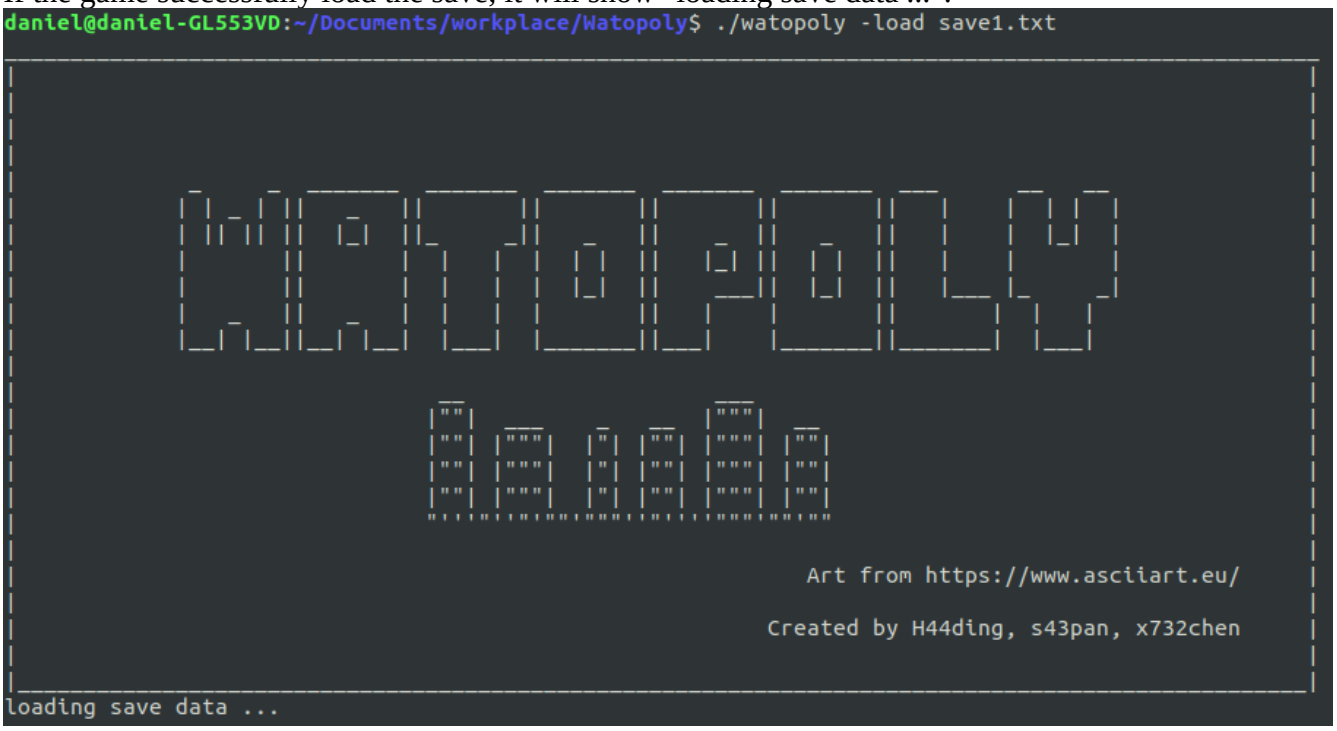
Watopoly Demo:

Normal game mode:

