

Project Design Document - Yahtzee Game

1) Introduction:

- The Yahtzee game is a dice-based game where players aim to score points by rolling a combination of dice values. The project aims to implement the Yahtzee game with a text-based interface.

2) Classes and their attributes:

- Die
 - Attributes:
 - currentRoll: An integer representing the current roll value of the die.
 - Public Methods:
 - roll(): Rolls the die and returns its numerical value.
 - getValue(): Returns the numerical value of the die without re-rolling it.
- YahtzeeHand
 - Attributes:
 - diceValues: An array of integers representing the current values of the dice.
 - Public Methods:
 - getDice(): Returns an array of integers with the current values of the dice.
 - rollAll(): Rolls all dice.
 - roll(int number): Rolls a specific die indicated by the given number.
 - changeHand(): Allows the user to change dice by rolling two more times, choosing which dice to keep.
 - get(int number): Returns the value of the specified die.
 - showDice(): Returns a string representing the current state of the dice.
- YahtzeeScore
 - Attributes:
 - dice: An array of integers containing the values of the dice to be scored.
 - Public Methods:
 - getUpperScore(int value): Calculates and returns the score for the upper section of the score card based on the specified value.
 - scoreThreeOfAKind(): Calculates and returns the score for the three of a kind category.
 - scoreFourOfAKind(): Calculates and returns the score for the four of a kind category.
 - scoreFullHouse(): Calculates and returns the score for the full house category.
 - scoreSmallStraight(): Calculates and returns the score for the small straight category.
 - scoreLargeStraight(): Calculates and returns the score for the large straight category.
 - scoreChance(): Calculates and returns the score for the chance category.
 - scoreYahtzee(): Calculates and returns the score for the Yahtzee category.

- `scoreBonusYahtzee()`: Calculates and returns the score for the bonus Yahtzee category.
- `YathzeeGuiScoreCard` (implementing `YathzeeScoreCard`)
 - Public Methods:
 - `paintComponent(Graphics g)`: Overrides the `paintComponent` method to draw the score card GUI.
 - `create()`: Creates the GUI components for the score card.
 - `scoreHand(YahtzeeHand yahtzee, int game)`: Displays the scores on the score card for the given `YahtzeeHand` and game number.

3) Note:

- The provided code implements a partial implementation of the Yahtzee game. The classes and methods described in the code are part of the initial implementation. However, to create a complete Yahtzee game, additional classes and methods would be required to handle the game logic, player management, and user interactions. The final implementation might differ from the provided code and should include the necessary classes and methods to create a functional Yahtzee game.