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About The Combat Game

This is a simple battle simulator that played between two players with their chosen army.

In the initial stage, each player termed as commander is assigned with a total of $10 currency which enables them to purchase units and store in their army. Commanders can spend as much amount as they want limiting up to $10. For starters, each unit costs $1 in standard game. After purchase army is assembled and made to fight each other.

The army consisting of:

- Archer
- Soldier
- Knight

Each of the units have their own strengths and weaknesses. For Instance;

1. Archers are good against Soldiers but are terrible against Knights.
2. Soldiers are good against Knights but can't win against Archers.
3. Knights beat Archers, but fall short against Soldiers.
4. Finally, if a unit comes up against a unit of the same type, both lose.

Table 1: Battle outcome on Army head on.

Unit Type	Archer	Soldier	Knight
Archer	Tie	Archer	Knight
Soldier	Archer	Tie	Soldier
Knight	Knight	Soldier	Tie

Each battle decides a winner who stays on the battle field to face next unit. If the combat is a tie then two new units enters the field. This cycle continuous until one or two of the commanders are left with no army.

Basic Game

Introduction

The Basic Game consists of an Archer, a Soldier and a Knight. Both the commanders are eligible to select units form these three to a maximum value of $10 considering $1 per unit.

Points to be considered for Basic Game:

1. Commander is allowed to select an Archer, a Soldier and a Knight.
2. Commander can select a maximum of $10 army.
3. Each unit cost is fixed to $1.
4. The fight pattern follows 'Table 1'.

Playable Modes

In this basic game I included two modes corresponding to Player Vs Player and Player Vs Computer.

In player Vs player mode, each commander is asked to select their army to begin the fight. While in player Vs computer mode, commander 1 is asked to select army and computer (a basic AI) will select army itself to compete with player.
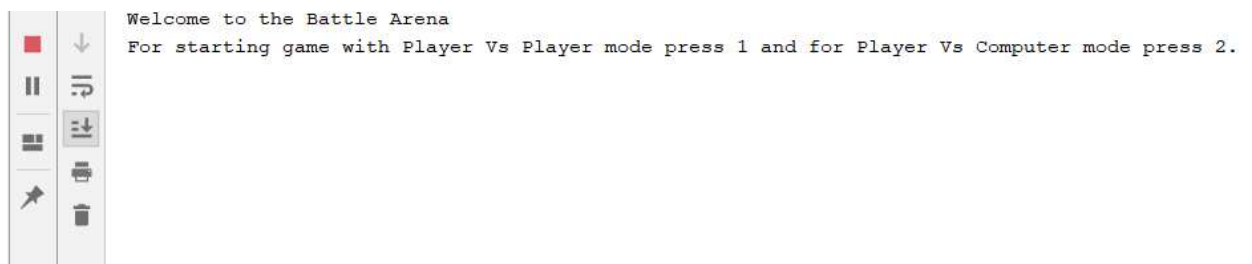
In both the modes the result is declared after iterating through the same winner deciding logic.
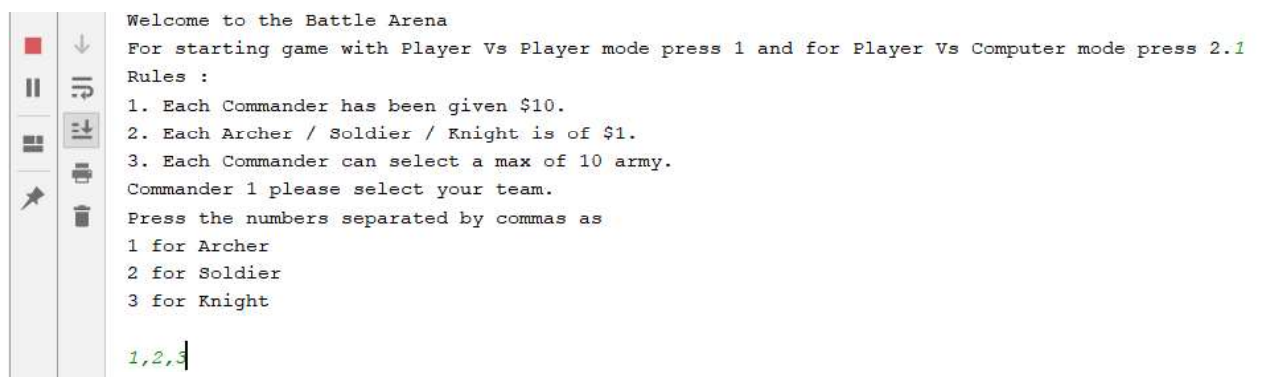
Working Demo

Player Vs Player Mode:

The game can be effectively played by following the below steps;

