

Sprint 5

1) Summary	
Sprint leader(s)	Vivien
Sprint start date	15/04/2020
Sprint end date	20/04/2020

2) Individual key contributions	
Team member	Key Contribution(s)
Neumann, Vivien	Task Cards, Requirement Analysis, Use Case Diagrams and overview deliverables
Jiao, Haotian (Hallton)	Testing
Wang, Mingfeng (Foret)	Leave game - Class Diagram
Banes, Hayden J	Test & GUI
Tang, Zhenyu (tang)	Pay the rent, adjust board class (include xls-file)

3) User stories / task card
<p>Task card 1: Player leaves the game</p> <p>Priority: 3</p> <p>Value: 7</p> <p>If a player is unable to pay the rent for a property and has already sold all of their game assets, then they are bankrupt and must leave the game. Therefore, the game has to check that the player doesn't have any properties left and the amount of money on their bank account is smaller than the amount of rent they have to pay. If that's true, their game token is then removed from the board, the remaining game assets are transferred to the bank and the player must leave the game. The stats of the player should be saved for a final ranking at the end of the game.</p> <p>Apart from going bankrupt, the player can also decide that they want to leave the game (voluntary). In this situation, they should have the opportunity to select this option and the other players should be notified. Consequently, the player's game token is removed from the board and all of the player's game assets are given back to the bank as well as the money. This also implies changing the stored data of the properties the player owned to 'available'.</p>

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Task card 2: Re-sell properties, hotels and houses to bank

Priority: 2

Value: 7

If a player needs to raise funds, they can sell a property back to the bank for its original value as shown on the game card. Therefore, the bank transfers the money back to the player and the owner of the property changes to 'bank'. This action should also be displayed on the board, so all players can see that this property is now available again. Additionally, it also needs a 'button' where the player can select that they want to sell a property, house or hotel back to the bank.

A property can only be sold when there are no houses or hotels on the property. So before a player can sell the property, they have to sell back the houses and hotels for the original purchase price. This leads to the same procedure as before. The bank transfers the money to the player and the property has to change the stored data. In addition, the GUI should change and remove houses and/or hotels on the board.

Task card 3: Pay the rent

Priority: 1

Value: 8

If a player lands on a property owned by another player, they must pay the rent to the player who owns the property. The details about the rent are shown on the card and it is calculated according to the amount of houses and hotels on the property. The player who has to pay the rent sees the amount of rent they have to pay. All rents must be paid for in 'cash' and the money is transferred to the owner's bank account. The player who receives the rent has to get notified and all bank accounts have to be updated.

If a player is unable to pay the rent for a property they have landed on, they must sell game assets to make good on the rent. If they are unable to pay the rent after selling all of their game assets, then they are bankrupt and must leave the game. Their game token is then removed from the board.

Task Card 4: Adjust board class

Priority: 1

Value: 9

The board model shall need to fetch data on the content of each board square from a configuration file (xlsx-file). Right now it is still hard coded

4) Requirement analysis

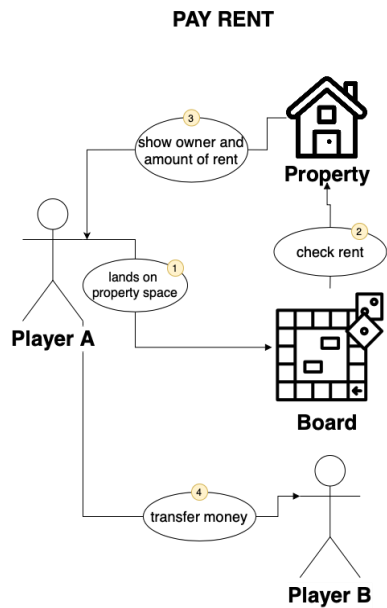
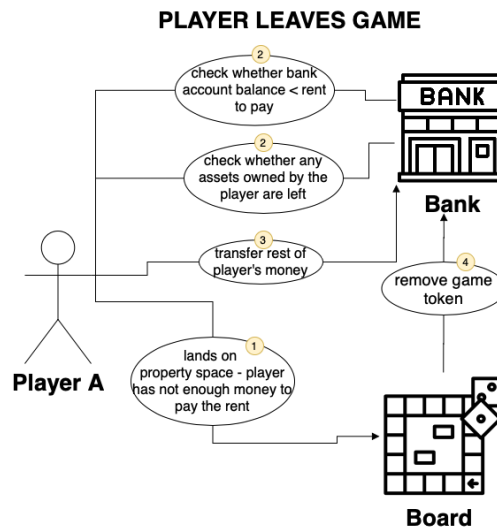
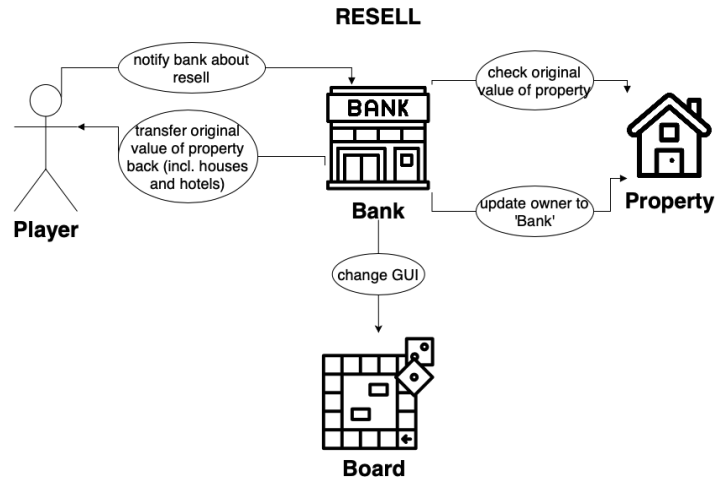
	Requirements
TC1: Player leaves	TC1-F1: Player should be able to select their inability to pay the rent

