

CSCI 1015 – Programming Assignment 3

Flow of Control: Branching

Learning Outcomes

- Construct Boolean expressions to test the values of variables.
- Use `if...else` statements to make decisions in a program.

Required Reading

Savitch - Sections 3.1-3.3

Instructions

It is often said that one year for humans is equivalent to about seven years for a dog, but this is not altogether true. First of all, dogs mature a great deal in their first year: a one-year old dog is equivalent in physical maturity to a 15-year old human. Second, larger dogs age more quickly later in life than smaller dogs: a small 10-year old dog is equivalent to a 56-year old person, while a large dog of the same age is more like a 66-year old person.

According to WebMD, the age of a dog can be calculated approximately using the following rules:

- If the dog is 1 year old, the equivalent human age is 15.
- If the dog is between 2 and 5 years old, the equivalent human age is 4 times the dog's age plus 16.
- If the dog is between 6 and 16 years old, the equivalent human age depends on the weight of the dog:
 - If the dog weighs 20 lbs or less, the equivalent human age is 4 times the dog's age plus 16.
 - If the dog weighs between 21 and 50 lbs, the equivalent human age is 4.5 times the dog's age plus 15.
 - If the dog weighs more than 50 lbs, the equivalent human age is 7.5 times the dog's age.

For this assignment you must use the rules above to calculate the age of a dog in human years given its weight and its actual age. You must also display an error if the user enters a weight that is less than 0 or an age that is not between 1 and 16.

Example Input and Output

Example 1:

Welcome to Nicholas Coleman's Dog Age Calculator!

Please enter the actual age of your dog (1-16): 5
Please enter your dog's weight in pounds: 24

Your dog's age in human years is 36

Example 2:

Welcome to Nicholas Coleman's Dog Age Calculator!

Please enter the actual age of your dog (1-16): 10
Please enter your dog's weight in pounds: 60

Your dog's age in human years is 75

Example 3:

Welcome to Nicholas Coleman's Dog Age Calculator!

Please enter the actual age of your dog (1-16): 42
Please enter your dog's weight in pounds: 300

Error: age is out of range

Example 4:

Welcome to Nicholas Coleman's Dog Age Calculator!

Please enter the actual age of your dog (1-16): 9
Please enter your dog's weight in pounds: -134

Error: weight must not be negative

Notes and Comments

Upload your Java source file to the dropbox named **Program 3**. The name of the source file must be your last name followed by Program3 with the extension .java. For example, mine would be ColemanProgram3.java.

Make sure to include comments with your name, a description of what the program does, the course (CSCI 1015), and the assignment name (Program 3) at the beginning of your source file.

Make sure you only hand in the source file for your assignment, not the class file, or any other files that NetBeans creates.

Your programs must compile without errors in order to be graded. Once your program compiles make sure to test it using **multiple test cases** to see if it meets the requirements of the assignment.