1. Run the game with file name "basic_game_29849551.py". The output in console looks like,


```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.
```
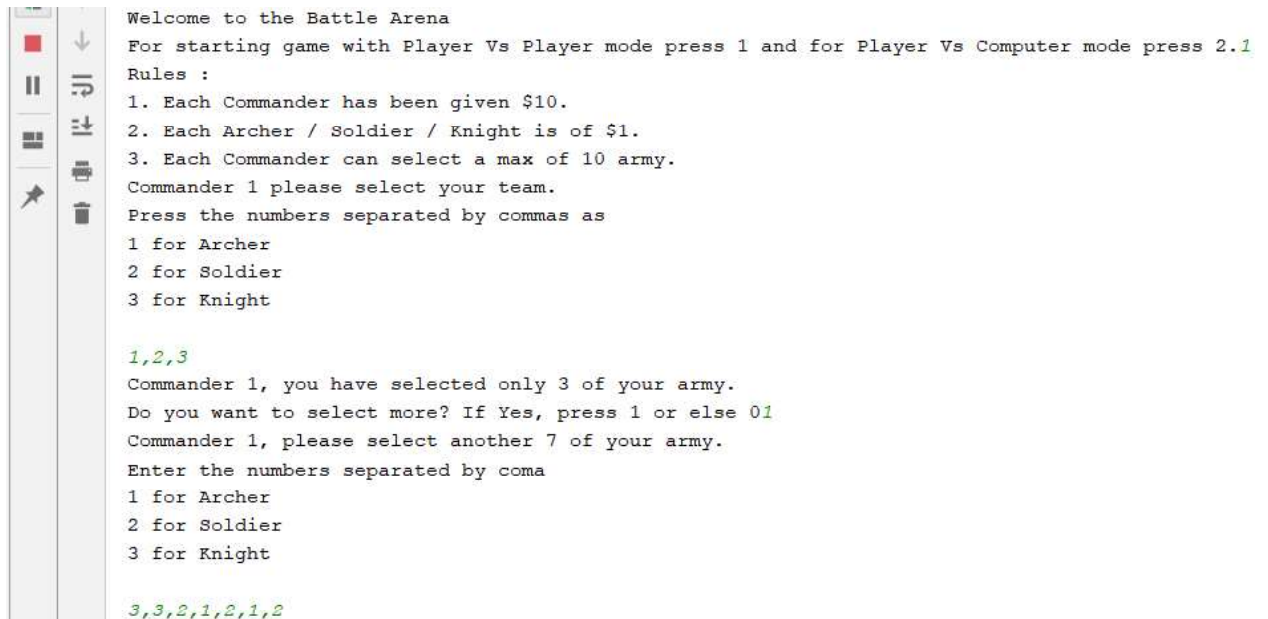
2. Now enter "1" to choose Player Vs Player mode. Then the console prompts for Commander 1 to make his selection where he can enter his choice in comma separated value format.


```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Each Archer / Soldier / Knight is of $1.
3. Each Commander can select a max of 10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

1,2,3
```

3. On pressing enter, console prompts that he has selected only three units and whether he will select more. If he wants to select more he has to enter 1 or else 0.

a. If "1" is entered, the program asks to select remaining army. The remaining army gets appended to existing selected army.

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Each Archer / Soldier / Knight is of $1.
3. Each Commander can select a max of 10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

1,2,3
Commander 1, you have selected only 3 of your army.
Do you want to select more? If Yes, press 1 or else 01
Commander 1, please select another 7 of your army.
Enter the numbers separated by coma
1 for Archer
2 for Soldier
3 for Knight

3,3,2,1,2,1,2
```

b. If "0" is entered, the program completes Commander 1's army assembling and quickly jumps to commander 2 army selection.
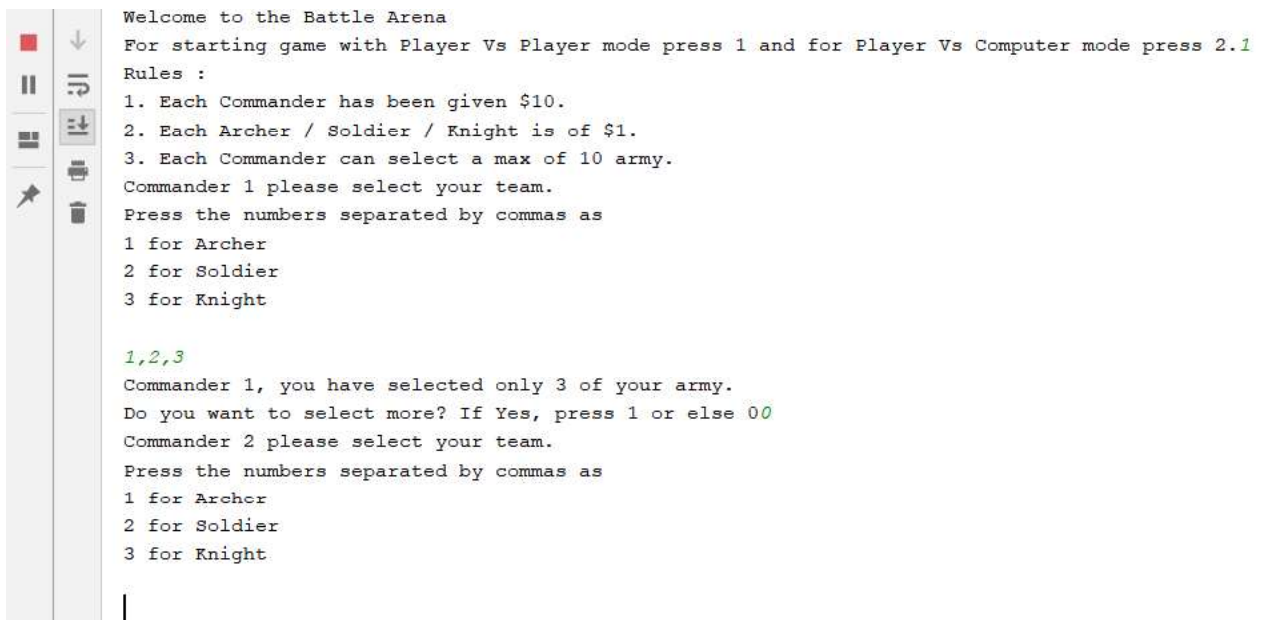
```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Each Archer / Soldier / Knight is of $1.
3. Each Commander can select a max of 10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

