

2018

FIT9133 Assignment #1

SIMPLE COMBAT SIMULATOR USING PYTHON 3
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Contents

Algorithm	1
Assumptions.....	3
Limitations	3
Demonstration	3
Basic game:	3

Algorithm

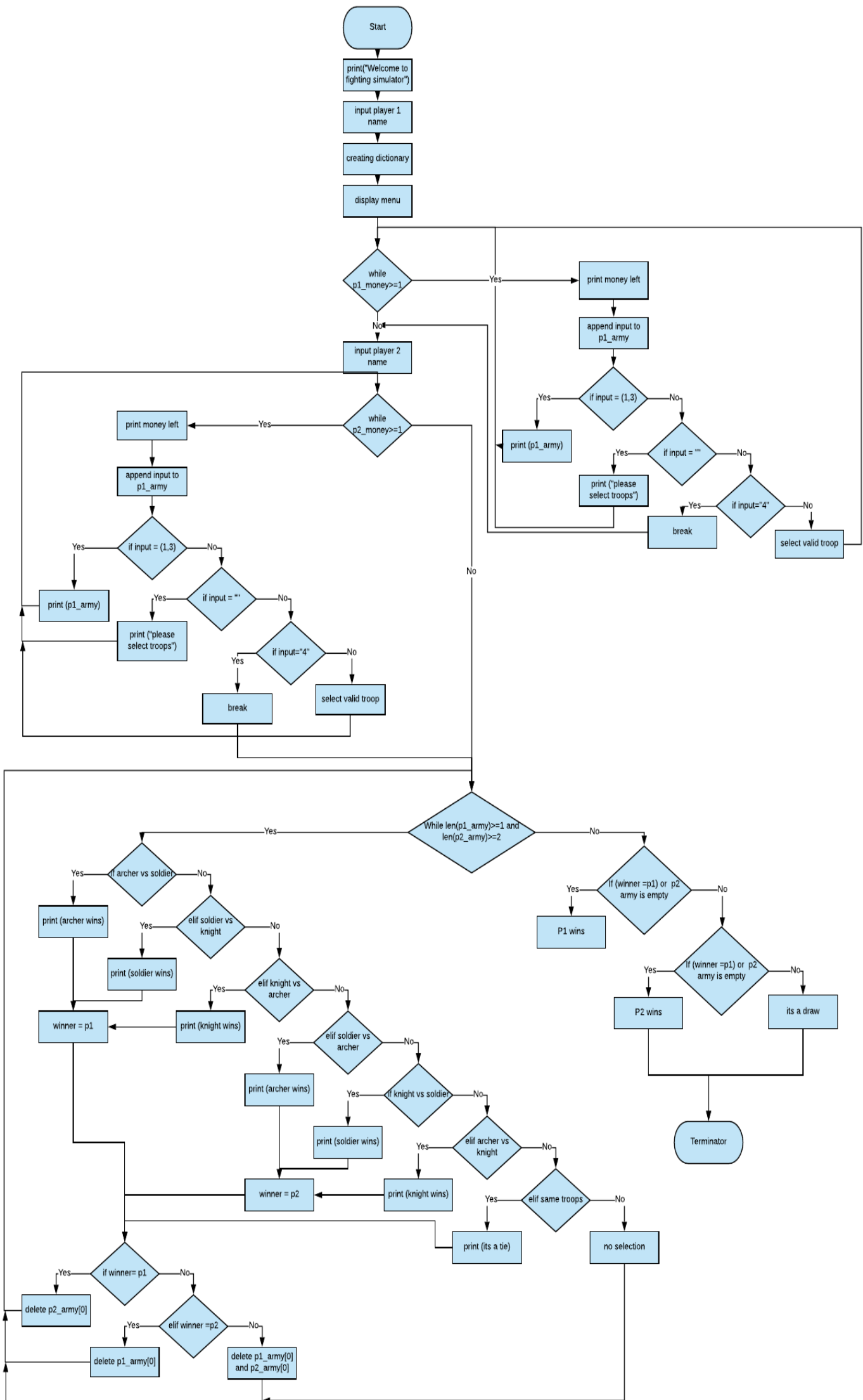
1. Initialize variables
2. Set default money for both players as \$10
3. Create a dictionary to map index numbers to troop names
4. Ask player 1 to input name and store it in p1
5. Display menu
6. Ask player 1 to select troops using index numbers.
7. Validate troop selection using an if-else loop.
8. Add selected troops to a list p1_army which is in budget
9. Display the army after the selection
10. Repeat steps 6 to 9 till p1_money reaches zero or till user exits the selection using while loop
11. Ask player 2 to input name and store it in p2
12. Display menu
13. Ask player 2 to select troops using index numbers.
14. Validate troop selection using an if-else loop.
15. Decrease money by the corresponding cost
16. Add selected troops to a list p2_army which is in budget
17. Display the army after the selection
18. Repeat steps 13 to 17 till p2_money reaches zero or till user exits the selection using while loop.
19. Automatically assign medics equal to the money left for each player in p1_medic and p2_medic respectively

Fight sequence

20. Compare the first items in both the lists.
21. Determine which player wins or if the battle is a draw using an if-else ladder
22. If medics are left for the losing player then add the losing troop to the back of the army(in case of a draw append both the dying troops).
23. Remove the first item of the losing player (in case of "draw" delete items from both lists)
24. Store the winner player in the variable Winner
25. Repeat the steps 19 to 22 till one or both the lists is empty using while loop
26. If any of the armies is empty then break the while loop

Declaring winner

27. Check if any of the players won or it's a draw or if any of the armies is empty using if-else conditions.
28. Print the name of the winner or declare the war as a draw.



