

Q: What will the following expression evaluate to based on the given values?



- A. True
- B. False





CPSC 100

Computational Thinking

Code Explanation + Tracing

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Agenda

- Learning Goals
- Course Admin
- Intro to Programming [Continued]
 - Comparing Loops
 - Code Explanation [Activity]



Learning Goals





After this today's lecture, you should be able to:

- Identify and understand the differences between **different types of loops** (e.g. repeat, repeat until, for)
- **Trace** through code using sequences of instructions, variables, loops, and conditional statements in short programs
- **Describe in English** what a block of Snap! code does.
- **Evaluate** if a given snap code block correctly implements an algorithm.

Course Admin



Course Admin

- **Lab #4**
 - Due on Thursday, Feb 6 at 11:59pm
- **Lab #5** (Feb 12)
 - Drop-in; used for midterm + project help
- **Post-Class (PC) Quiz #3**
 - Only 1 attempt, 60 minutes
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- **Midterm**
 -  February 14 
 -  3:00-3:50 pm
 -  CHBE 101 [Chemical and Biological Engineering Building]

Programming Basics

Programming Basics

0. Variable



- a. A named storage location for data

1. Sequencing

- a. In order (top-down)

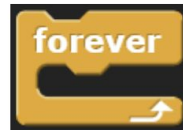
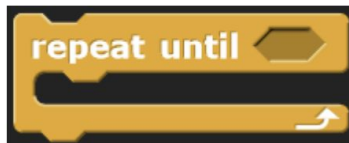
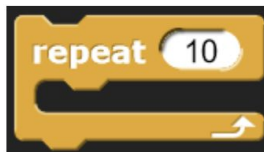
2. Selection

- a. Conditional Structures



3. Iteration

- a. Loop Structures



Components of an Algorithm

0. Variable

- A named storage location for data



1. Sequencing

- In order (top-down)

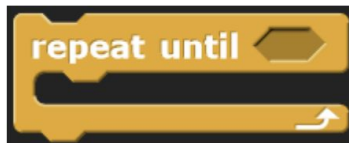
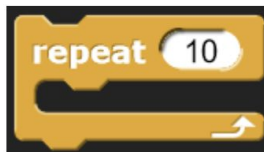
2. Selection

