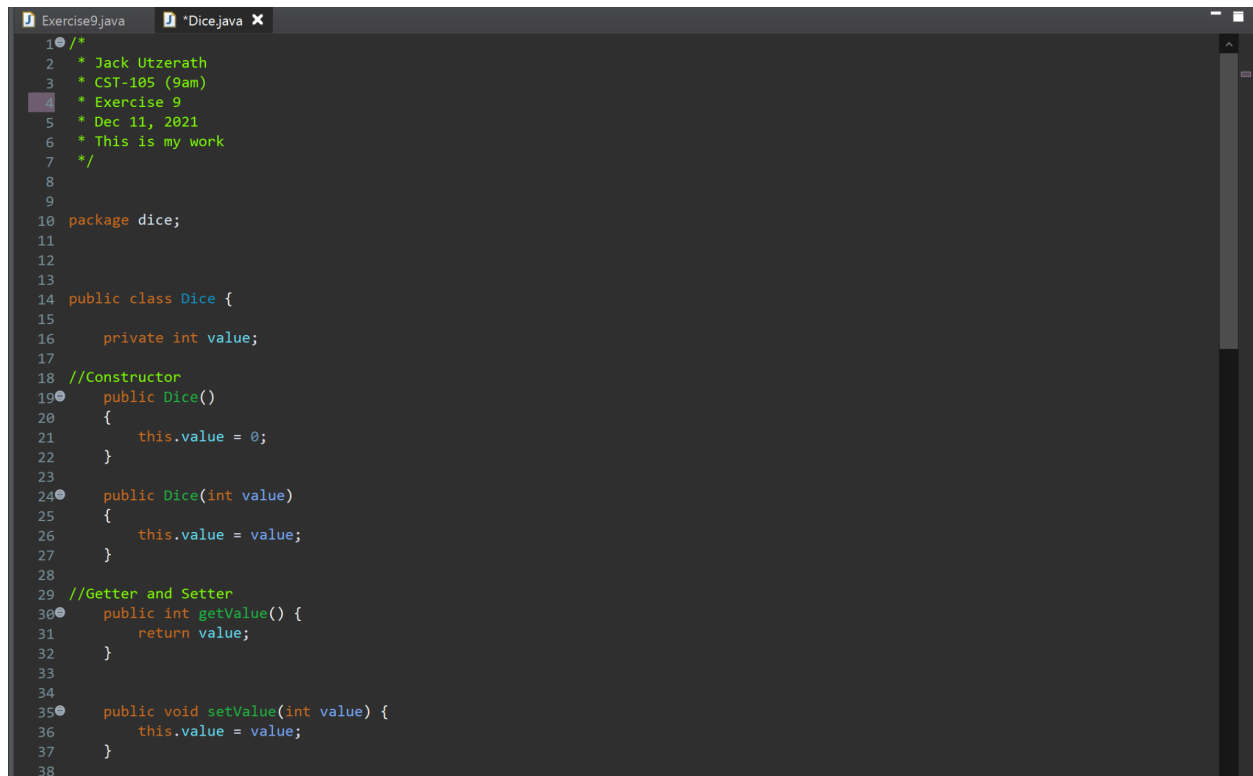


Jack Utzerath
CST-105 9am
Exercise 4
10/17/21

Loom Video:

<https://www.loom.com/share/af17b67e818545d8bff2f803cff4ce72>

Code ScreenShots:

A screenshot of a Java IDE with two tabs: 'Exercise9.java' and '*Dice.java'. The code in the active tab is as follows:

```
1  /*
2   * Jack Utzerath
3   * CST-105 (9am)
4   * Exercise 9
5   * Dec 11, 2021
6   * This is my work
7   */
8
9
10 package dice;
11
12
13
14 public class Dice {
15
16     private int value;
17
18     //Constructor
19     public Dice()
20     {
21         this.value = 0;
22     }
23
24     public Dice(int value)
25     {
26         this.value = value;
27     }
28
29     //Getter and Setter
30     public int getValue() {
31         return value;
32     }
33
34
35     public void setValue(int value) {
36         this.value = value;
37     }
38 }
```

```

38 //-----
39
40
41 //creates normal dice roll
42 public int rollDice()
43 {
44     int max = 7, min = 1;
45
46     int topOfTheDie = (int)(Math.random() * (max - min) + min);
47
48     this.setValue(topOfTheDie);
49
50     return topOfTheDie;
51
52 }
53
54 //-----
55
56 //creates weighted dice roll
57
58 public int rollWeightedDice()
59 {
60     int [] diceArray;
61
62     diceArray = new int[100];
63
64     for (int j = 0; j < 100; j++)
65     {
66         if (j <= 40)
67         {
68             diceArray[j] = 1;
69         }
70         if (j > 40 && j <= 55 )
71         {
72             diceArray[j] = 2;
73         }
74         if (j > 55 && j <= 70 )
75         {
76             diceArray[j] = 3;
77         }
78         if (j > 70 && j <= 80 )
79         {

```

```

80             diceArray[j] = 4;
81         }
82         if (j > 80 && j <= 90 )
83         {
84             diceArray[j] = 5;
85         }
86         if (j > 90)
87         {
88             diceArray[j] = 6;
89         }
90     }
91
92     int max = 100, min = 1;
93
94     int topOfTheDie = (int)(Math.random() * (max - min) + min);
95
96     return diceArray[topOfTheDie];
97
98 }
99
100
101
102
103
104 }
105

```

```

1  /*
2   * Jack Utzerath
3   * CST-105 (9am)
4   * Assignment
5   * Dec 11, 2021
6   * This is my work
7   */
8
9  package dice;
10
11  public class Exercise9 {
12
13      public static void main(String[] args) {
14          // Driver Method
15
16          //Initialize Variable
17          int numberOfRolls = 100000;
18          int threeOfAKind = 0, fourOfAKind = 0, fiveOfAKind = 0;
19
20          //For loop to generate multiple rolls
21          for (int j = 0; j < numberOfRolls; j++) {
22
23              int[] dice = createDice(5);
24              //Type of roll to keep track of important info
25              threeOfAKind += typeOfRoll(dice, 3);
26              fourOfAKind += typeOfRoll(dice, 4);
27              fiveOfAKind += typeOfRoll(dice, 5);
28
29          }
30
31          //Final Print Command
32          System.out.printf("In %,d rolls, you rolled 3 of a kind %,d times, 4 of a kind %,d times, "
33                          + "and 5 of a kind %,d times.", numberOfRolls, threeOfAKind, fourOfAKind, fiveOfAKind);
34
35      }
36
37      //-----
38
39      //Creates Dice
40      public static int[] createDice(int amountOfDice) {
41

```

```

41
42          //create object of the class
43          Dice die = new Dice();
44
45          //Initialize Variables
46          int[] dice = new int[amountOfDice];
47
48          //For loop to place random integer for each dice
49          for (int j = 0; j < dice.length; j++) {
50              int currentDie = die.rollDice();
51
52              dice[j] = currentDie;
53
54              /*
55               System.out.println(dice[j]);
56              */
57          }
58
59          //return array
60          return dice;
61      }
62
63      //-----
64
65      public static int typeOfRoll(int[] dice, int index) {
66
67          int count1 = 0;
68
69          int threeOfAKind = 0, fourOfAKind = 0, fiveOfAKind = 0;
70
71          //Created Nexted four loop to keep track of variables
72          for (int i = 1; i <= 6; i++)
73          {
74              count1 = 0;
75
76              for (int j = 0; j < dice.length; j++)
77              {
78
79                  if (dice[j] == i)
80                  {
81

```

```

82         count1++;
83
84         if (count1 == 3 && count1 != 4 && count1 != 5)
85         {
86             threeOfAKind++;
87         }
88         if (count1 == 4 && count1 != 5)
89         {
90             fourOfAKind++;
91         }
92         if (count1 == 5)
93         {
94             fiveOfAKind++;
95         }
96     }
97
98 }
99
100 }
101
102
103 //Switch statment to return varaiaible
104 int number = 0;
105
106 switch (index)
107 {
108     case 3:
109         number = threeOfAKind;
110         break;
111     case 4:
112         number = fourOfAKind;
113         break;
114     case 5:
115         number = fiveOfAKind;
116         break;
117 }
118
119 return number;
120 }
121 }
122

```

Output For standard Dice:

```

Problems  Javadoc  Declaration  Console X
<terminated> Exercise9 [Java Application] C:\Users\jacku\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.2.v20210721-1149\jre\bin\jav
In 100,000 rolls, you rolled 3 of a kind 21,303 times, 4 of a kind 2,043 times, and 5 of a kind 84 times.

```

Output For weighted Dice: (changed die.rollDice() to die.rollWeightedDice() on line 50)

```

Problems  Javadoc  Declaration  Console X
<terminated> Exercise9 [Java Application] C:\Users\jacku\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.2.v20210721-1149\jre\bin\jav
In 100,000 rolls, you rolled 3 of a kind 40,226 times, 4 of a kind 9,650 times, and 5 of a kind 1,091 times.

```