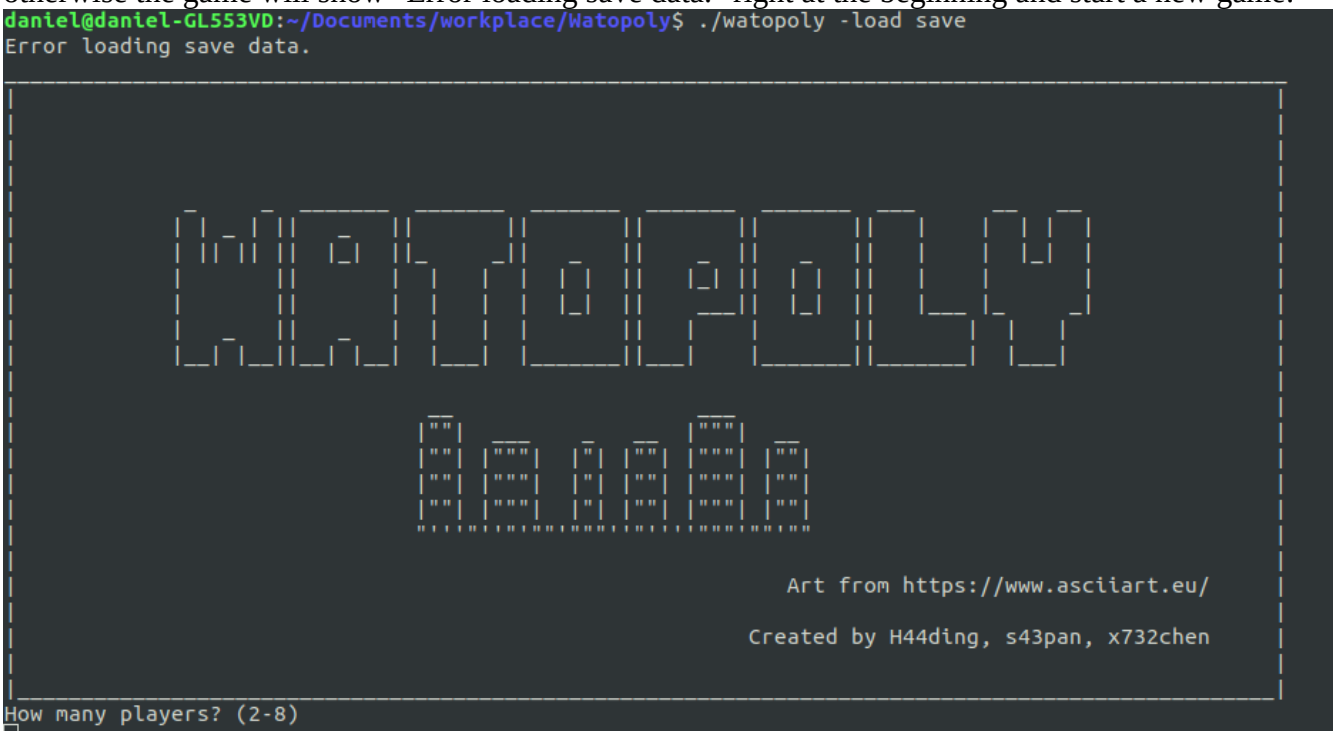
The game will enter normal mode with no arguments specified.

With argument "-load <filename>", the game will try to load the <filename> as the save file.
If the game successfully load the save, it will show "loading save data ...":



otherwise the game will show "Error loading save data." right at the beginning and start a new game:

```
daniel@daniel-GL553VD:~/Documents/workplace/Watopoly$ ./watopoly -load save
Error loading save data.
```




```
How many players? (2-8)
```

When a new game starts, it first asks the number of players and then asks each player's name and piece:

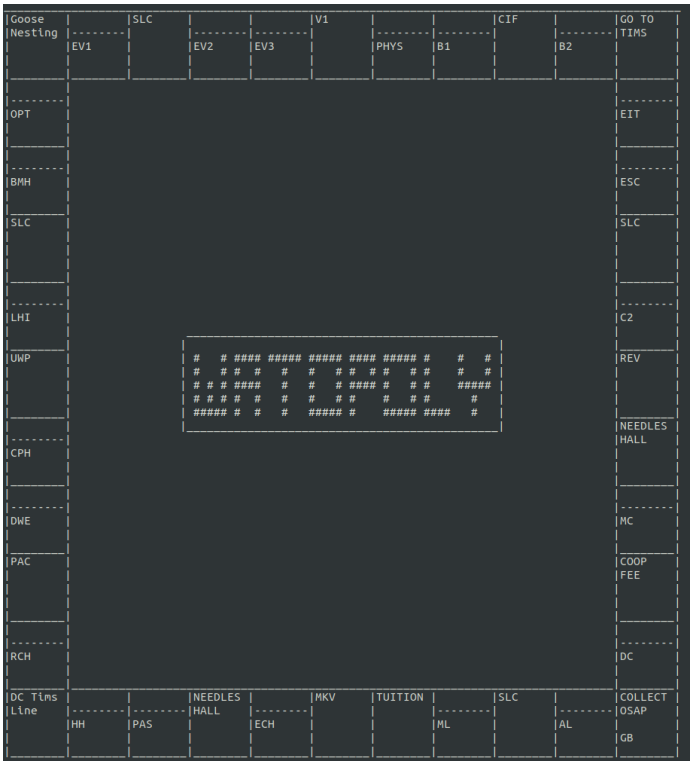
```
How many players? (2-8)
2
================================================================================
1-th player: What is your name?
Daniel
please choose your piece.
Please choose the corresponding symbol from the following pieces.
    Goose:               G
    GRT Bus:             B
    Tim Hortons Doughnut: D
    Professor:           P
    Student:             S
    Money:               $
    Laptop:              L
    Pink tie:            T
Your piece is: G
--------------------------------------------------------------------------------
2-th player: What is your name?
Peter
please choose your piece.
Please choose the corresponding symbol from the following pieces.
    Goose:               G
    GRT Bus:             B
    Tim Hortons Doughnut: D
    Professor:           P
    Student:             S
    Money:               $
    Laptop:              L
    Pink tie:            T
Your piece is: B
--------------------------------------------------------------------------------
```

The above example is for 2 players. One player is named "Daniel" and the other is named "Peter". Daniel chose to be a Goose and Peter chose to be a GRT Bus.

