

COMBAT GAME USER MANUAL



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PREFACE

This guide is for the users of the multiplayer combat game developed by the author. It details how the combat game is to be played where two users will fight against each other based on the units available with both of them. Detailed explanation of each step is given in this guide along with various illustrations depicting a wide variety of scenarios that may occur in this game and they can be referred to, in case of any confusion. Sincere efforts have been made to ensure the authenticity of this document. In case of any queries and/or feedback, the author can be contacted at the below mentioned email address.

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INTRODUCTION

This section aims to introduce the combat game to the users talking in brief the overall structure of the game. All the rules and possible results will be explained in the later sections.

This is the multiplayer combat game which can be played through the command line interface in the user's machine. It has two versions – Basic and Extended. At the start of the game, the players will enter their names. Each of the players are given an initial balance of 10\$ to purchase units for the game. The player can either wish to make a purchase or refuse to make one for which he would be prompted. Once the player has made the decision, he/she won't be able to go back and change it. After purchase of each unit, the player will be prompted again to purchase units and based on this decision, it will either continue the purchase cycle or hand over the purchase input to the second player.

A player can purchase maximum of 10 units. After both the players have completed the payments by either exhausting the balance or by terminating the purchase cycle, the game will start. If any player is dissatisfied by the units purchased, he/she can refuse to partake in the game based on which the other player will be declared as winner by default. If both the players refuse to take part in the game, the game will result in tie with no one winning the game.

Once both the players have consented to take part in the game, the game will start and units will start fighting each other in the order in which they were purchased. The results of the battles will be displayed instantaneously and the last army standing will be declared the overall winner of the game. In case both the armies get depleted simultaneously, the game will result in a tie. Note that, the units of each army will fight against each other in the order in which they were purchased with defeated units getting permanently removed from the defeated player's army and the next one taking its place for the next battle.

In the extended version of the game two functionalities have been incorporated – Medics and expanded armies. After the units are purchased, in case of any remaining balance, the medics are assigned at 1\$ each to revive the defeated units and assigned at the end of the army. In the Expanded Armies features, two new units – Wizards and Siege Equipments are incorporated, with cost of 4\$ and 3\$ respectively reflecting their abilities and prices of other units have also been readjusted which will be talked about in the later sections

Apart from the basic flow given above, this game also validates various user inputs to avoid unexpected outcomes. Now, let's move on to the next section to look at the various scenarios above in action and more explanation.

THE START

From this section onwards, we will make use of illustrations to explain the game flow and the rules associated with it. This section will introduce the users to the basic game functionality.

As mentioned in the previous section, at the start of the game the users will be prompted for the names by which they wish to be called:

```
(base) E:\practice>python basic_game_29869560.py
Greetings Commanders!! This is the start of the basic game to be fought against two players
Enter your name, commander 1: Andy
Enter your name, commander 2: David
```

After both users have given their respective inputs, the control of the game will return to the first player, allowing the game to be introduced to him by mentioning the type and cost of units available:

```
(base) E:\practice>python basic_game_29869560.py
Greetings Commanders!! This is the start of the basic game to be fought against two players
Enter your name, commander 1: Andy
Enter your name, commander 2: David

Hello Commander Andy
This game has three units available for fighting:
Archer, Soldier, Knight
Units are available at 1$ each
Your initial balance is 10$. Number of available units: 0
Do you wish to make a purchase?[Y/N]-
```

From this point onwards, the player can choose what he/she wishes to do with the balance available with him/her. If the player wishes to make a purchase and gives in the input y(y-yes...doesn't matter whether it's uppercase or lower case), the options of units to choose from will be displayed on the screen:

```
Hello Commander Andy
This game has three units available for fighting:
Archer, Soldier, Knight
Units are available at 1$ each
Your initial balance is 10$. Number of available units: 0
Do you wish to make a purchase?[Y/N]- y
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight
Enter input here - ■
```

If the player does not wish to make a purchase, he/she can give an input n (irrespective of the case) and get out of the purchase cycle and the game will hand the control to the second player:

```
Hello Commander Andy
This game has three units available for fighting:
Archer, Soldier, Knight
Units are available at 1$ each
Your initial balance is 10$. Number of available units: 0
Do you wish to make a purchase?[Y/N]- N
Proceeding..

Hello Commander David
Your initial balance is 10$. Available units: 0
Do you wish to make a purchase?[Y/N]- ■
```