1,2,3
Commander 1, you have selected only 3 of your army.
Do you want to select more? If Yes, press 1 or else 00
Commander 2 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

|
```

4. Now the Commander 2 follows similar steps as Commander 1 for selecting and assembling of his army.
5. Finally, the battle begins just after two players finishes with their selection. The result will be declared when one of the commanders is out of units or both of them are out of units.
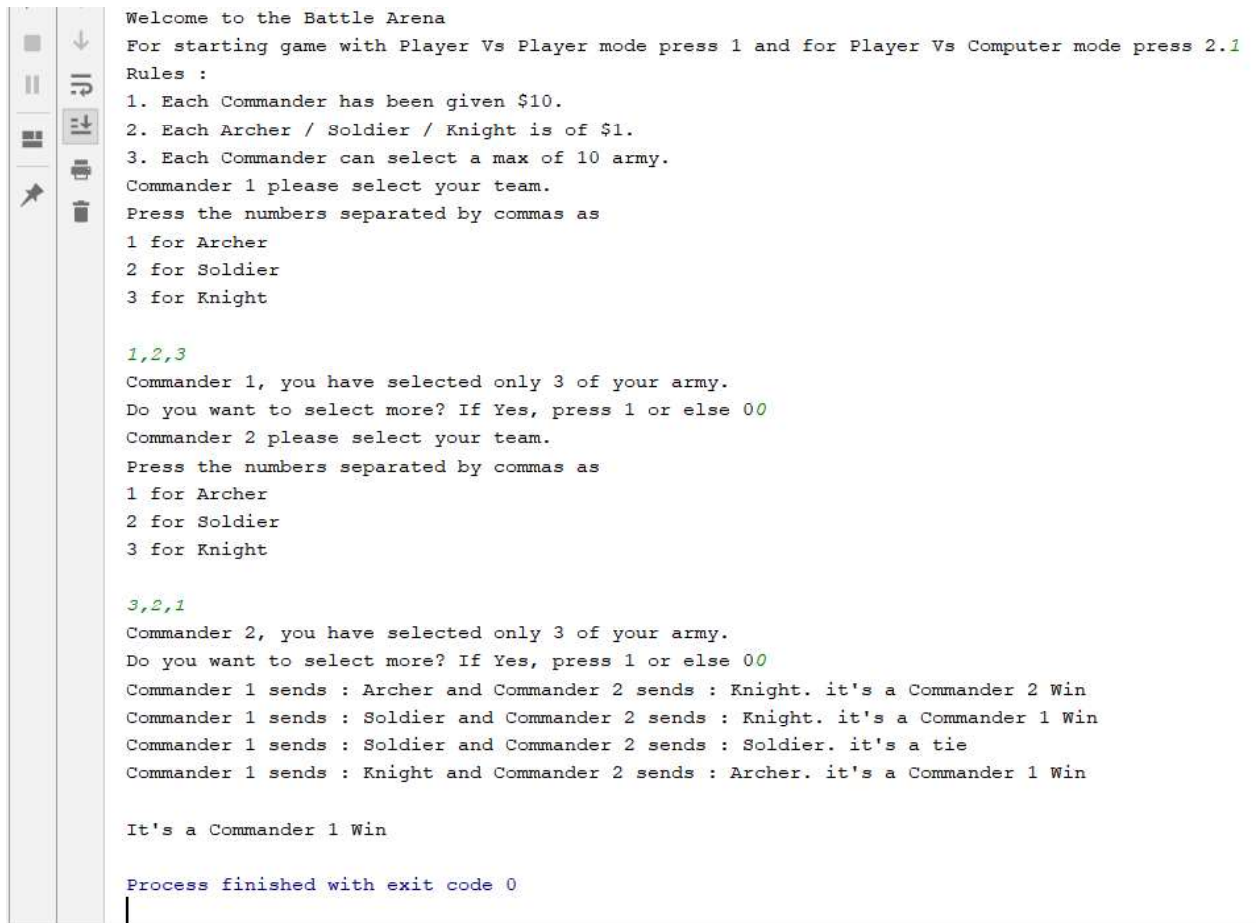
```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Each Archer / Soldier / Knight is of $1.
3. Each Commander can select a max of 10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