If any step above has invalid input, the game will output error messages as following:

```
How many players? (2-8)
wat?
Your input is not a valid number.
0
Your number is not between 2 and 8.
9
Your number is not between 2 and 8.
2
================================================================================
1-th player: What is your name?
Daniel
please choose your piece.
Please choose the corresponding symbol from the following pieces.
    Goose:                G
    GRT Bus:              B
    Tim Hortons Doughnut: D
    Professor:            P
    Student:              S
    Money:                $
    Laptop:               L
    Pink tie:             T
Your piece is: wat?
Please enter a single character.
f
Please choose a character from G, B, D, P, S, $, L, T.
G
--------------------------------------------------------------------------------
```

After creating players, the game begin. The game board will show up and the game will ask the first player to input a command:



(The gameboard) Note that two players' pieces are at the bottom-right "COLLECT OSAP" square. "G" for Goose and "B" for GRT Bus.

```
================================================================================
Now is Daniel's turn:
Please input a command
```
(ask the player to input a command)

Now the player must input valid commands, otherwise the game will show all the valid commands:

```
Now is Daniel's turn:
Please input a command
?
Please enter a valid command:
    roll : the player rolls two dice, moves the sum of the two dice and takes action
           on the square they landed on.
    next : give control to the next player.
    trade <name> <give> <receive> : offers a trade to <name> with the current player
                                    offering <give> and requesting <receive>.
    improve <property> buy/sell : attempts to buy or sell an improvement for property.
    mortgage <property> : attempts to mortgage property.
    unmortgage <property> : attempts to unmortgage property.
    bankrupt : player declares bankruptcy.
    assets : displays the assets of the current player.
    all : displays the assets of every player.
    save <filename> : saves the current state of the game to the given file.
```

`roll`

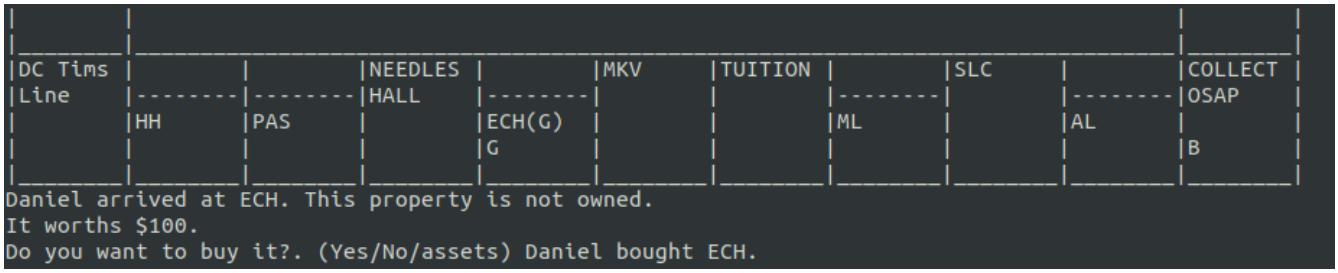
roll will let the player move around the board.
For example, when roll is entered we got:

```
|        |                                                                                                  |        |
|________|__________________________________________________________________________________________________|________|
|DC Tims |        |        |NEEDLES |        |MKV     |TUITION |        |SLC     |        |COLLECT |
|Line    |--------|--------|HALL    |--------|        |        |--------|        |--------|OSAP    |
|        |HH      |PAS     |        |ECH     |        |        |ML      |        |AL      |        |
|        |        |        |        |G       |        |        |        |        |        |B       |
|________|________|________|________|________|________|________|________|________|________|________|
Daniel arrived at ECH. This property is not owned.
It worths $100.
Do you want to buy it?. (Yes/No/assets)
```

Then the piece "G" moves to the ECH square and since it is a building and not owned by any player, the game asks Daniel whether wants to buy it. Then Daniel can enter "yes" for buying or "no" for not buying or "assets" for checking what Daniel current has. If any command is not valid, the game will output warning messages and let the player input again.
For example:

