### ESOF 322 - Programming Assignment 2

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October 17, 2017

Use Case: The Play Actors: Current Player

Goals: For player to roll both dice to receive n from the sum of the dice, move icon

n spaces on the board, according to space, player may buy property, pay rent, or pay taxes. If doubles are rolled, they move n spaces, then repeat. If

doubles are thrown 3 times in a turn, player icon goes to jail.

Steps:

The player rolls dice

The system returns the dice as an length 2

array

The player moves that many spaces forward

on the board

If the player passed the GO space, they are

credited \$200.00

The system takes actions based on the

space the player landed on

If the dice roll was doubles, add one to that players double counter, and take another

turn

Use Case: Buying Property Actors: Current Player

Goals: When player lands on property, they may purchase said property. Player

receives the title deed. If player does not want property, property is put up for auction in which they can also bid, highest bidder wins property.

Preconditions: Property must not already be owned by another player.

Steps:

The player lands on an unclaimed space

The player chooses to buy the property at

its current price or not

If not, pass the deed to auction

If the player chooses to buy the property, the player is debited the current price, and

given the property

Use Case: Property Auction

Actors: All players

Goals: All players must be able to bid on property that was passed on by the

current player whos turn it is.

Preconditions: Property must have no been bought by player who landed on property

Steps:

Any player places a bid

If that bid was higher than the previous bid, that player is placed in the lead

If 30 seconds pass without a bid, the player in the lead is debited the current bid and given the deed

Use Case: Selling Property

Actors: Current Player, Player Who's Buying

Goals: Allow the current player to sell one of their already owned properties

to another player. If property being sold is mortgaged, the purchasing player must either lift the mortgage at once by paying the mortgage plus 10% interest; or pay for the property as well as pay the bank 10% interest at the time of purchase, and then pay to lift the mortgage plus

10% interest at a later time.

Preconditions: Current player must own said property.

Steps:

The player chooses a property of theirs to

sell

If the property is mortgaged the player is given the option to pay it off and then sell

it

The seller chooses a price to sell it for

Each player is given the option to buy it

If a player chooses to buy it, the properties' ownership is transferred to the new owner and they pay the price to the seller

Use Case: Paying Rent

Actors: Current Player, Property Owning Player

Goals: When current player lands on property owned by another player, the

property owner receives x amount of \$ from current player specified on title deed for how developed the property may be. If property is mortgaged, no rent can be collected. Rent doubles if property owner owns all of that group of properties, and is increased based on how improved

property is.

Preconditions: Property landed on must be already owned by a player

Steps:

The player lands on the property of another

player

The server checks if the property is mort-

gaged

If it is not then the rent is calculated and the player that landed on pays it to the

owner of the property

Use Case: Income Tax Actors: Current Player

Goals: If current player lands on income tax spot, they must either pay \$200 or pay

10% of net worth (cash on hand, printed prices of mortgaged and unmort-

gaged property, and cost price of all buildings owned)

Steps:

The player lands on income tax

The player may choose to pay \$200 or 10%

if their net worth

If the player chooses 10% then the server sums their net worth and the player pays 10% of it

Use Case: Jail

Actors: Current Player

Goals: Current player goes to jail under 2 conditions: land on space "Go to Jail" or

throws doubles three times. Player can get out of jail if: they throw doubles on any of next three turns, paying \$50 before rolling dice on any of 3 turns. Must pay \$50 if it is third turn in jail. On turn that player gets out of jail (by rolling doubles, or paying) player moves forward the number rolled on the doubles, or rolls dice after paying. Player may buy and sell property, sell

houses and hotels, and receive rent while in jail.

Steps:

The player lands on the "Go to Jail" space or throws a third double in a row

The player is moved to jail and their turn

is ended

The player may pay \$50 dollars or attempt to roll doubles to get out of jail. If it is their third turn in jail they are fined \$50 dollars

If the player payed or was fined \$50 they roll and move. If they rolled doubles they

move by the number rolled.

Use Case: Free Parking Actors: Current Player

Goals: If player lands on "Free Parking" spot, they receive no money, property, or

reward of any kind (they do nothing).

Steps:

Use Case: Buying Houses Actors: Current Player

Goals: Player may build houses on any property of color group, but must build

on unimproved properties of this or any other fully owned color group (must build evenly on properties). Price of house is shown on deed of

property. May build up to four houses on each property.

Preconditions: Player must own all property in group

Steps:

The user attempts to build a house

The server checks if all properties of the

color are owned

If they are, the system checks if the other properties in the color group have greater

than or equal to number of houses

If they do, the system debits the house cost from the player, The system places a house Use Case: **Buying Hotels** Current Player Actors:

Goals: Player may buy a hotel (price specified on title deed) that replaces houses

on property. Only one hotel may be on each property.