- Conditional Structures



3. Iteration

- Loop Structures



Loops

Repeat Blocks

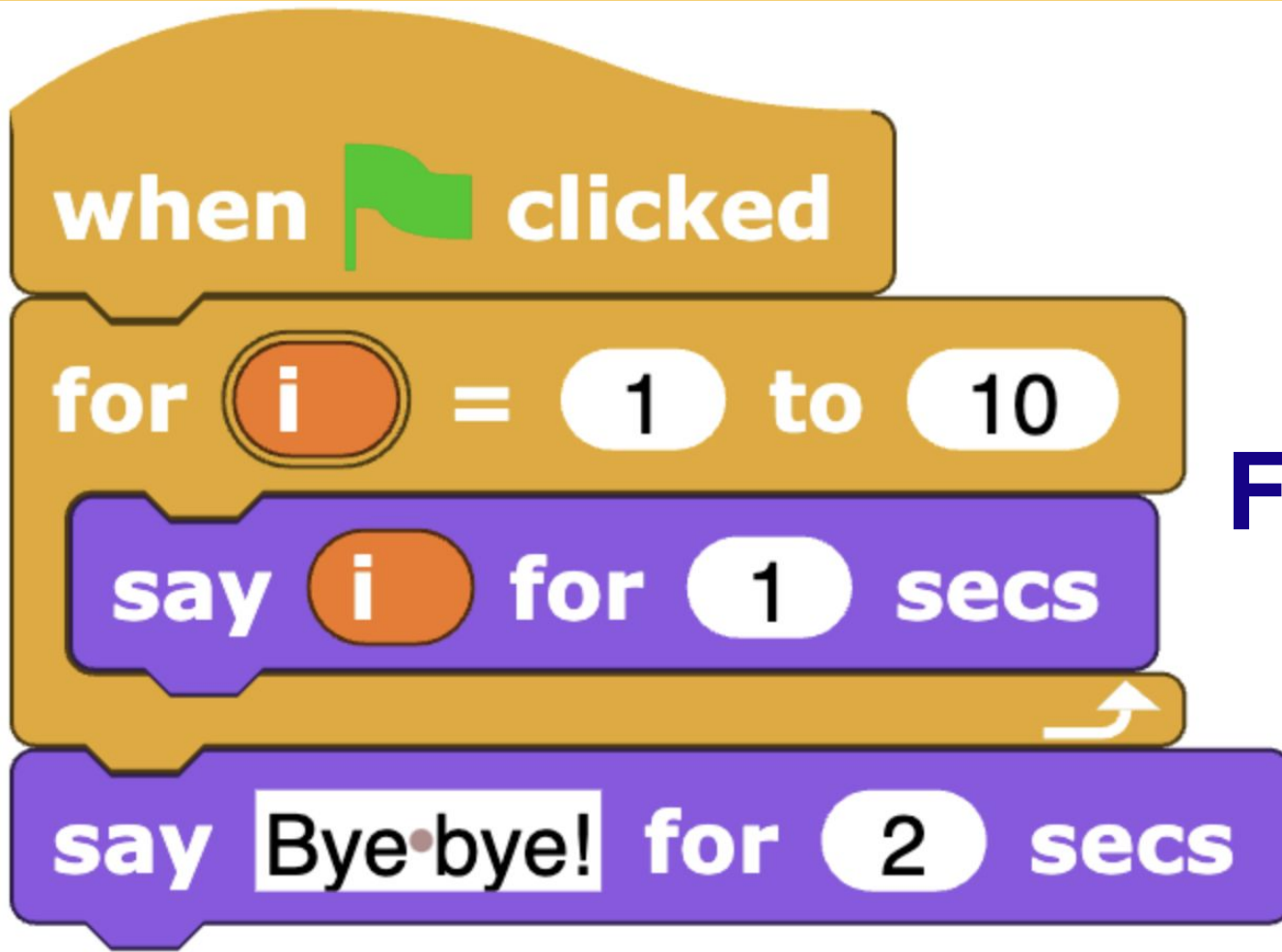
Repeat some code a finite number of time



Repeat UNTIL a particular condition has been met.

If the condition is never met, then, it goes on *forever*.

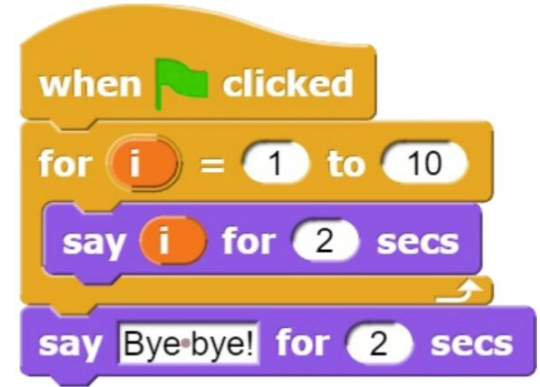
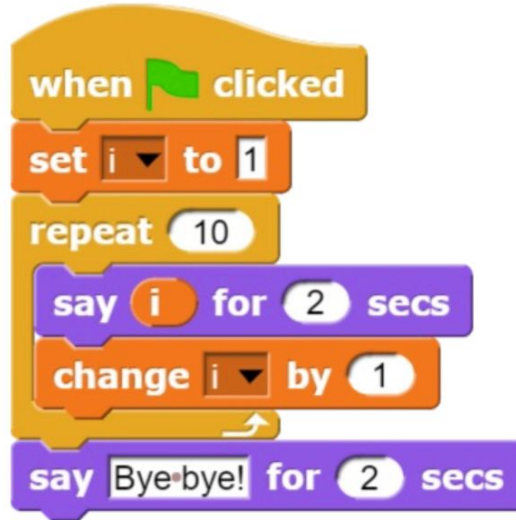
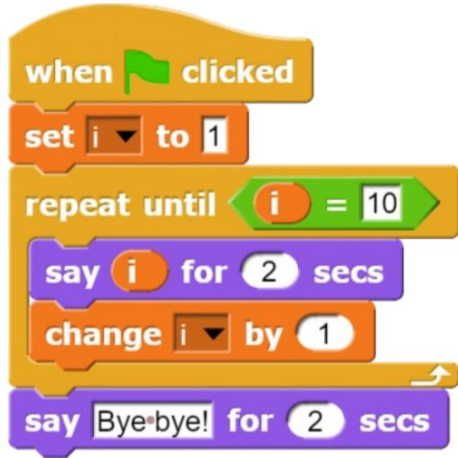




