Topics: Simulation, applying 1-d array and random numbers

Reading: -

Simulation

Simulation is the application of mathematical and computer models for imitating the behavior of a system. Simulation is a useful tool for design, training, and games!

Simple dice simulation

Simulate the rolling of a *fair* die. Class Dice below represents a single die. Write a method to simulate the rolling of a die to measure the *frequencies* of the *outcomes*.

What are the possible outcomes?

The frequency of an outcome is the number of times that the outcome occurs. Be careful about using the random number generator for generating integers *with equal probability*.

```
/** A six-sided dice */
class Dice {
  public static final int SIDES= 6; //no. of sides on a dice
  private int face; //Face that is shown currently
  /** Constructor: Dice's face has a random value in 1..SIDES */
  public Dice() { roll(); }
  /** face gets a random value in 1..SIDES */
  public void roll() {
    face= (int) (Math.random()*SIDES+1);
  }
  /** = Get face currently shown */
  public int getFace() { return face; }
}
```