If the player enters an invalid input (apart from y, Y, n or N), he/she will be prompted to enter the input again:

```
Hello Commander Andy
This game has three units available for fighting:
Archer, Soldier, Knight
Units are available at 1$ each
Your initial balance is 10$. Number of available units: 0
Do you wish to make a purchase?[Y/N]- j
Kindly enter a valid input
Do you wish to make a purchase?[Y/N]- ■
```

Now let's go with the scenario where the player has consented to purchase and now has to select a unit to proceed further. At this point he cannot go back and exit the game. If he wishes to not make any further purchases, he/she will have to complete this particular transaction and then make a refusal by entering n or N when the next time he/she is prompted to buy a unit after the current purchase.

Below picture depicts what happens when player decides to purchase a unit and inputs his/her choice:

```
Hello Commander Andy
This game has three units available for fighting:
Archer, Soldier, Knight
Units are available at 1$ each
Your initial balance is 10$. Number of available units: 0
Do you wish to make a purchase?[Y/N]- y
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight
Enter input here - archer
You have purchased an Archer
You now have 1 units
Units currently available with you:
archer
Your remaining balance is 9$
Do you wish to make a purchase?[Y/N]- _
```

Notice how the balance remaining and the current units available after the purchase have been displayed. For further purchases the balance will again be deducted and units purchased will be displayed in the order they were purchased. Same process is repeated for the second player:

```
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight
Enter input here - archer
You have purchased an Archer
You now have 1 units
Units currently available with you:
archer
Your remaining balance is 9$
Do you wish to make a purchase?[Y/N]- y
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight
Enter input here - soldier
You have purchased a Soldier
You now have 2 units
Units currently available with you:
archer
soldier
Your remaining balance is 8$
Do you wish to make a purchase?[Y/N]- y
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight
Enter input here - Knight
You have purchased a Knight
You now have 3 units
Units currently available with you:
archer
soldier
Knight
Your remaining balance is 7$
Do you wish to make a purchase?[Y/N]- _
```

Now let's see what happens once a player uses all the balance allocated to him/her:

```
Your remaining balance is 1$
Do you wish to make a purchase?[Y/N]- y
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight
Enter input here - soldier
You have purchased a Soldier
You now have 10 units
Units currently available with you:
archer
soldier
knight
soldier
soldier
knight
archer
knight
archer
soldier
Your remaining balance is 0$
Do you wish to make a purchase?[Y/N]- y
Insufficient funds to make a further purchase

Hello Commander David
Your initial balance is 10$. Available units: 0
Do you wish to make a purchase?[Y/N]-
```

As stated previously after the initial balance of 10\$ gets used up, the player won't be able to make any further purchases. The same is applicable to the second player.

After both the players have completed purchasing the players, they will be prompted to continue. Based on their inputs various scenarios can result as shown below:

```
Do you wish to make a purchase?[Y/N]- n

Commander Andy Continue to the game?[Y/N] y

Commander David Continue to the game?[Y/N] y

Game - Basic Version

Commander David wins this battle
Commander Andy wins this battle
Commander David wins this battle
Commander Andy wins this battle
Commander Andy wins this battle
Commander David wins this battle
This battle resulted in a tie

Commander Andy has won this war
```


In the above case, both the players consent to continue to the game and are taken to the game where the results are displayed instantaneously (more on this in the later section).

If any of the above players does not wish to continue, the other player will be declared the winner of the game automatically:

```
You have purchased an Archer
You now have 3 units
Units currently available with you:
Soldier
Archer
Archer
Your remaining balance is 7$
Do you wish to make a purchase?[Y/N]- n

Commander Andy Continue to the game?[Y/N] y

Commander David Continue to the game?[Y/N] n

Commander Andy has won this game since commander David has quit.
```

In case of an invalid input from one of the players at this stage, the players would be prompted for another input:

```
Commander David Continue to the game?[Y/N] y

Commander Andy Continue to the game?[Y/N] j
Kindly enter a valid input

Commander David Continue to the game?[Y/N] n

Commander Andy Continue to the game?[Y/N] y

Commander Andy has won this game since commander David has quit.
```