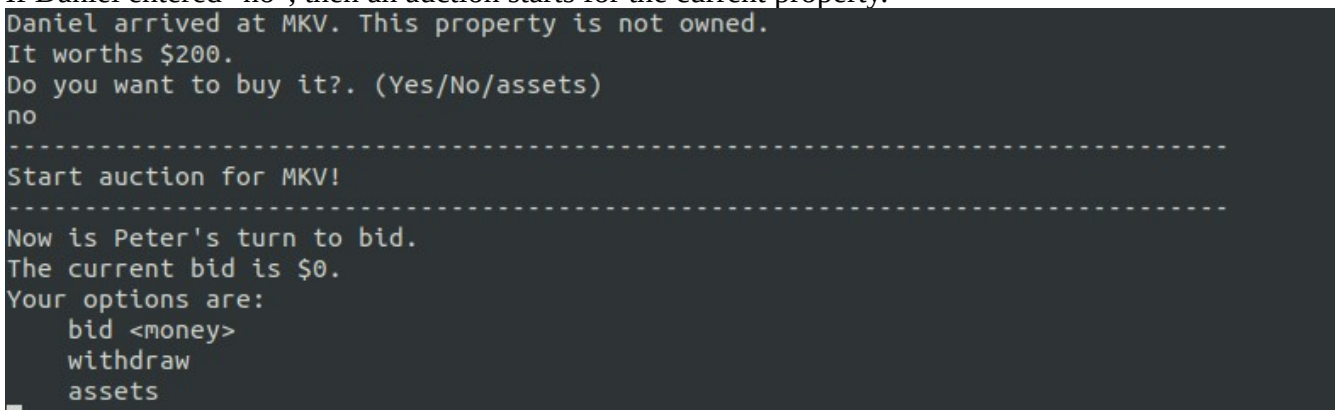
```
wat?
Please enter yes or no.
```

If Daniel entered "yes", and he has enough money to buy the property, then the game board will update and the ECH square will have "(G)" after the building name, meaning the building is owned by piece "G". Also the game will state that "Daniel bought ECH."



When arriving at other properties like gyms/residence, the game will have similar mechanics to let the player buy/not buy.

If Daniel entered "no", then an auction starts for the current property.



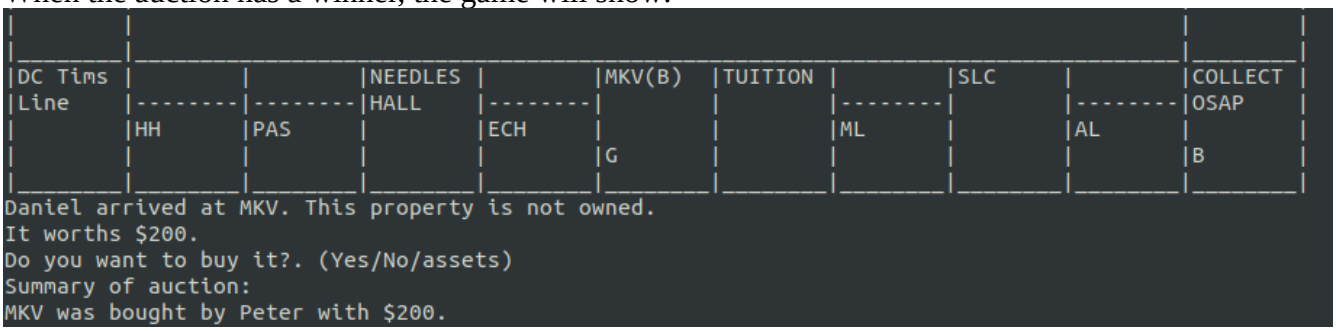
Then the players can do the auction with the given commands.
It could be like this:

```
Daniel arrived at MKV. This property is not owned.
It worths $200.
Do you want to buy it?. (Yes/No/assets)
no
--------------------------------------------------------------------------------
Start auction for MKV!
--------------------------------------------------------------------------------
Now is Peter's turn to bid.
The current bid is $0.
Your options are:
    bid <money>
    withdraw
    assets
bid 200
The new max bid is now $200.
--------------------------------------------------------------------------------
Now is Daniel's turn to bid.
The current bid is $200.
Your options are:
    bid <money>
    withdraw
    assets
assets
== Assets ======================================================================
| Daniel(G) :
| Balance: $1500
| Asset Amount: $0
| Total Worth: $1500
| # of TimsCups: 0
| # of residences: 0
| # of gyms: 0
| Owned properties:
|     | None
================================================================================
withdraw
Daniel withdraws the current auction.
```

