Part 1 Coin Flip

Write a program to see if the coin is heads or tails. Use a random number generator that would give a 0 or 1. 0 is equivalent to heads and 1 is equivalent to tails.

Steps
1. import Scanner and Random
   
   import java.util.Scanner;
   import java.util.Random;

1. Set up both keyboard and randGen

   Scanner keyboard= new Scanner (System.in);
   Random randGen = new Random();

2. Prompt the user to enter an integer heads(enter 0) or tails(enter 1) from the keyboard

3. Read in the user prompt into an integer guess

   int guess = keyboard.nextInt();

1. use the random to get a 0 or 1 and store in integer coin

   int coin = randGen.nextInt(2)

1. Write an if statement to test to see if coin is 0 and guess is 0, print “Yes it’s heads!”

   else if coin is 0 and guess is 1 print out (“ Sorry it’s heads”)

   else if coin is 1 and guess is 1 print out (“ Yes it’s tails”)

   else print out (“Sorry it’s tails”)
Example user exchange:(the **bold** shows what is entered in from keyboard)

Enter a guess - either heads(0) or tails(1)

1

Yes its tails

Another run would be

Enter a guess - either heads(0) or tails(1)

0

Sorry its tails

**Part 2 Buy Car**

You are looking to buy a car. You have a known budgeted amount of money per month to spend on a car. You have a chance to get a no interest loan from the dealer for 36 months(Use a constant variable for TERMOFLOAN- use final with value 36). You enter from the keyboard the amount of money per month you have to spend and the costs of Car A(Dream Car) and cost of Car B(Second Choice).

You write a java program to determine if you can afford Car A, Car B or no car.

To see if you can afford, take the cost of the car divided by the TERMOFLOAN and compare this to the amount you have to spend per month

You will need to carefully think about the if statements and how they are evaluated. Print out the appropriate message for each scenario. Include in the message how much extra they have to spend based on the choice that works best.

Test with three different scenarios - See sample dialogue - user inputs in bold.

Run 1
Enter the amount of money you have to spend on car per month **525**

Enter the cost of Dream car **15000**

Enter the cost of PlanB car **8000**
It seems you have $525.00 to spend on either a $15000.00 car or a $8000.00 car

Congrats, You can get your Dream Car
You have $108.33 extra monthly to spend

Run 2
Enter the amount of money you have to spend on car per month **280**

Enter the cost of Dream car **15000**

Enter the cost of PlanB car **10000**
It seems you have $280.00 to spend on either a $15000.00 car or a $10000.00 car
You can get Car B
You have $ 2.22 extra monthly to spend

Run 3
Enter the amount of money you have to spend on car per month **230**

Enter the cost of Dream car **15000**

Enter the cost of PlanB car **10000**
It seems you have $230.00 to spend on either a $15000.00 car or a $10000.00 car

Get walking
You are $-47.78 short
Part 3. String Operators

Latitude and longitude is the way to refer to any point on earth. For example, the latitude of the Capitol is 38°53'23" N. The longitude is 77°00'27"W. Write a java program to take the Strings

String lat = "385323N"; ←-------make 4 String variables
String longitude = "770027W";<-----------------------4 Strings

and manipulates them so the output would read:

The Capitol is located at
38 degrees 53 minutes and 23 seconds N and
77 degrees 00 minutes and 27 seconds W

You want to split the longitude and lat string each up into 4 pieces. The easiest way is to make 8 String variables and put in each the appropriate section of print statement.

Example String latDeg = lat.substring(0, 2);

Continue the above and then put it all together in a print statement.

Things to consider

1) Use print, printf and println to drive the output to be what you want. Limit the money in output to 2 decimal places. I want the output to be formatted like the cases illustrated above.

2) Test thoroughly to make sure you get all conditions

Part 4 StringOrdering
For this lab you will write a Java program to prompt the user to enter three strings. Your program will determine the correct lexographic or alphabetic ordering of those strings.

Example of the if-else

If (str1.compareToIgnoreCase(str2)<0 && str1.compareToIgnoreCase(str3)<0 &&str2.compareToIgnoreCase(str3)<0)
    System.out.println(str1 + " , " + str2 + " ,  " + str3);
else if

Sample Output

This is a sample transcript of what your program should do. Items in bold are user input and should not be put on the screen by your program.

Run 1:
Enter the first string: football
Enter the second string: basketball
Enter third String: squash

Output:
basketball, football, squash

Run 2:
Enter the first string: squash
Enter the second string: Tennis
Enter third String: baseball

Output:
baseball, squash, Tennis

Run 3:
Enter the first string: squash
Enter the second string: squash
Enter third String: baseball
Output:
Error : Strings are identical

NOTE: For this exercise you will need to use the compareToIgnoreCase() String method. Here is a sample of the String method comparing str1 and str2

str1.compareToIgnoreCase(str2) returns an int < 0 if str1 comes first
str1.compareToIgnoreCase(str2) returns an int >0 if str2 comes first
str1.compareToIgnoreCase(str2) returns and int 0 if str1 equals str2