If both the players refuse to continue to the game, it will be treated as a tie with no winners:

```
Do you wish to make a purchase?[Y/N]- n

Commander Andy Continue to the game?[Y/N] n

Commander David Continue to the game?[Y/N] n
Both the players have quit the game, hence it is a tie with no winners
```

COMBAT RULES

This section attempts to explain the basic combat rules that apply throughout the game after the units have been purchased and game is contested by both the players. Fighting between three types of units – Archers, Soldiers and Knights will result in the following outcomes:

Unit1	Unit2	Winning Unit	Winner
Archer	Knight	Knight	Unit2
Archer	Soldier	Archer	Unit1
Archer	Archer	Tie	No winner
Soldier	Knight	Soldier	Unit1
Soldier	Soldier	Tie	No winner
Soldier	Archer	Archer	Unit2
Knight	Knight	Tie	No winner
Knight	Soldier	Soldier	Unit2
Knight	Archer	Knight	Unit1

The above table describes all the possible combinations when any two of the given units come head to head in the battle. In short – Archers win against Soldiers but lose against Knights, Knights win against Archers and lose against Soldiers, Soldier defeat the Knight but gets defeated against Archer.

The actual mechanism of the game based on the above rules follows the below logic:

1. When unit of any army gets defeated, it will be removed from its position and the next unit will take its place to fight against the unit of the other player's army. This process will repeat until one or both the army gets depleted.
2. The army which gets depleted first will lose and the other army will be declared as winner of the game.
3. If both the armies get depleted simultaneously, the game will have no winners and give the result as a tie.

Apart from this individual battle outcomes are also displayed for each battle.

The following illustrations show some of the possible outcomes that may result in while playing the game.

CASE 1:

Player 1 – Archer, Knight, Soldier

Player 2 – Soldier, Knight, Archer

```
Commander Andy Continue to the game?[Y/N] y
Commander David Continue to the game?[Y/N] y
Game - Basic Version

Commander Andy's Archer vs Commander David's Knight
Commander David wins this battle

Commander Andy's Soldier vs Commander David's Knight
Commander Andy wins this battle

Commander Andy's Soldier vs Commander David's Soldier
This battle resulted in a tie

Commander Andy's Knight vs Commander David's Archer
Commander Andy wins this battle

Commander Andy has won this war
```

Player 1(Andy)	Player 2(David)	Winning Unit	Winner
Archer	Knight	Knight	Player 2
Soldier	Knight	Soldier	Player 1
Soldier	Archer	Archer	Player 2
Knight	Archer	Knight	Player 1

Battle outcome 1

As can be verified from the above table, the winner of the game is Player 1.

CASE 2:

Player 1 – Archer, Knight, Soldier

Player 2 – Archer, Knight, Soldier, Archer

```
Commander Andy Continue to the game?[Y/N] y
Commander David Continue to the game?[Y/N] y
Game - Basic Version

Commander Andy's Archer vs Commander David's Archer
This battle resulted in a tie

Commander Andy's Knight vs Commander David's Knight
This battle resulted in a tie

Commander Andy's Soldier vs Commander David's Soldier
This battle resulted in a tie

Commander David has won this war
```

Player 1(Andy)	Player 2(David)	Winning Unit	Winner
Archer	Archer	Tie	No Winner
Knight	Knight	Tie	No Winner
Soldier	Soldier	Tie	No Winner
	Archer	Archer	Player 2

Battle Outcome 2

In this case, the first three matches resulted in a tie. After the third battle, Player 1's Army gets depleted whereas one unit of Player 2's army still remain. Hence, Player 2 is declared the winner.