1,2,3
Commander 1, you have selected only 3 of your army.
Do you want to select more? If Yes, press 1 or else 00
Commander 2 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

3,2,1
Commander 2, you have selected only 3 of your army.
Do you want to select more? If Yes, press 1 or else 00
Commander 1 sends : Archer and Commander 2 sends : Knight. it's a Commander 2 Win
Commander 1 sends : Soldier and Commander 2 sends : Knight. it's a Commander 1 Win
Commander 1 sends : Soldier and Commander 2 sends : Soldier. it's a tie
Commander 1 sends : Knight and Commander 2 sends : Archer. it's a Commander 1 Win

It's a Commander 1 Win

Process finished with exit code 0
```

6. Eventually, the battle gets ended.

Player Vs Computer Mode:

The game with computer can be effectively played by following the below steps;

1. Run the game with file name "basic_game_29849551.py". The output in console looks like,

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.
```

2. Now select or enter 2 to play with Computer as Commander 2. The output in console asks for Commander 1 to select his units.

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.2
Rules :
1. Each Commander has been given $10.
2. Each Archer / Soldier / Knight is of $1.
3. A Commander can select a max of 10 army.
Commander please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

1,2,3
```

3. Step 3 is similar to that in Player Vs Player mode.
4. In this step Computer selects its team and battle begins.

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.2
Rules :
1. Each Commander has been given $10.
2. Each Archer / Soldier / Knight is of $1.
3. A Commander can select a max of 10 army.
Commander please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

1,2,3
Commander 1, you have selected only 3 of your army.
Do you want to select more? If Yes, press 1 or else 00
Please wait while Commander 2 computer is making selection.
Commander 2 computer selected : [2, 2, 3, 2, 1, 1, 3, 2, 2, 2]
Commander 1 sends : Archer and Commander 2 sends : Soldier. it's a Commander 1 Win
Commander 1 sends : Archer and Commander 2 sends : Soldier. it's a Commander 1 Win
Commander 1 sends : Archer and Commander 2 sends : Knight. it's a Commander 2 Win
Commander 1 sends : Soldier and Commander 2 sends : Knight. it's a Commander 1 Win
Commander 1 sends : Soldier and Commander 2 sends : Soldier. it's a tie
Commander 1 sends : Knight and Commander 2 sends : Archer. it's a Commander 1 Win
Commander 1 sends : Knight and Commander 2 sends : Archer. it's a Commander 1 Win
Commander 1 sends : Knight and Commander 2 sends : Knight. it's a tie

It's a Commander 2 Win

Process finished with exit code 0
```
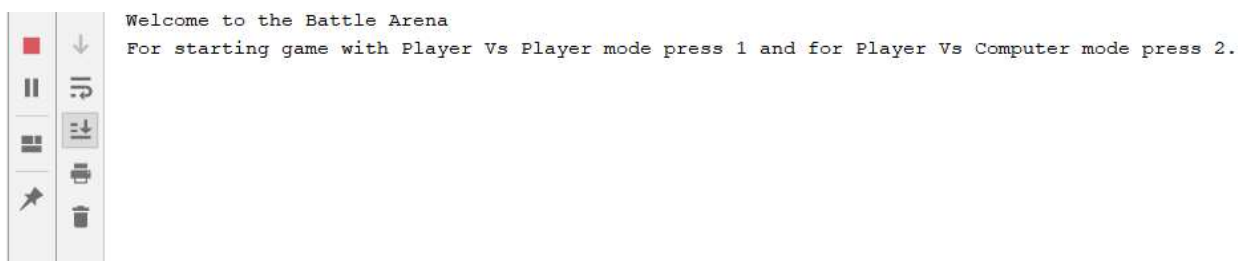
5. Finally, the result is declared and combat ends.