The auction ends when all players withdraw the auction except one. The last one player will pay the bid and own the property. If all players withdraw at the beginning, the auction fails.

```
Daniel arrived at MKV. This property is not owned.
It worths $200.
Do you want to buy it?. (Yes/No/assets)
no
--------------------------------------------------------------------------------
Start auction for MKV!
--------------------------------------------------------------------------------
Now is Peter's turn to bid.
The current bid is $0.
Your options are:
    bid <money>
    withdraw
    assets
withdraw
Peter withdraws the current auction.
Auction fails! No one wins the auction!
```

When the auction has a winner, the game will show:



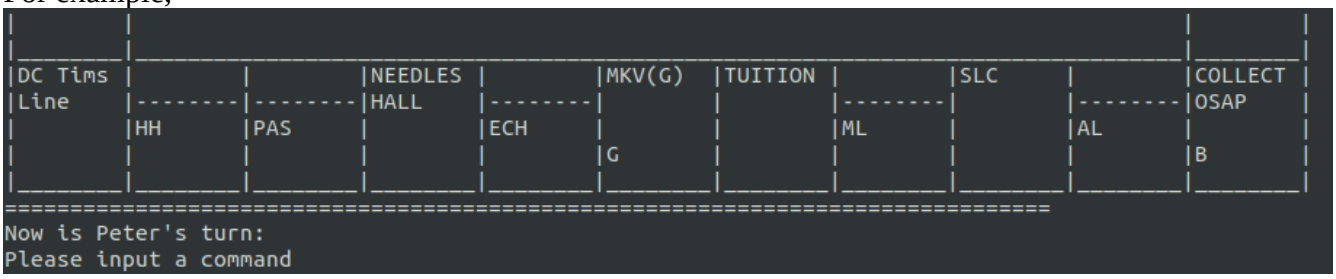
Note that the auctioned MKV square now is owned by "B" piece.

If a player rolled doubles, the one can roll again. If a player rolled three doubles in a roll, the one is sent to DC tims line and cannot roll again.

If a player has rolled, the one can choose to enter "next" command and the game will move to the next player.

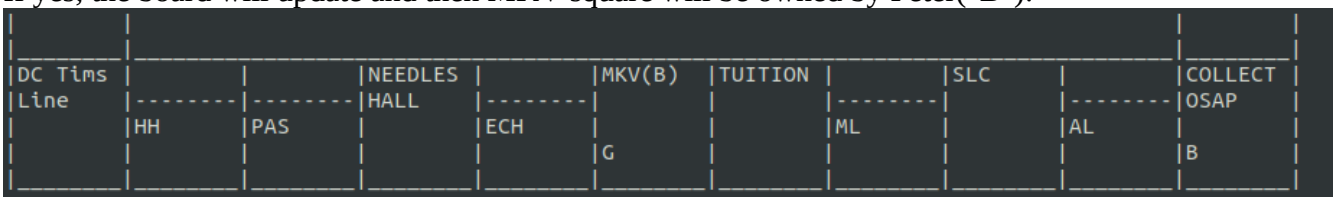
`trade`

The "trade <name> <give> <receive>" command lets the player to trade with other players.
For example,



Now Daniel("G") owns MKV. Then Peter can use trade command to trade Daniel's MKV with $200:

Then Daniel can choose yes to accept the trade or choose no to reject.
If yes, the board will update and then MKV square will be owned by Peter("B"):



Note that you cannot trade money with money.
All invalid inputs/non-logical trading will be rejected and the game will show messages
For example:

```
trade Jack 200 ML
Sorry the player with that name does not exist.
trade Daniel 200 200
Sorry you cannot trade money with money
trade Peter 200 AL
Sorry you cannot trade with yourself.
trade Daniel 200 ML
Sorry Daniel does not own that building.
```

When you own a monopoly, you can buy improvements with "improve <property> buy/sell":

```
|        |                                                                                                  |        |
|________|__________________________________________________________________________________________________|________|
|DC Tims |        |        |NEEDLES |        |MKV     |TUITION |        |SLC     |        |COLLECT |
|Line    |--------|--------|HALL    |--------|        |        |--------|        |--------|OSAP    |
|        |HH      |PAS     |        |ECH     |        |        |ML(G)   |        |AL(G)   |        |
|        |        |        |        |        |        |        |G       |        |B       |        |
|________|________|________|________|________|________|________|________|________|________|________|
Daniel arrived at ML. This property is not owned.
It worths $60.
Do you want to buy it?. (Yes/No/assets) Daniel bought ML.
================================================================================
Now is Daniel's turn:
Please input a command
improve ML buy
```

Now Daniel owns ML and AL where both buildings are Arts1 monopoly block. Then Daniel chose to improve ML.

```
|        |                                                                                                  |        |
|________|__________________________________________________________________________________________________|________|
|DC Tims |        |        |NEEDLES |        |MKV     |TUITION |*       |SLC     |        |COLLECT |
|Line    |--------|--------|HALL    |--------|        |        |--------|        |--------|OSAP    |
|        |HH      |PAS     |        |ECH     |        |        |ML(G)   |        |AL(G)   |        |
|        |        |        |        |        |        |        |G       |        |B       |        |
|________|________|________|________|________|________|________|________|________|________|________|
```

After improvement, The square will show stars at the top. The above screenshot shows that the square ML is owned by "G" and has one improvement.