Assumptions

- The cost for wizard and siege equipment has been adjusted to \$3 and \$2 respectively as they are more powerful than others.
- In the extended game, all the remaining funds are used for purchasing medics automatically.

Limitations

- The game can only execute 1v1 battles one after the another
- It is a turn-based game and players cannot select their army simultaneously
- Players cannot select troops after the first time even if money is left
- The game can only be played with two players involved

Demonstration

Basic game:

The basic game involves a war between two players. Each player has \$10 in the beginning and they must choose between Archers, Soldiers, and Knight with each unit having a cost of \$1. Once the armies are selected they will fight against each other in a turn by turn fashion. The war continues until one or both the armies are dead and the winner is declared.

The following are the instructions to play the game:-

This is the screen you will see when you first run the game.

```
welcome to combat simulator
```

```
Player one, please enter your name:
```

At this stage enter the name of player 1 (in this case 'p1')

```
welcome to combat simulator
```

```
Player one, please enter your name:
```

You will see the menu which includes all the troops and their cost, as well as your remaining money

```
List of troops:      cost
1.Archer            $1
2.Soldier            $1
3.Knight            $1
4.Exit
p1 has $ 10 left
```

select your troops:

At this point start selecting troops, one at a time by using the index numbers which is on the left of each troop. Remember to press enter after every selection.

```
current selected army:
archer
p1 has $ 9 left
select your troops: 2
```

```
current selected army:
archer
soldier
p1 has $ 8 left
select your troops: 3
```

```
current selected army:
archer
soldier
knight
p1 has $ 7 left
```

select your troops:

You can see the current army after each selection. If you don't want to add troops, you can exit the selection by pressing "4" in the selection. After doing the same procedure for the second player, the war will start.

```
archer vs knight
knight wins
soldier vs knight
soldier wins
```

```
same opponents, its a draw
soldier vs archer
archer wins
knight vs archer
knight wins
```

```
FINAL RESULT:
congratulations p1 you won!
```

You can see the result for every battle, who is the winner or if it is a draw (Note: the unit on the left belongs to player 1 and the unit on the right belongs to player 2)

The 'FINAL RESULT' is also displayed which is the outcome of the whole war.

Extended game

The extended game involves a war between two players. The modules applied in this model are Medics and expanded armies. Each player has \$10 in the beginning and they must choose between Archers, Soldiers, Knight, Seige equipment and Wizards with each unit having cost based on its strength. Once the armies are selected they will fight against each other in a turn by turn fashion. The war continues until one or both the armies are dead and the winner is declared.

The following are the instructions to play the game:-

This is the screen you will see when you first run the game.

```
welcome to combat simulator
```

```
Player one, please enter your name: 
```

At this stage enter the name of player 1 (in this case 'p1')

```
welcome to combat simulator
```

```
Player one, please enter your name: 
```

You will see the menu which includes all the troops and their cost, as well as your remaining money

```
List of troops:      cost
1.Archer           $1
2.Soldier           $1
3.Knight           $1
4.Seige Equipment  $2
5.Wizard           $3
6.Exit
p1 has $ 10 left
```

```
select your troops: 
```

At this point start selecting troops, one at a time by using the index numbers which is on the left of each troop. Remember to press enter after every selection.

```
current selected army:
archer
p1 has $ 9 left
select your troops: 2
```

```
current selected army:
archer
soldier
p1 has $ 8 left
select your troops: 3
```

```
current selected army:
archer
soldier
knight
p1 has $ 7 left
```

```
select your troops: 
```

You can see the current army after each selection. If you don't want to add troops, you can exit the selection by pressing "6" in the selection.

After doing the same procedure for the second player, the war will start.

```
Wizard vs Wizard
same opponents, its a draw
Wizard  revived by a medic

Wizard  revived by a medic
```

```
knight vs Wizard
Wizard wins
knight is revived by a medic
```

```
Seige Equipment vs Wizard
Wizard wins
```

```
Wizard vs Wizard
same opponents, its a draw
Wizard  revived by a medic
```

```
knight vs Wizard
Wizard wins
FINAL RESULT:
congratulations p2 you won!
```

You can see the result for every battle, who is the winner or if it is a draw (Note: the unit on the left belongs to player 1 and the unit on the right belongs to player 2)

You can also see whether a unit has been revived by a medic or not

The 'FINAL RESULT' is also displayed which is the outcome of the whole war.