CASE 3:

Player 1 – Archer, Knight, Soldier

Player 2 – Archer, Knight, Soldier

```
Commander Andy Continue to the game?[Y/N] y
Commander David Continue to the game?[Y/N] y
Game - Basic Version
Commander Andy's Archer vs Commander David's Archer
This battle resulted in a tie
Commander Andy's Knight vs Commander David's Knight
This battle resulted in a tie
Commander Andy's Soldier vs Commander David's Soldier
This battle resulted in a tie
This war resulted in a tie
```

Player 1(Andy)	Player 2(David)	Winning Unit	Winner
Archer	Archer	Tie	No Winner
Knight	Knight	Tie	No Winner
Soldier	Soldier	Tie	No Winner

Battle Outcome 3

In this case, the first three matches resulted in a tie. After the third battle, Player 1's and Player 2's army gets depleted. Hence, no one is declared the winner and the result of the game is a Tie.

CASE 4:

Player 1 – Soldier

Player 2 – Knight, Knight, Knight, Knight

```
Commander Andy Continue to the game?[Y/N] y
Commander David Continue to the game?[Y/N] y

Game - Basic Version

Commander Andy's Soldier vs Commander David's Knight
Commander Andy wins this battle

Commander Andy's Soldier vs Commander David's Knight
Commander Andy wins this battle

Commander Andy's Soldier vs Commander David's Knight
Commander Andy wins this battle

Commander Andy's Soldier vs Commander David's Knight
Commander Andy wins this battle

Commander Andy has won this war
```

Player 1(Andy)	Player 2(David)	Winning Unit	Winner
Soldier	Knight	Soldier	Player 1
Soldier	Knight	Soldier	Player 1
Soldier	Knight	Soldier	Player 1
Soldier	Knight	Soldier	Player 1

Battle Outcome 4

In this case, it can be observed that irrespective of the unit length, if same kinds of weaker units are present in one army, they are going to fall against the stronger unit.

EXTENDED GAME

The basic version of this game implements a minimal functionality. Some of the shortcomings of the basic version of this game have been implemented in the extended version of the game, which will be talked about in this section. Two functionalities have been implemented for this purpose – Medics and Extended Army.

MEDICS:

This feature has been implemented to revive the defeated units of a player's army. It can only be implemented if the player has balance greater than zero after he has finished purchasing all the units he/she requires. After the player has finished buying the units, the remaining balance is allocated as the medic balance and medics are purchased to revive the troops at 1\$ per unit whenever a unit suffers a defeat. This process continues until the medic balance is exhausted.

EXPANDED ARMY:

This feature introduces two new units with different abilities:

Wizard – Weak against Archer

Siege Equipment – Weak against Knight and Wizard

As per the above abilities, the wizards can be concluded to be the one with the strongest abilities, hence they can be purchased at 4\$. Siege Equipment units being less powerful than wizards, though exhibiting more abilities than the other units can be purchased at 3\$ per unit.

Since Knights and Archers can now defeat 2 units, their price gets increased to 2\$. Price of Soldiers remain the same, that is 1\$ per unit.

As per the above rules, new combat table can be redrawn as follows:

Unit1	Unit2	Winning Unit	Winner
Archer	Knight	Knight	Unit2
Archer	Soldier	Archer	Unit1
Archer	Archer	Tie	No winner
Soldier	Knight	Soldier	Unit1
Soldier	Soldier	Tie	No winner
Soldier	Archer	Archer	Unit2
Knight	Knight	Tie	No winner
Knight	Soldier	Soldier	Unit2
Knight	Archer	Knight	Unit1
Soldier	Wizard	Wizard	Unit2
Soldier	Siege	Siege	Unit2
Knight	Wizard	Wizard	Unit2
Archer	Wizard	Archer	Unit2

Knight	Siege	Knight	Unit1
Archer	Siege	Siege	Unit2
Wizard	Wizard	Tie	No Winner
Siege	Siege	Tie	No Winner

Rest of the game mechanism will go as explained previously, with the last standing army winning the game and no one winning if both of them get depleted simultaneously. Some of the scenarios can be shown as follows:

PURCHASE SCENARIO:

Suppose a player has purchased some units and wishes to terminate. The following illustration will depict how the remaining balance will be allocated to the medics:

```

Hello Commander Rishabh
Your initial balance is 10$. Available units: 0

Do you wish to make a purchase?[Y/N]- y
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight, Wizard, Siege
Enter input here - wizard
Your remaining balance is 6$
You now have 1 units
Units currently available with you:
Wizard
You have successfully purchased a Wizard.

Do you wish to make a purchase?[Y/N]- y
Enter the type of unit you want to purchase from the following:
Archer, Soldier, Knight, Wizard, Siege
Enter input here - archer
Your remaining balance is 4$
You now have 2 units
Units currently available with you:
Wizard
Archer
You have successfully purchased an Archer

Do you wish to make a purchase?[Y/N]- n
Proceeding..
Your remaining amount has been assigned as medic balance amounting to 4 dollars