Test Case for Basic Game

1. Commander 1 Army: Archer, Knight, Knight, Soldier
   Commander 2 Army: Knight, Knight, Archer

   Result:

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Each Archer / Soldier / Knight is of $1.
3. Each Commander can select a max of 10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

1,3,3,2
Commander 1, you have selected only 4 of your army.
Do you want to select more? If Yes, press 1 or else 0o
Please enter only numbers.
Do you want to select more? If Yes, press 1 or else 00
Commander 2 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight

3,3,1
Commander 2, you have selected only 3 of your army.
Do you want to select more? If Yes, press 1 or else 00
Commander 1 sends : Archer and Commander 2 sends : Knight. it's a Commander 2 Win
Commander 1 sends : Knight and Commander 2 sends : Knight. it's a tie
Commander 1 sends : Knight and Commander 2 sends : Knight. it's a tie
Commander 1 sends : Soldier and Commander 2 sends : Archer. it's a Commander 2 Win

It's a Commander 2 Win
```

The Extended Game

Introduction

This is just the extension of the Basic Game with more added features. In this enhanced game player can readjust the unit prices based on their strength instead of sticking to $1 per unit.

Points to be considered for Basic Game:

1. Commander can select a maximum of $10 army.
2. Each unit cost is varied and depends on their strengths.
3. The fight pattern with upgrades is as follows,

Table 2: Battle outcome in Advanced Combat

Unit Type	Archer	Soldier	Knight	Siege Equipment	Wizard
Archer	Tie	Archer	Knight	Siege Equipment	Archer
Soldier	Archer	Tie	Soldier	Siege Equipment	Wizard
Knight	Knight	Soldier	Tie	Knight	Wizard
Siege Equipment	Siege Equipment	Siege Equipment	Knight	Tie	Wizard
Wizard	Archer	Wizard	Wizard	Wizard	Tie

Upgrades Installed

1. *Health:*
   In this upgrade units have health like Knights have 3 health, Soldiers have 2, and Archers have 1. Besides, some of the key points are,
   a) If the unit has advantage, they deal 3 damage.
   b) If unit has disadvantage, they deal 1 damage.
   c) If unit has neither disadvantage nor advantage, they deal 2 damage.

2. *Expanded Armies:*
   In this upgrade 2 new units are added. Those are "Siege Equipment" and "Wizard" respectively. Their battle pattern is clearly mentioned in Table 2. Health for these two can be varied.

Extended Playable Modes

In this extended game I included two modes corresponding to Player Vs Player and Player Vs Computer.
In player Vs player mode, each commander is asked to select their army to begin the fight.
While in player Vs computer mode, commander 1 is asked to select army and computer (a basic AI) will select army itself to compete with player.
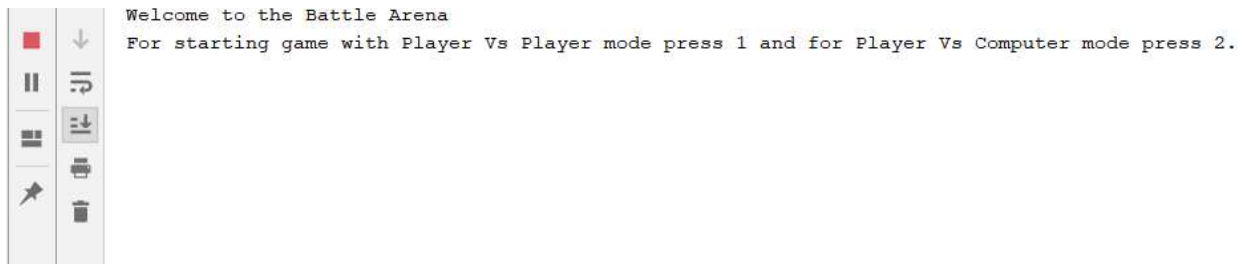
In both the modes the result is declared after iterating through the same winner deciding logic.

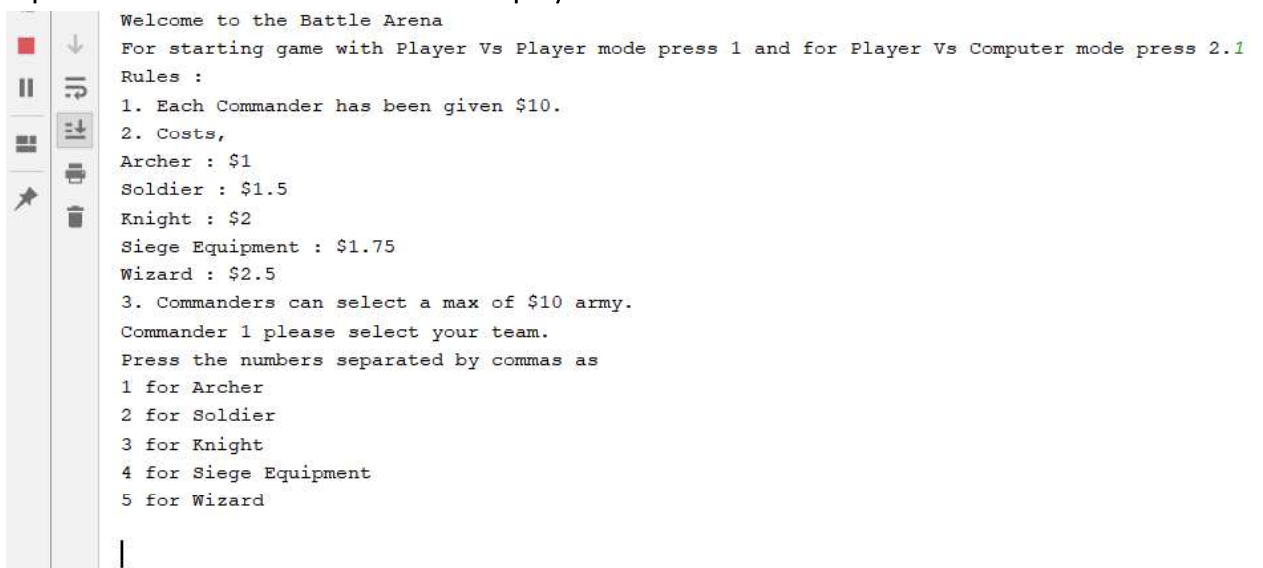## Extended Working Demo

Player Vs Player Mode:
The game can be effectively played by following the below steps;

1. Run the game with file name "extended_game_29849551.py". The output in console looks like,

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.
```