Preconditions: Player must have four houses on specified property

Steps:

Player begins buying a hotel on a street

The system checks if there are four houses

on the street

If there are, the system checks if the number

of hotels is maxed,

If it isn't, The system debits the hotel cost from the user, removes the houses, and

places a hotel

Use Case: Mortgages Current Player Actors:

Goals: No rent can be collected on mortgaged properties or utilities, but rent

can be collected on unmortgaged properties in the same group. In order to lift the mortgage, the owner must pay the Bank the amount of the mortgage plus 10% interest. When all the properties of a color-group are no longer mortgaged, the owner may begin to buy back houses at full

price.

Preconditions: Player must own said property

Steps:

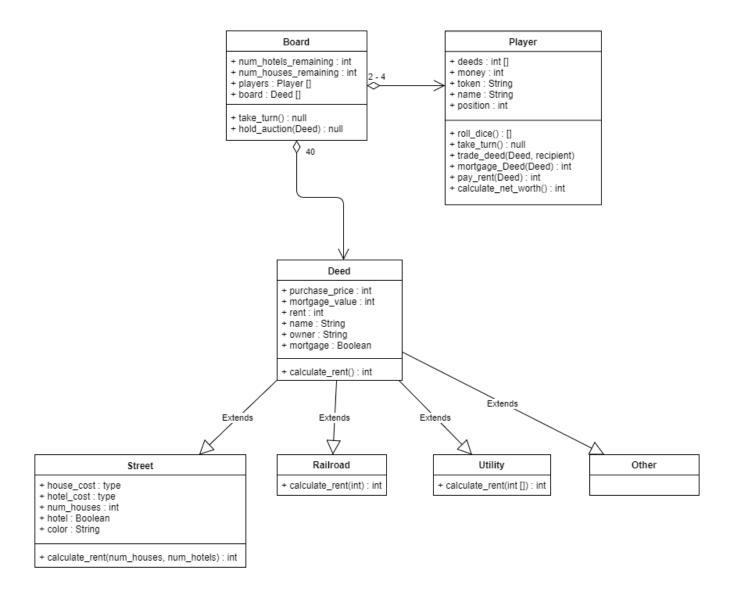
The user begins mortgaging an unimproved