Note that one property can be improved at most five times:

```
|        |                                                                                                  |        |
|________|__________________________________________________________________________________________________|________|
|DC Tims |        |        |NEEDLES |        |MKV     |TUITION |*****   |SLC     |        |COLLECT |
|Line    |--------|--------|HALL    |--------|        |        |--------|        |--------|OSAP    |
|        |HH      |PAS     |        |ECH     |        |        |ML(G)   |        |AL(G)   |        |
|        |        |        |        |        |        |        |G       |        |B       |        |
|________|________|________|________|________|________|________|________|________|________|________|
================================================================================
Now is Daniel's turn:
Please input a command
improve ML buy
This property already has all the improvements.
```

The above screenshot shows that the square ML owned by "G" has five starts at the top, meaning ML has five improvements. As a result, Daniel is not able to improve it further.

mortgage

"mortgage <property>" and "unmortgage <property>" can be used to mortgage/unmortgage buildings. Note that you can only mortgage buildings with no improvements.

```
mortgage ML
Mortgage fails! Need to sell improvements before activating mortgage!
```

When a property is mortgaged, the player can receive half of the cost of the property but other players will not pay rent to the owner.

If a property is mortgaged, the square will have a ' symbol before its building name:

```
|         |                                                                                                   |         |
|_________|___________________________________________________________________________________________________|_________|
|DC Tims  |         |         |NEEDLES  |         |MKV      |TUITION  |         |SLC      |         |COLLECT  |
|Line     |---------|---------|HALL     |---------|         |         |---------|         |---------|OSAP     |
|         |HH       |PAS      |         |ECH      |         |         |ML       |         |'AL(G)   |         |
|         |         |         |         |         |         |         |         |         |G        |B        |
|_________|_________|_________|_________|_________|_________|_________|_________|_________|_________|_________|
Mortgage successfully! Daniel have mortgaged AL, and received $20!
```

The above screenshot shows that the square AL is mortgaged.

bankrupt

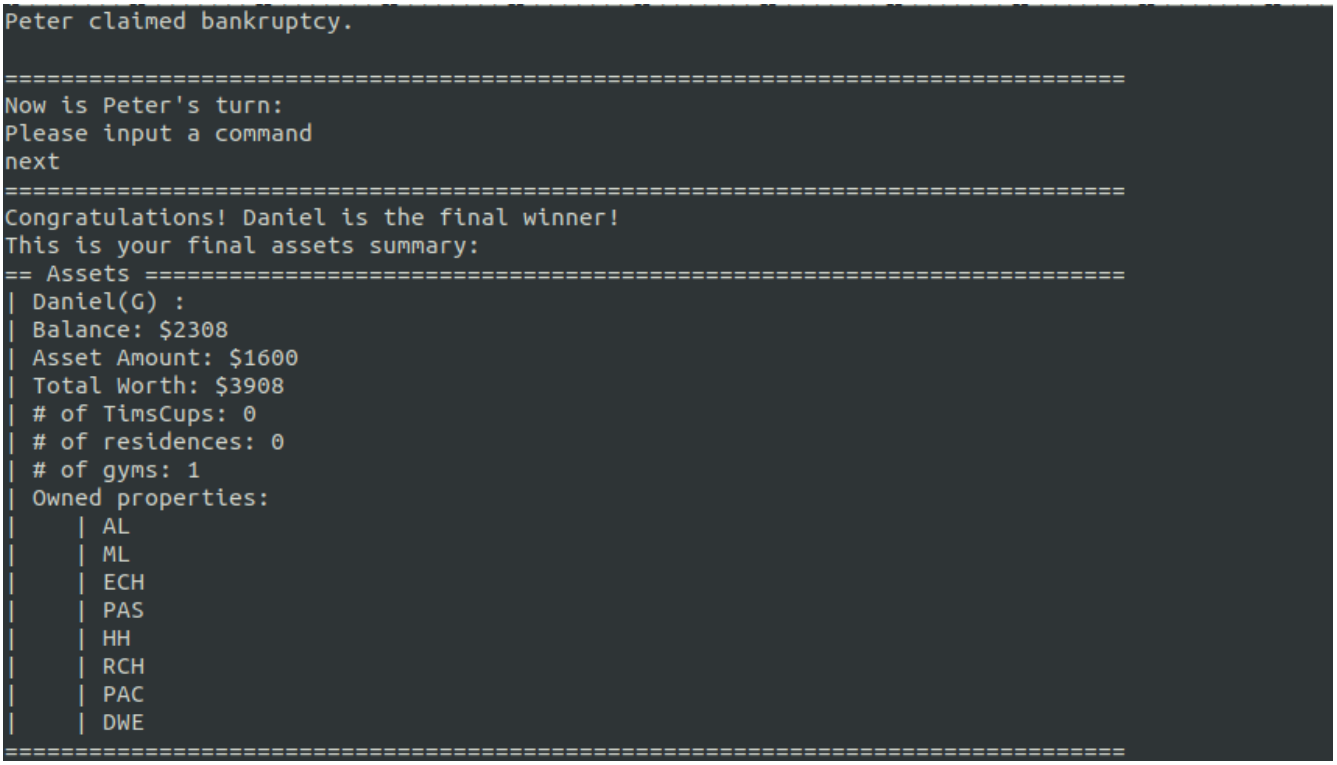
During the game, the player might have to pay for their rent/tuition and thus might owe the bank/other player some money. At this point, it is possible for them to go bankrupt.

```
|         |                                                                                                   |         |
|_________|___________________________________________________________________________________________________|_________|
|DC Tims  |         |*****    |NEEDLES  |         |MKV      |TUITION  |*****    |SLC      |*****    |COLLECT  |
|Line     |---------|---------|HALL     |---------|         |         |---------|         |---------|OSAP     |
|         |HH(G)    |PAS(G)   |         |ECH(G)   |         |         |ML(G)    |         |AL(G)    |         |
|         |         |B        |         |         |         |         |         |         |         |         |
|_________|_________|_________|_________|_________|_________|_________|_________|_________|_________|_________|
Peter arrived at PAS. Warning! You owe Daniel $550.

================================================================================
Now is Peter's turn:
Please input a command
```

