**DICE PROBABILTY SIMULATION**

# This may contain: three black dices stacked on top of each otherUSHNA AYUB (S24CSC034)

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# DISCRETE STRUCTURE

# MAAM SIDRA

DICE PROBABILTY SIMULATION

# CODE:

import java.util.Scanner;

class DiceProbability {

private int sides;

// Constructor to initialize the dice with the number of sides

public DiceProbability(int sides) {

this.sides = sides;

}

// Getter method to access the sides

public int getSides() {

return sides;

}

// Method to calculate the probability of a specific number

public double probabilityOfNumber(int number) {

if (number >= 1 && number <= sides) {

return 1.0 / sides; // Valid number has equal probability

} else {

return 0.0; // Invalid number

}

}

// Method to calculate probabilities like 3/6, 2/6, etc.

public double probabilityFraction(int numerator) {

if (numerator > 0 && numerator <= sides) {

return (double) numerator / sides;

} else {

return 0.0; // Invalid fraction

}

}

}

class Main {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

// Initialize a 6-sided dice

DiceProbability dice = new DiceProbability(6);

// Calculate probability of rolling a specific number

System.out.println("Enter the number to calculate its probability:");

int number = scanner.nextInt();

double singleNumberProbability = dice.probabilityOfNumber(number);

if (singleNumberProbability > 0) {

System.out.println("Probability of rolling " + number + " is: " + singleNumberProbability);

} else {

System.out.println("Invalid number for this dice!");

}

// Calculate probabilities like 3/6, 2/6, etc.

System.out.println("\nEnter the numerator for calculating probability (e.g., 3 for 3/6):");

int numerator = scanner.nextInt();

double fractionProbability = dice.probabilityFraction(numerator);

if (fractionProbability > 0) {

System.out.println("Probability of " + numerator + "/" + dice.getSides() + " is: " + fractionProbability);

} else {

System.out.println("Invalid numerator for this dice!");

}

scanner.close();

}

}

# OUTPUT:

Enter the number to calculate its probability:

5

Probability of rolling 5 is: 0.16666666666666666

Enter the numerator for calculating probability (e.g., 3 for 3/6):

6

Probability of 6/6 is: 1.0