Challenge: Java Language Basics

Description: Write a Java application using the NetBeans IDE that utilizes primitive data types, operators, expressions, statements, blocks, and control flow.

Purpose: This application provides experience in working with the basic language features of Java. It is important when working with a new language to understand how it handles its data types, operators, expressions, statements, blocks, and control flow. A good thing to always do with a new language is to build test applications where you experiment with these language features to make sure you understand how they work.

Requirements:

Project Name: <Pawprint>LanguageBasics

For the Project Name follow the same naming scheme used in the first challenge. The Project Name is to be comprised of your pawprint with the first letter capitalized followed by LanguageBasics. For example if the pawprint is **abcxyz9** the project is to be named **Abcxyz9LanguageBasics**.

Write the code necessary to do the following inside the main() method of the application's Main Class.

Declare the following variables and set their initial values as indicated.

Declare a byte named **`sample1`** with an initial value of 0x3A
Declare a byte named **`sample2`** with an initial value of 58
Declare a short named **`heartRate`** with an initial value of 85
Declare a long named **`deposits`** that has an initial value of 135002796
Declare a float named **`acceleration`** that has an initial value of 9.584
Declare a float named **`mass`** that has an initial value of 14.6
Declare a double named **`distance`** that has an initial value of 129.763001
Declare a boolean named **`lost`** that has an initial value of true
Declare a boolean named **`expensive`** that has an initial value of true
Declare an int named **`choice`** with an initial value of 1
Declare a char named **`integral`** that has an initial value of '\u222B'
Declare a char named **`letter1`** that has an initial value of 'a'
Declare a char named **`letter2`** that has an initial value of 97
Create a String named **`greeting`** that has an initial value of "Hello"
Create a String named **`name`** that has an initial value of "Karen"

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Using the variables declared and initialized above, do the following. Where is says "display" it means output a line to standard out. Each displayed item is to be on a separate line. Note that System.out.println() puts a newline character at the end of the line. But, System.out.printf() must have a "\n" at the end of string to put a newline at the end so the next thing displayed is on a separate line.

Compare **`sample1`** to **`sample2`** and if they are equal display **"The samples are equal."** otherwise display **"The samples are not equal."**

If **`heartRate`** is greater than equal to 40 and less than equal to 80 display **"Heart rate is normal."** otherwise display **"Heart rate is not normal."**

If **`deposits`** is greater than or equal to 100000000 display **"You are exceedingly wealthy."** otherwise display **"Sorry you are so poor."**

Declare a variable called **`force`** that is assigned to the **`mass`** times the **`acceleration`**. The **`force`** variable must be of the same type as the type that results from the multiplication of **`mass`** and **`acceleration`**.

Display the calculated **`force`** proceeded by the string **"force = "**. The output should look like the following (actual value will be different):

force = 2.345

Display the value of **distance** followed by " **is the distance.**"

Using **`lost`** and **`expensive`** display **"I am really sorry! I will get the manager."** if **`lost`** and **`expensive`** are both true and **"Here is coupon for 10% off."** if **`lost`** is true and **`expensive`** is false.

Use switch/case and the variable **`choice`** to display **"You chose 1."** if **`choice`** is 1, **"You chose 2."** if **`choice`** is 2, **"You chose 3."** if **`choice`** is 3, and **"You made an unknown choice."** if **`choice`** is something other than 1, 2, or 3.

Using the char variable **`integral`** display the character in **`integral`** followed by the string **" is an integral."**

Using char variables **`letter1`** and **`letter2`** compare them to see if they are the same. If they are the same display a line that displays the two characters with the string **" and "** between them followed by **" are the same."** If they are not the same display a line that displays the two characters with the string **" and "** between them followed by **" are not the same."** Here are examples of what the two different displayed lines would look like:

d and d are the same.
k and p are not the same

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Using a "for" loop count from 5 to 10 (inclusive) using an integer variable **`i`**. Inside the loop display each value of **`i`** with a line that is **"i = "** followed by the value of **`i`** as in:

i = 5
i = 6
i = 7
i = 8
i = 9
i = 10

Declare an int variable **`age`** with an initial value of 0. Using a "while" loop that continues while **`age`** is less than 6 display the value of **`age`** in a line that begins with **"age = "** and is followed by the value of **`age`**. (Example: **age = 3**) After the age line is displayed increment the value of **`age`** by 1 using the post-increment operator.

Display a line that contains the **`greeting`** string followed by a space followed by the **`name`** string.

Run your application and make sure everything works as expected. ZIP the project directory and submit it on Blackboard.