```

As we can see from above, out of 10\$ initial balance, 6\$ was assigned to the units (4 dollars to wizards, 2 dollars to archers). After these purchases, player wished to not make any more purchases. Hence the remaining amount of 4\$ was assigned to the Medics.

Note that the cost of each unit is also introduced at the start of this extended version of the game:

```
(base) E:\practice>python extended_game_29869560.py
Greetings Commanders!! This is the start of the extended game to be fought against two players.
Two new features have been implemented in this game - Medics and Expanded Armies.
Medics are allocated at 1$ per medic after the commander doesn't wish to purchase further units.
Two new units have been added - Wizards and Siege Equipment.
Cost of Wizard - 4$, Cost of Siege Equipment = 3$, Cost of Knight and Archer - 2$.
Cost of Soldiers - 1$
Enter your name, commander 1: 
```

FIGHTING SCENARIO:

Now let's look at what happens when the players engage in a battle and units are revived with the help of medics by taking a sample example:

Player 1 – Wizard, Soldier, Siege (Total Cost = $4+1+3 = 8\$$, Medic Balance = $10-8 = 2\$$)

Player 2 – Wizard, Archer, Knight (Total Cost = $4+2+2 = 8\$$, Medic Balance = $10-8 = 2\$$)

```

Your remaining amount has been assigned as medic balance amounting to 2$
Commander John Continue to the game?[Y/N] y
Commander Julie Continue to the game?[Y/N] y
Game - Advanced Version

Commander John's wizard vs Commander Julie's wizard
This battle resulted in a tie
In progress - attempting to revive your unit by calling the Medic
Commander John unit to be revived wizard
Commander - your wizard has been revived
1 is the remaining medic balance
In progress - attempting to revive your unit by calling the Medic
Commander Julie unit to be revived wizard
Commander - your wizard has been revived
1 is the remaining medic balance

Commander John's soldier vs Commander Julie's archer
Julie wins this battle
In progress - attempting to revive your unit by calling the Medic
Commander John unit to be revived soldier
Commander - your soldier has been revived
0 is the remaining medic balance
```

```

Commander John's siege vs Commander Julie's archer
John wins this battle
In progress - attempting to revive your unit  by calling the Medic
Commander Julie unit to be revived archer
Commander - your archer has been revived
0 is the remaining medic balance

Commander John's siege vs Commander Julie's knight
Julie wins this battle

Commander John's wizard vs Commander Julie's knight
John wins this battle

Commander John's wizard vs Commander Julie's wizard
This battle resulted in a tie

Commander John's soldier vs Commander Julie's archer
Julie wins this battle

Commander Julie has won this war

```

The tabular description of the above illustration is given below:

Player 1(John)	Player 2(Julie)	Initial Medic Balance (Player 1, Player 2)	Medic Balance after battle (Player 1, Player 2)	Winning Unit	Winner
Wizard	Wizard	2,2	1,1	Tie	No Winner
Soldier	Archer	1,1	0,0	Archer	Player 2
Siege	Archer	0,0	0,0	Siege	Player 1
Siege	Knight	0,0	0,0	Knight	Player 2
Wizard	Knight	0,0	0,0	Wizard	Player 1
Wizard	Wizard	0,0	0,0	Tie	No Winner
Soldier	Archer	0,0	0,0	Archer	Player 2

Hence, we can observe that the revived units of each army were able to fight against each other. 2 units were revived for both of the armies in this case because of available medic balance of 2\$ for both the armies. Medic balance is used to revive the unit of army which gets defeated by calling the medics at 1\$ per medic.

CONCLUSION

This concludes the end of the combat game. Both basic version and extended version game functionality has been explained. Extended version overcomes the shortcomings of the basic version by the use of medics and expanded armies so that more options are available for use and also units are able to be revived depending on the remaining balance of the users.