

Programming

Exercise

6.5

Coin Toss, v.1.0

Purpose. Write your first computer game program, from scratch, using if-logic

Pretend that you have been hired by the National Football League (NFL) to write a program to replace the coin toss. Name it coinToss1.cpp. The output should be simple: either the word "Heads"

or the word "Tails". There is no console input -- just run the program, and it says "Heads" or "Tails".

Supplemental. Read about "randomizing" in

www.rdb3.com/cpp/exercises/Gaming.supplemental.pdf.

Requirement.

1. Use the C++ library's random number generator, and include the srand statement so that the result is not the same every time you run the program.

Program I/O. Input: none. Output: either Heads or Tails.

Example.

Heads

Programming

Exercise

7.4

Coin Toss, v.2.0

Purpose. Learn how to use count-controlled loops.

Requirements. Rewrite your coinToss1.cpp from exercise 6.5 as coinToss2.cpp. Modify the program to allow the user to specify (via keyboard data entry) the number of coin tosses to perform.

When you run the program, and it should say the result of each coin toss (that is, "Heads" or "Tails").

Supplemental. Read about "randomizing" in

www.rdb3.com/cpp/exercises/Gaming.supplemental.pdf.

Algorithm.

Call srand

Prompt the user to enter how many coin tosses to perform

Input and store the user's selection

Create a counter and set it to zero

Start the loop here

If the counter equals the number of tosses to perform

Break from the loop

Get and store a randomly-generated number in the range 0 to 1

If the randomly-generated number equals 0

Output "heads"

If the randomly-generated number equals 1

Output "tails"

Add one to the counter

Loop back from here

Example. with user input in blue

Enter the number of tosses to perform: 3

Heads

Tails

Heads

Programming

Exercise

7.5

Coin Toss, v.3.0

Purpose. Learn how to use "nested loops" to put "replay" a program that already contains a loop.

Requirements. Rewrite your coinToss2.cpp from exercise 7.4 as coinToss3.cpp. Modify the program to add another loop that lets the user replay the entire game. If the user enters sentinel value

of 0 (zero) for the number of tosses, break out of the outer replay loop to end the program.

Be sure to explain this to the user in the prompt -- something like: "Enter the number of tosses to

perform [0=exit]:".

Supplemental. Read about "randomizing" in

www.rdb3.com/cpp/exercises/Gaming.supplemental.pdf.

Program I/O. Input: a non-negative number from the console keyboard, repeated in a loop until the

sentinel value of 0 is entered. Output: a series of Heads or Tails repeated in a loop until the sentinel

value is entered.

Example. with user input in blue

Enter the number of tosses to perform [0=exit]: 3

Heads

Tails

Heads

Enter the number of tosses to perform [0=exit]: 2

Tails

Tails

Enter the number of tosses to perform [0=exit]: 0