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| 1. The simulation below counts the number of coin flips it takes to achieve a specified number of heads in a row. Once the number of heads is achieved, the simulations stops and prints the number of coin flips. Consider the following output for different conditions.  |  |  | | --- | --- | | **Specified heads** | **Output** | | int numHeads = 4; | 30 flips | | int numHeads = 12; | 10000 flips |   Complete the CountHeads class below. | |
| Public class CountHeads{    public static void main(String args[]){  **int numHeads = 30;**  **int headsCount = 0;**  **int flips = 0;**  **while(headsCount < numHeads){**  **int result = (int)(Math.random()\*2);// 0 or 1**  **if(result == 1){**  **headsCount++;**  **}else{**  **headsCount = 0;**  **}**  **flips++;**  **}**  **System.out.println(flips);**  }  } | |
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| 2. Write the following for-loops as while loops | | |
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| **int y = 5;**  **while(y < 10){**  **System.out.println(y);**  **y+=2;**  **}** | **int z = 10;**  **while(z > 0){**  **System.out.println(z);**  **z--;**  **}** | |
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| 3. What is the output for each code segment below, | | |
| (a)  int m = 0;  int j = 0;  do{  j \*= -1;  if(j >= 0){  m += 2;  }  j+=2;  }while(m < 4);  System.out.println(j); | (b)  int i = 5, j = 0;  do{  for(j = 0; j < i; j++){  System.out.print(“\*”);  }  System.out.println();  i--;  }while(i > 0); | |
| **2** | **\*\*\*\*\***  **\*\*\*\***  **\*\*\***  **\*\***  **\*** | |
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| 1. The Magic 8 Ball is a plastic sphere resembling an [8-ball](https://en.wikipedia.org/wiki/8-ball). Inside is a floating die with 20 faces. Each face has an affirmative, negative, or non-committal statement printed in raised letters. These messages are read through a window on the ball's bottom in response to a “yes” or “no” question. Finish the Magic8Ball class which simulates a Magic 8 Ball. You simulator needs to produce messages for the first 2 cases only. Once the message is displayed, prompt the user if they would like to play again. If the user types “y”, the simulation will continue to run. | |
| Public class CountHeads{    public static void main(String args[]){  **Scanner s = new Scanner(System.in);**  **String msg = "", prompt = "", q = "";**  **do{**  **System.out.println("Ask me a yes/no question");**  **q = s.nextLine();**  **int result = (int)(Math.random()\*2);**  **switch(result){**  **case 0:**  **msg = "NO!";**  **break;**  **case 1:**  **msg = "YES!";**  **break;**  **}**  **System.out.println(msg);**  **System.out.println("Do you want to play again? (y)");**  **prompt = s.nextLine();**  **}while(prompt.equals("y"));**  }  } | |
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