2. Now enter 1 to continue with player Vs player. Next the program asks for commander 1 inputs. Now here cost is included in display.

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard
```

3. Now commander 1 enter his units. If units value is less than $10, then program asks if he wants further units,
   0

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

1,2,3
Commander 1, you have selected only $ 4.5 worth of your army.
Do you want to select more? If Yes, press 1 or else 0
```
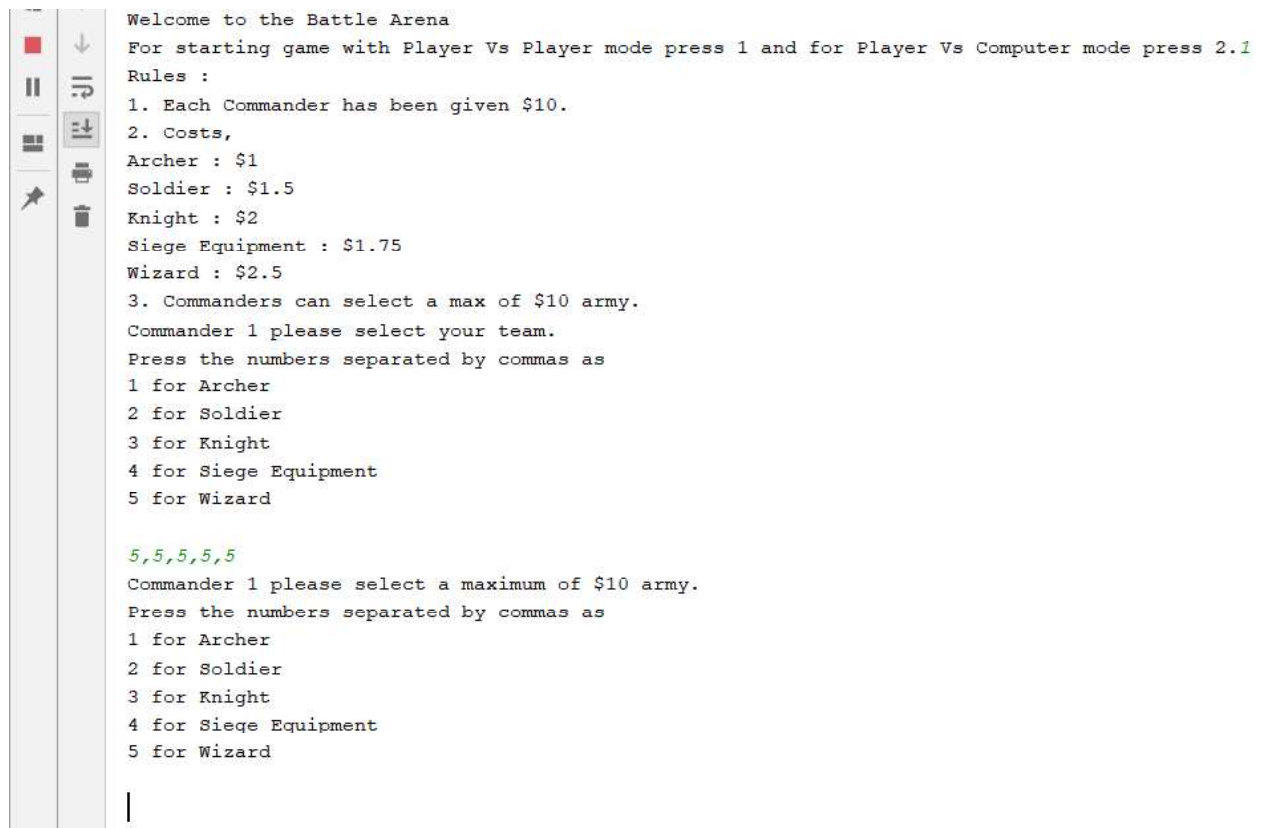
4. If he selects 1, then program asks commander to select further,