The above screenshot shows that Peter is about to go bankrupt. He can either try to raise his money and pay for the money or claim bankrupt.

If a player claims bankruptcy, the only option for him is to git next command and then he is out of the game. When there is only one player left in the game, the one becomes the winner and thus the game is over.



The above screenshot shows that Peter claimed bankruptcy and entered next command. Then Daniel becomes the last player in the game thus is the winner. Then the game ends by showing Daniel's final assets.

If a player claimed bankruptcy and there are more than one player left in the game, that bankrupt player returns assets to either the open market or certain player (depends on which one that bankrupt player owes).

Note that if the player returns assets to the open market, that means every property he owns will have an auction.

For example:

```
================================================================================
Now is Peter's turn:
Please input a command
bankrupt
Peter claimed bankruptcy!
Peter's assets are now returned to the open market.
--------------------------------------------------------------------------------
Start auction for PAS!
--------------------------------------------------------------------------------
Now is Jack's turn to bid.
The current bid is $0.
Your options are:
    bid <money>
    withdraw
    assets
withdraw
Jack withdraws the current auction.
--------------------------------------------------------------------------------
Now is Daniel's turn to bid.
The current bid is $0.
Your options are:
    bid <money>
    withdraw
    assets
withdraw
Daniel withdraws the current auction.
Auction fails! No one wins the auction!
--------------------------------------------------------------------------------
Start auction for EV1!
--------------------------------------------------------------------------------
Now is Jack's turn to bid.
The current bid is $0.
Your options are:
```

`assets`

The player can enter "assets" command and the game will show the current status of the player:

```
assets
== Assets ======================================================================
| Daniel(G) :
| Balance: $1200
| Asset Amount: $1150
| Total Worth: $2350
| # of TimsCups: 0
| # of residences: 1
| # of gyms: 0
| Owned properties:
|     | AL
|     | ML
|     | MKV
|     | ECH
================================================================================
```

all
Similar to "assets", "all" command shows assets of all players:

```
all
== Assets ============================================================================
| Daniel(G) :
| Balance: $1200
| Asset Amount: $1150
| Total Worth: $2350
| # of TimsCups: 0
| # of residences: 1
| # of gyms: 0
| Owned properties:
|    | AL
|    | ML
|    | MKV
|    | ECH
========================================================================================
== Assets ============================================================================
| Peter(B) :
| Balance: $200
| Asset Amount: $620
| Total Worth: $820
| # of TimsCups: 0
| # of residences: 0
| # of gyms: 0
| Owned properties:
|    | PAS
|    | EV1
========================================================================================
== Assets ============================================================================
| Jack(T) :
| Balance: $2000
| Asset Amount: $0
| Total Worth: $2000
| # of TimsCups: 0
| # of residences: 0
| # of gyms: 0
| Owned properties:
|    | None
========================================================================================
```

