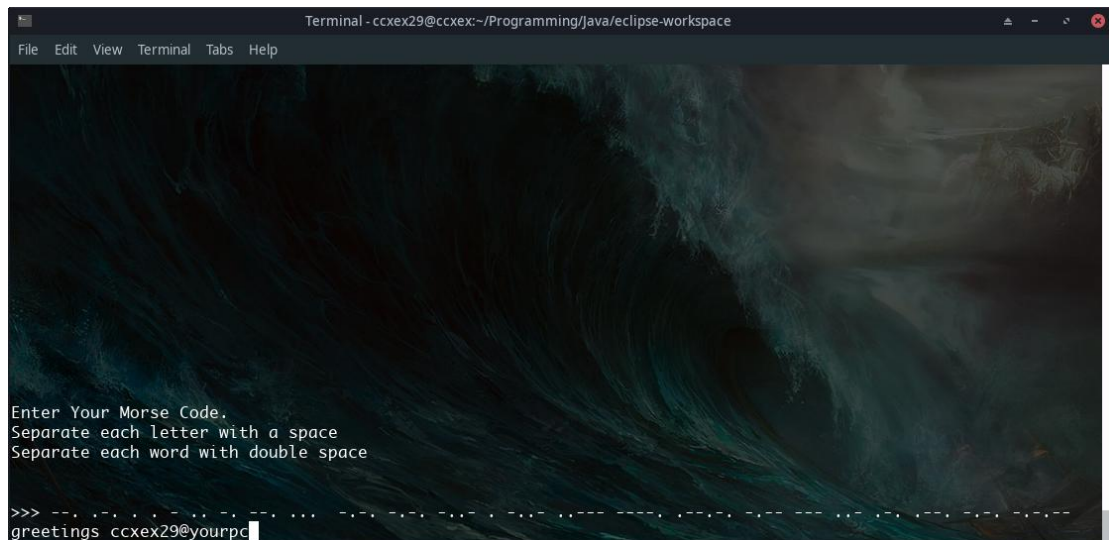
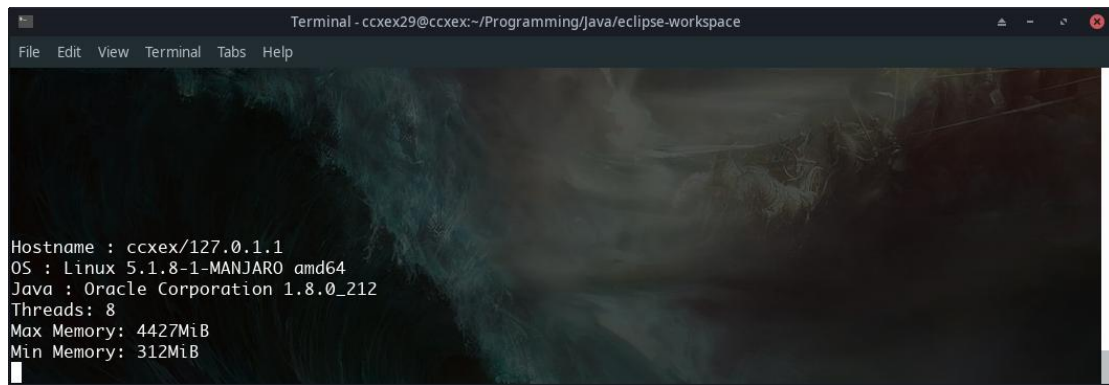


Figure 3.3.3. The First Decryption Test I did

The decryption screen will show the user about how to input the morse code, the user can input the morse code on the command input.

A screenshot of a terminal window titled "Terminal - ccxex29@ccxex:~/Programming/Java/eclipse-workspace". The terminal has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The background of the terminal is a dark, abstract, greenish-blue pattern. The text displayed in the terminal is as follows:

```
Hostname : ccxex/127.0.1.1
OS : Linux 5.1.8-1-MANJARO amd64
Java : Oracle Corporation 1.8.0_212
Threads: 8
Max Memory: 4427MiB
Min Memory: 312MiB
```

Figure 3.4. System Info

For testing purposes only, Louis added System Info to check OS, Java version, Number of Threads, Xmx (Max Memory), and Xms (Initial Memory).

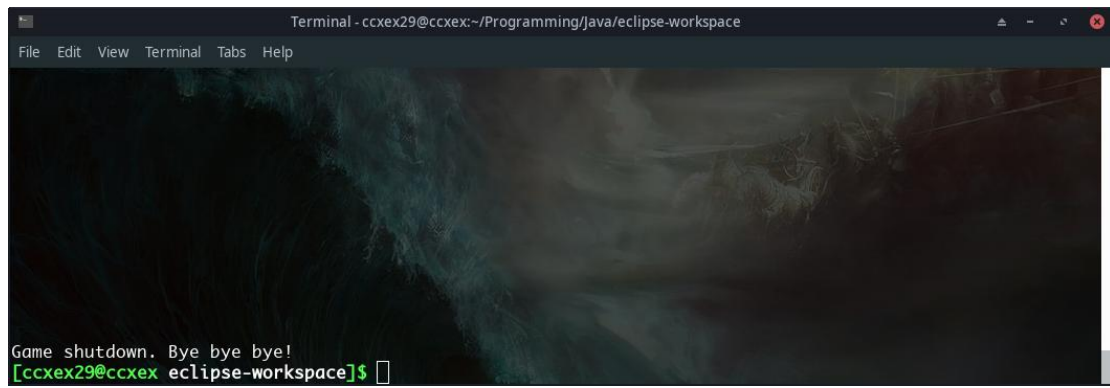


Figure 4. Upon Exiting

The program will show shutdown message.