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

1,2,3
Commander 1, you have selected only $ 4.5 worth of your army.
Do you want to select more? If Yes, press 1 or else 01
Commander 1, please select another $ 5.5 of your army.
Enter the numbers separated by coma
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

```

5. If commander 1 selects army for more value, then program prompts the commander like,

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

5,5,5,5,5
Commander 1 please select a maximum of $10 army.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

|
```

6. Commander 1 selects his team.

7. Now program asks commander 2 to select his team.

8. Commander 2 also goes through every step as commander 1.

9. Finally combat begins after both commanders selects their team. And eventually, result is declared.

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard


1,2,3,4,5
Commander 1, you have selected only $ 8.75 worth of your army.
Do you want to select more? If Yes, press 1 or else 00
Commander 2 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard


1,3,2,5,4
Commander 2, you have selected only 8.75 of your army.
Do you want to select more? If Yes, press 1 or else 00
Commanders, please wait while you embrace for battle.
Commander 1 sends : Archer and Commander 2 sends : Archer. It's a tie
Commander 1 sends : Soldier and Commander 2 sends : Knight. it's a Commander 1 Win
Commander 1 sends : Soldier and Commander 2 sends : Soldier. it's a tie
Commander 1 sends : Knight and Commander 2 sends : Wizard. it's a Commander 2 win.
Commander 1 sends : Siege Equipment and Commander 2 sends : Wizard. it's a Commander 2 win.
Commander 1 sends : Siege Equipment and Commander 2 sends : Wizard. it's a Commander 2 win.
Commander 1 sends : Wizard and Commander 2 sends : Wizard. it's a tie.
Commander 1 sends : Wizard and Commander 2 sends : Siege Equipment. it's a Commander 1 win.
Commander 1 sends : Wizard and Commander 2 sends : Siege Equipment. it's a Commander 1 win.

Combat ended. Commanders, please wait while finalising results.

Finally, it's a Commander 1 Win
```
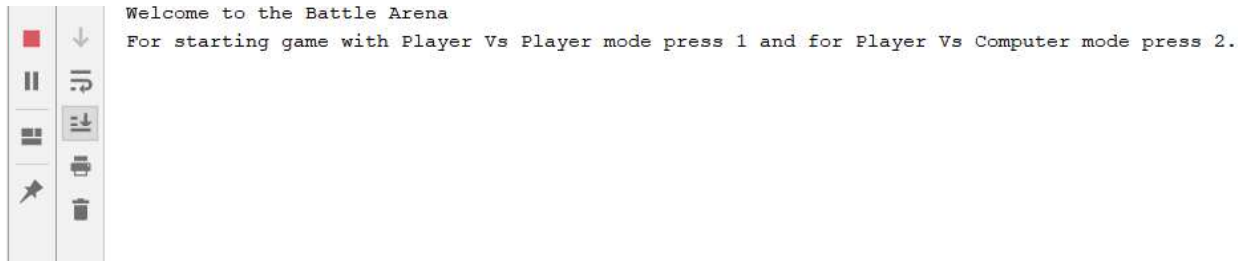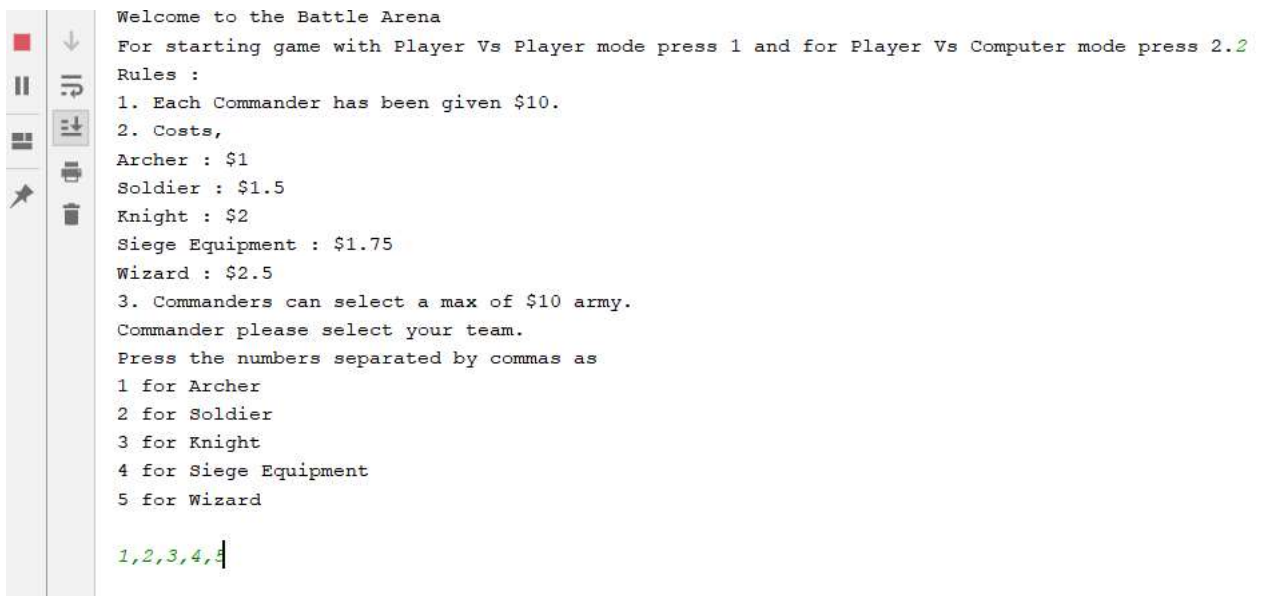
Player Vs Computer Mode:

The game with computer can be effectively played by following the below steps;

1. Run the game with file name "extended_game_29849551.py". The output in console looks like,

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.
```