deed

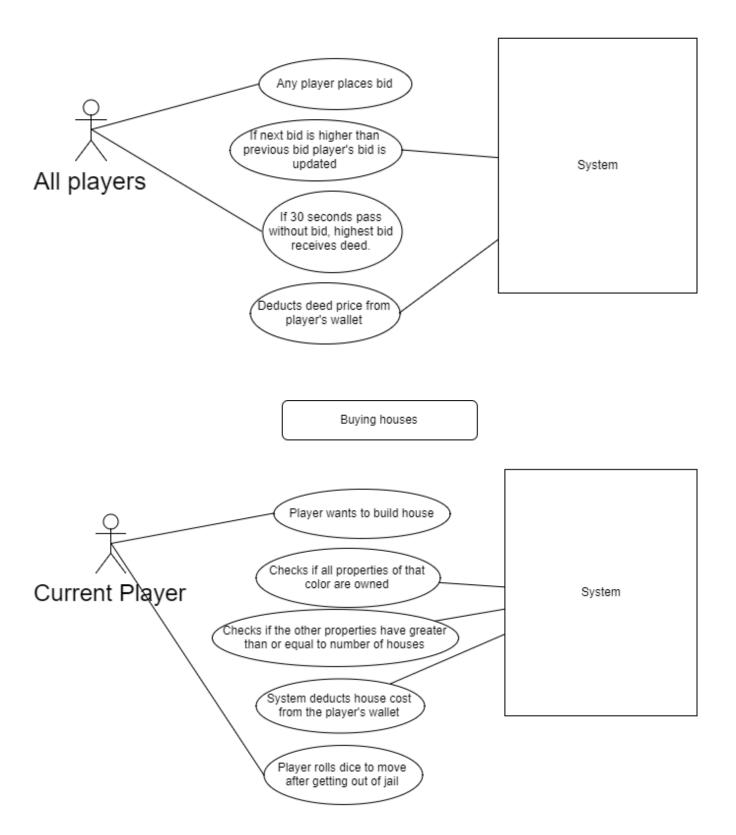
The system changes the deeds mortgage

status to true and gives the player the deeds

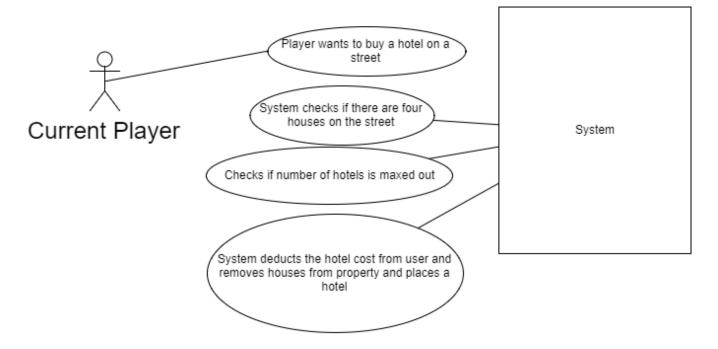
mortgage price



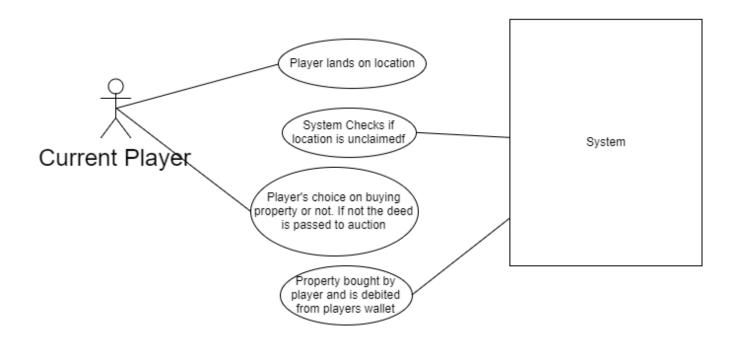
#### Property Auction



Buying hotels

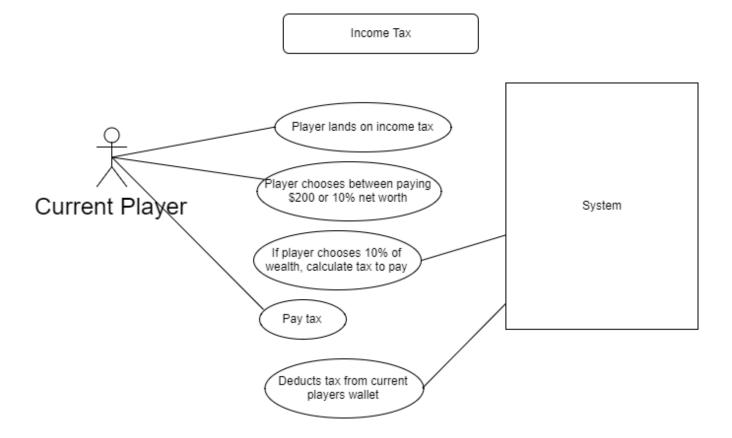


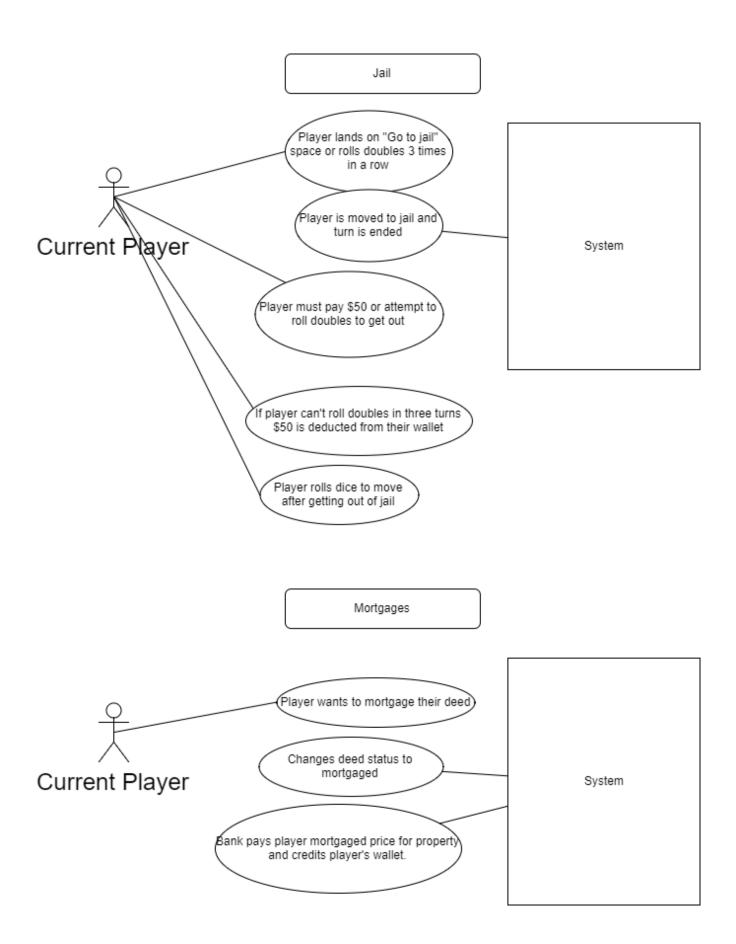
Buying Property



## Free Parking







Paying rent Player lands on property of another player Checks if property is mortgaged Current Player System If property is not mortgaged calculate rent If property is mortgaged do nothing Player pays rent The Play Roll Dice, If dice roll was doubles current player gets to roll again Return dice rolled System Current Player player moves to new location and system updates location player passes GO credit \$200

# Selling Property

