

# Object Thinking with CRC cards

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With inspiration from Brett Schuchert's Monopoly Kata

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## References

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## Classes, Responsibilities, Collaborations

- ▶ Class names
  1. Should not end in -er
  2. Should be names of *things*, not *actions*
  3. Should be related to the *domain* of the problem
- ▶ Responsibilities
  - ▶ For knowing
  - ▶ For doing
  - ▶ For decidingAn object with less than three responsibilities does too little. An object with more than five responsibilities does too much.
- ▶ Collaborations.
  - ▶ To fulfill its responsibilities, an object must have the necessary information, or have a collaborator that can provide it.
  - ▶ An object should not *know too many other objects*; usually no more than three.

## Scenario 1: *Movement*

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- ▶ Given that player A is on "Oriental Avenue"
- ▶ He rolls 2 and 1.
- ▶ He lands on "Connecticut Avenue"

## Scenario 2: *Passing through GO!*

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- ▶ Given that
  - ▶ player B's balance is \$1000,00
  - ▶ she is on "Park Place"
- ▶ She rolls 1 and 3.
- ▶ She lands on "Mediterranean Avenue".
- ▶ Player B collects \$200,00 from the bank.
- ▶ Her balance is now \$1200,00.

## Scenario 3: *Go to jail*

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- ▶ Player C lands on "Go to jail".
- ▶ He is moved immediately to "In Jail".
- ▶ He does not pass through "GO!"

## Scenario 4: *Income Tax when assets are more than \$2000,00: pay \$200,00*

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- ▶ Given that player C's balance is \$3000,00.
- ▶ He lands on "Income Tax".
- ▶ He pays \$200,00 to the bank. His balance is now \$2800,00.

## Scenario 5: *Income Tax when assets are less than \$2000,00: pay 10% of all assets*

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- ▶ Given that:
  - ▶ Player C's balance is \$1000,00
  - ▶ Player C owns "Oriental Avenue", which has a purchase price of \$100,00.
- ▶ Player C lands on "Income Tax".
- ▶ He pays \$110,00 to the bank. His balance is now \$890,00.

## Scenario 6: *Players play in sequence*

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- ▶ Given that:
  - ▶ the players in the game are A and B
  - ▶ it's A's turn
- ▶ Player A rolls and moves
- ▶ Player B rolls and moves
- ▶ Player A rolls and moves

## Scenario 7: *Roll double dice*

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- ▶ Given that:
  - ▶ The players in the game are A and B
  - ▶ It's A's turn
  - ▶ Player A is on "Go!"
- ▶ Player A rolls 3 and 3, he lands on "Reading Railroad"
- ▶ Then he rolls again and gets 1 and 2
- ▶ He arrives on "Vermont Avenue"
- ▶ Now it's B's turn

## Scenario 8: *Roll double dice three times*

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- ▶ Given that:
  - ▶ The players in the game are A and B
  - ▶ It's player B's turn
  - ▶ Player B is on "Go!"
- ▶ Player B rolls 1 and 1, she lands on "Community Chest"
- ▶ Then she rolls again and gets 2 and 2; she lands on "Oriental Avenue"
- ▶ Then she rolls again and gets 3 and 3; she is moved to "In Jail"
- ▶ Now it's A's turn

## Scenario 9: *Buy property*

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- ▶ Given that:
  - ▶ Player A's balance is \$1000,00
  - ▶ "Baltic Avenue" has purchase cost \$80,00 and is owned by the bank
- ▶ Player A lands on "Baltic Avenue".
- ▶ Player A is offered the chance to buy Baltic Avenue
- ▶ Player A decides to buy Baltic Avenue.
- ▶ He pays \$80,00 to the bank. His balance is now \$920,00.
- ▶ He now has the deed for Baltic Avenue

## Scenario 10: *Not enough money to buy property*

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- ▶ Given that:
  - ▶ Player A's balance is \$10,00
  - ▶ "Baltic Avenue" has purchase cost \$80,00 and is owned by the bank
- ▶ Player A lands on "Baltic Avenue"
- ▶ Player A is not offered the chance to buy Baltic Avenue

## Scenario 11: *Pay rent on unimproved property*

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- ▶ Given that:
  - ▶ Player A's balance is \$1000,00.
  - ▶ Player B's balance is \$1000,00.
  - ▶ Player B owns "Oriental Avenue",
  - ▶ "Oriental Avenue" has rent \$6,00, has no houses or hotels, is not mortgaged
- ▶ Player A lands on "Oriental Avenue"
- ▶ Player A pays \$6,00 to Player B.
- ▶ Player A's balance is now \$994,00.
- ▶ Player B's balance is now \$1006,00.

## Scenario 12: *Pay rent on Railroad property (two railroads)*

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- ▶ Given that:
  - ▶ Player A's balance is \$1000,00.
  - ▶ Player B's balance is \$1000,00.
  - ▶ Player B owns Reading Railroad and Pennsylvania Railroad; no mortgages.
- ▶ Player A lands on "Reading Railroad"
- ▶ Player A pays \$50,00 to Player B.
- ▶ Player A's balance is now \$950,00; Player B's balance is now \$1050,00.

## Scenario 13: *Everyone donates to you*

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- ▶ Given that:
  - ▶ The players in the game are A, B and C
  - ▶ Player A, B and C all have \$1000,00 balance
- ▶ Player B lands on "Community Chance"
- ▶ She picks up the card "Everyone Must Donate 10% of His Holdings to You in Cash"
- ▶ Player A's and C's balance is now \$900,00
- ▶ Player B's balance is \$1200,00