2. On entering 2, the mode changes to player Vs computer. Now program asks commander 1 to select units.

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.2
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

1,2,3,4,5
```

3. Steps 3, 4, 5 are similar to player Vs player mode.

4. After commander 1 selects his team, computer will select its team and then combat begins.

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.2
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

1,2,3,4,5
Commander 1, you have selected only $ 8.75 worth of your army.
Do you want to select more? If Yes, press 1 or else 00
Please wait while Commander 2 computer is making selection.
Commander 2 computer selected : [1, 3, 3, 3, 1, 1]
Where numbers correspond to
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard
Commanders, please wait while you embrace for battle.
Commander 1 sends : Archer and Commander 2 sends : Archer. It's a tie
Commander 1 sends : Soldier and Commander 2 sends : Knight. it's a Commander 1 Win
Commander 1 sends : Soldier and Commander 2 sends : Knight. it's a Commander 1 Win
Commander 1 sends : Knight and Commander 2 sends : Knight. it's a tie
Commander 1 sends : Knight and Commander 2 sends : Knight. it's a tie
Commander 1 sends : Siege Equipment and Commander 2 sends : Archer. it's a Commander 1 Win
Commander 1 sends : Siege Equipment and Commander 2 sends : Archer. it's a Commander 1 Win

Combat ended. Commanders, please wait while finalising results.

Finally, it's a Commander 1 Win
```

5. Finally, result is declared and combat comes to an end.

Test Case for Extended Game

Commander 1 Army: Archer, Knight, Soldier, Siege Equipment, Wizard.

Commander 2 Army: Knight, Knight, Archer, Wizard.

Result:

```
Welcome to the Battle Arena
For starting game with Player Vs Player mode press 1 and for Player Vs Computer mode press 2.1
Rules :
1. Each Commander has been given $10.
2. Costs,
Archer : $1
Soldier : $1.5
Knight : $2
Siege Equipment : $1.75
Wizard : $2.5
3. Commanders can select a max of $10 army.
Commander 1 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

1,3,3,2,4,5
Commander 1 please select a maximum of $10 army.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard

1,3,2,4,5
Commander 2 please select your team.
Press the numbers separated by commas as
1 for Archer
2 for Soldier
3 for Knight
4 for Siege Equipment
5 for Wizard
3,3,1,5
Commander 2, you have selected only 7.5 of your army.
Do you want to select more? If Yes, press 1 or else 00
Commanders, please wait while you embrace for battle.
Commander 1 sends : Archer and Commander 2 sends : Knight. it's a Commander 2 Win
Commander 1 sends : Knight and Commander 2 sends : Knight. it's a tie
Commander 1 sends : Knight and Commander 2 sends : Knight. it's a tie
Commander 1 sends : Soldier and Commander 2 sends : Knight. it's a Commander 1 Win
Commander 1 sends : Soldier and Commander 2 sends : Archer. it's a Commander 2 Win
Commander 1 sends : Siege Equipment and Commander 2 sends : Wizard. it's a Commander 2 win.
Commander 1 sends : Siege Equipment and Commander 2 sends : Wizard. it's a Commander 2 win.
Commander 1 sends : Wizard and Commander 2 sends : Wizard. it's a tie.
Commander 1 sends : Wizard and Commander 2 sends : Wizard. it's a tie.

Combat ended. Commanders, please wait while finalising results.
Finally, it's a Commander 1 Win
```

Conclusion

The game is built very responsive and user friendly which can handle most of the exceptions and respond with suitable human understandable messages. These info messages helps player to take decisions and proceed further in game.

****

Thank You

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