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the game	<p>TC1-F2: System shall check the player's value of game assets and whether the value of their game assets is smaller than the rent they have to pay</p> <p>TC1-F3: When a player is bankrupt, all players should be notified</p> <p>TC1-F4: The player's game token shall be removed and all game assets are returned to the bank</p> <p>TC1-F5: The other players should be notified when a player is bankrupt</p>
TC2: Re-sell properties	<p>TC2-F1: Player should have the opportunity to select resell (house, hotel or property) when it's their turn</p> <p>TC2-F2: Bank shall transfer the original value of the property back to the player's bank account</p> <p>TC2-F3: The attribute owner of the property shall be changed and the stored data shall be updated</p> <p>TC2-F4: The changes should be visible to all players, in particular when a property is available for sell again</p> <p>TC2-F5: A player shall only be able to re-sell its own properties.</p>
TC3: Player pays rent	<p>TC3-F1: Player shall be able to see the current rent shall of the property card according the amount of houses and hotels</p> <p>TC3-F2: Player who landed on the property shall be able to see the amount of rent they have to pay</p> <p>TC3-F3: Player who owns the property should get notified who is on their property and that he receives rent</p> <p>TC3-F4: The rent shall be transferred from the player's bank account to the owner of the property</p> <p>TC3-F5: If player is unable to pay, player shall be able to resell or mortgage game assets</p>
GUI	<p>Players can:</p> <ul style="list-style-type: none"> - Roll dice - Buy property - Pass turn to the next player

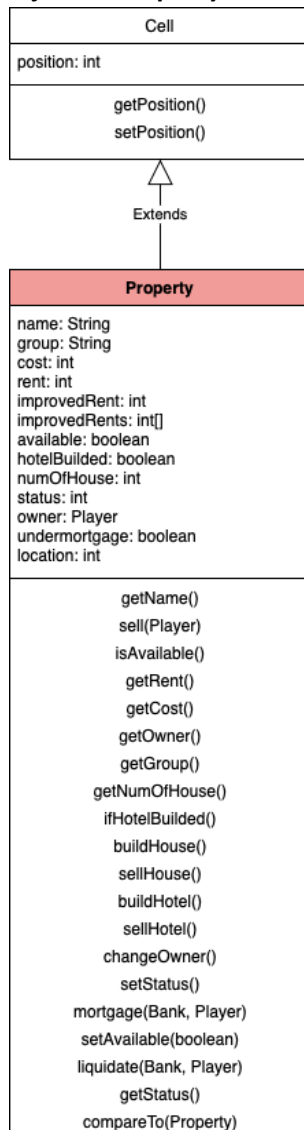
5) Design

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Adjusted Property class diagram:



6) Test plan and evidence of testing

TC2-F1: Player should have the opportunity to select resell (house, hotel or property) when it's their turn

System test:

Result: should be implemented in GUI

TC2-F2: Bank shall transfer the original value of the property back to the player's bank account

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System test:

Build Bank

Build a player

Add a property to the bank

Call buyProperty()

Call sellProperty()

Call getMoney() in Player Class to check if the balance is the original 1500

Expected output: the player has 1500 in its account

Result: Passed

TC2-F3: The attribute owner of the property shall be changed and the stored data shall be updated

System test:

Build Bank

Build a player

Add a property to the bank

Call buyProperty()

Call sellProperty()

Call getOwner() in Property Class to check if the the owner is null

Expected output: the property owner by null

Result: Passed

TC2-F4: The changes should be visible to all players, in particular when a property is available for sell again

System test:

Result: should be implemented in GUI

TC2-F5: A player shall only be able to re-sell its own properties.

System test:

Build Bank

Build a player

Build the second player

Add a property to the bank

Add the second property to the bank

Call buyProperty() with player 1 to buy property 1

Call buyProperty() with player 2 to buy property 2

Call sellProperty() with player 1 but sell the property 2

Expected output: the PropertyException

Result: Passed

TC1-F2: System shall check the player's value of game assets and whether the value of their game assets is smaller than the rent they have to pay &&TC1-F4: The player's game token shall be removed and all game assets are returned to the bank

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System test1:

- Create a player name player2 with token smartphone
- Give player2 a property1
- Set money as 0 and player does not have any property
- Let play1 pay rent of the property1 to player2`s property
- Ensure the value of total assets is smaller than the rent player1 has to pay.
- Owner of player1`s all assets is returned to the bank.

7) Summary of sprint

Status of Task Cards:

- Player leaves the game → done
- Re-sell properties → done
- Player pays rent → done
- Adjust board class:
 - Board and (possibly pot luck) data need to be read from a file (provided on canvas) upon startup (is a requirement)

Other comments and open issues:

- Property class does not compile
- Board is missing methods (e.g. getting a location on the board)
- It's hard to do a sprint review, when not everyone is attending the meeting even though we have already postponed it.
- Keep in mind: Before you put your changes into the master you have to ensure that your code works.