save

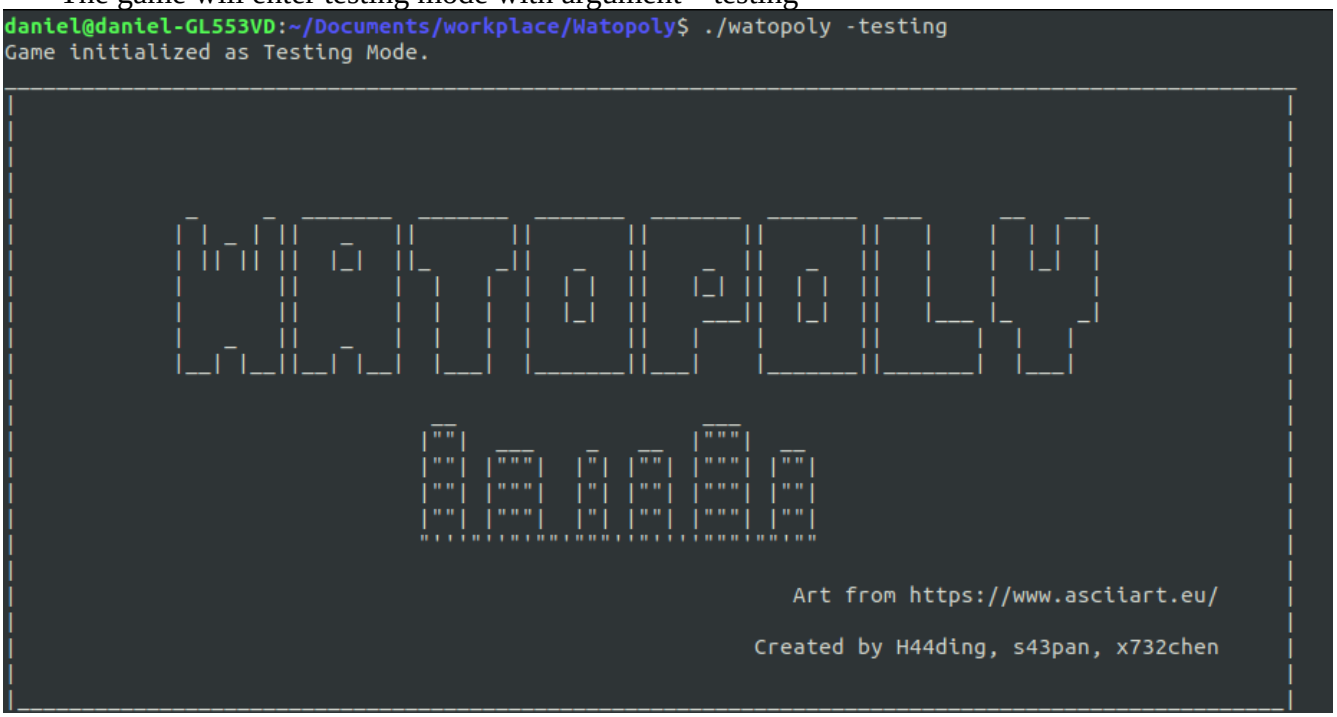
"save <filename>" saves the game to <filename>.
When save successfully, the game will display "Game saved to <filename>":

```
save
Please specify a filename.
save save2.txt
Game saved to save2.txt
```

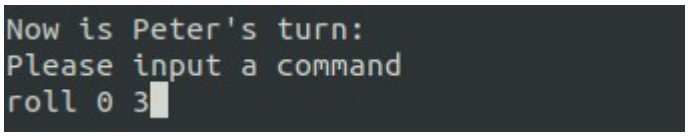
Note that you can load these save files you saved by using "-load <filename>" as mentioned earlier.
We provide 2 save files.
"save1.txt" provides a scenario when a player named Peter is nearly bankrupt.
"save2.txt" provides a casual scenario.

Testing game mode:

The game will enter testing mode with argument "-testing"



In testing mode, when using roll command, we need to enter two natural numbers afterwards as two dice results.



so then the player will move by the sum of two numbers.

Use different themes

Use "-theme <themeName>" to use different themes

Besides the default theme, we have two more built-in themes: christmas and bold

```
./watopoly -theme christmas
```

```
./watopoly -theme bold
```

and then the game board will be different: