

EASTERN UNIVERSITY, SRI LANKA

Second Examination in Science First Semester (2003/2004)

OC 251

Java Programming

Time: 3 hours

Attention: Answer Only Part I or Part II

Part I:

Write a program to simulate rolling of two dice. The program should use **Math.random ()** to roll the dice. The sum of the values should then be calculated.

Hint: The expression, **(int) (Math.random()*6) + 1**, does the computation you need to select a random integer between 1 and 6. Here, the function **Math.random ()** gives a real number between 0.0 and 0.9999..., ie, [0.0, 1.0)

Since each die can show an integer value from 1 to 6, the sum of the values will vary from 2 to 12. [Note: 7 being the most frequent sum and 2 and 12 being the least frequent sums].

Figure given bellow shows the 36 possible combinations of the two dice.

		Second die					
		1	2	3	4	5	6
First die	1	2	3	3	4	5	6
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

Your program should roll the dice 1000 times. Every time you roll a pair of dice over and over, to get the total. Use a one-dimensional array to tally the numbers of times each possible sum appears. Your program should make a table of the results, something like:

Total on Dice	Average Number of Rolls
2	18.0607
3	35.8382
.	.
.	.

Finally you need to conclude that the pair of dice are **defective** or **not**.

Part II:

Write a program to create an applet contains two button labeled **“DrawSquare”** and **“DrawCircle”**. When the user clicks on **DrawCircle** button it should draw as in **figure1** and when the user clicks on **DrawSquare** button as in **Figure2**. [Note: the circle and square are at the middle of the applet window]

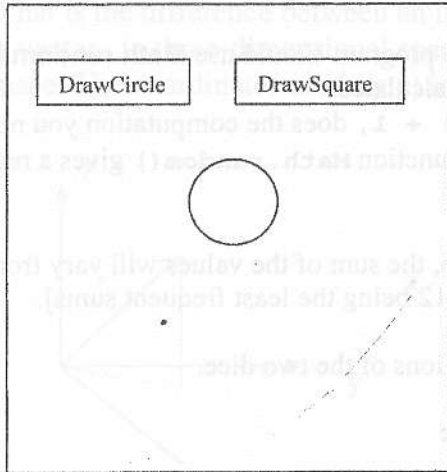


Figure 1

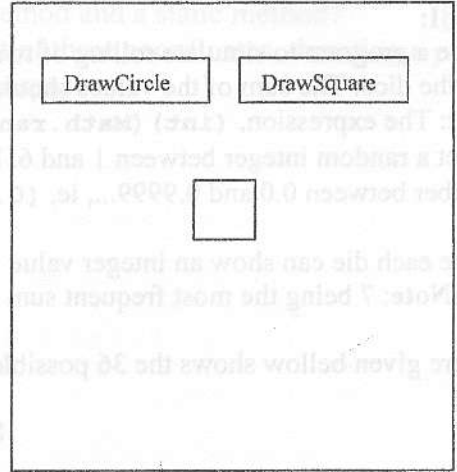


Figure 2

Add another two button labeled **“DrawMSquare”** and **“DrawMCircle”**. When the user clicks on **DrawMCircle** button it should draw as in figure3 and when the user clicks on **DrawMSquare** button as in Figure4.

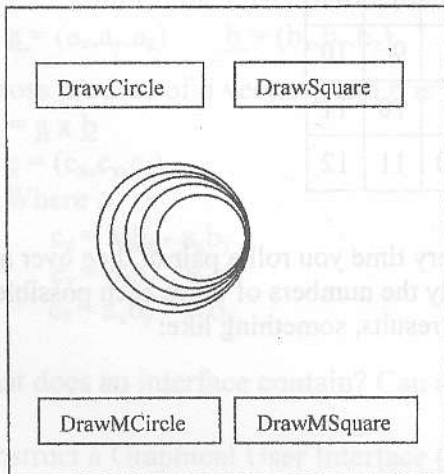


Figure 3

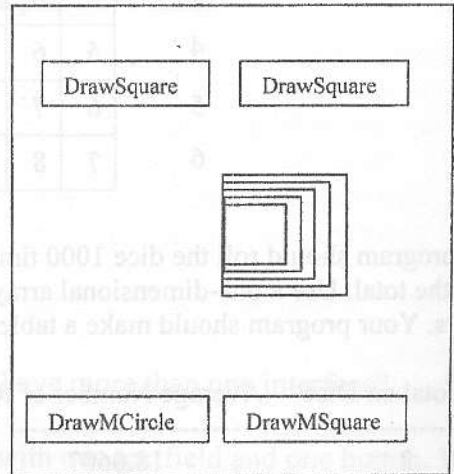


Figure 4