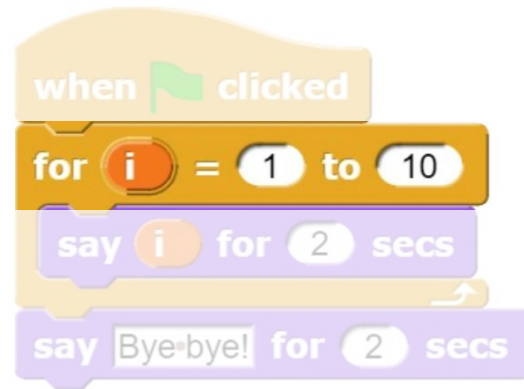
For Loops

Comparing Loops

What's the difference between these loops?



What's the difference between these loops?



Code Explanation



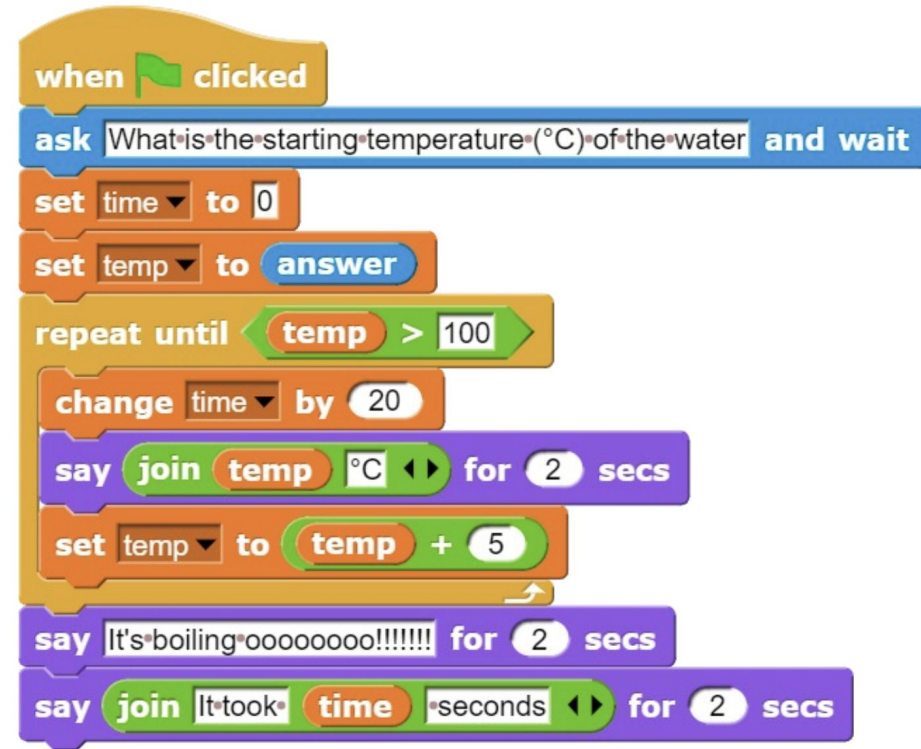
What does this code block do?

Describe the code in terms of input and output and what is being done.

The block consumes....

It does...

It produces/displays/reports...

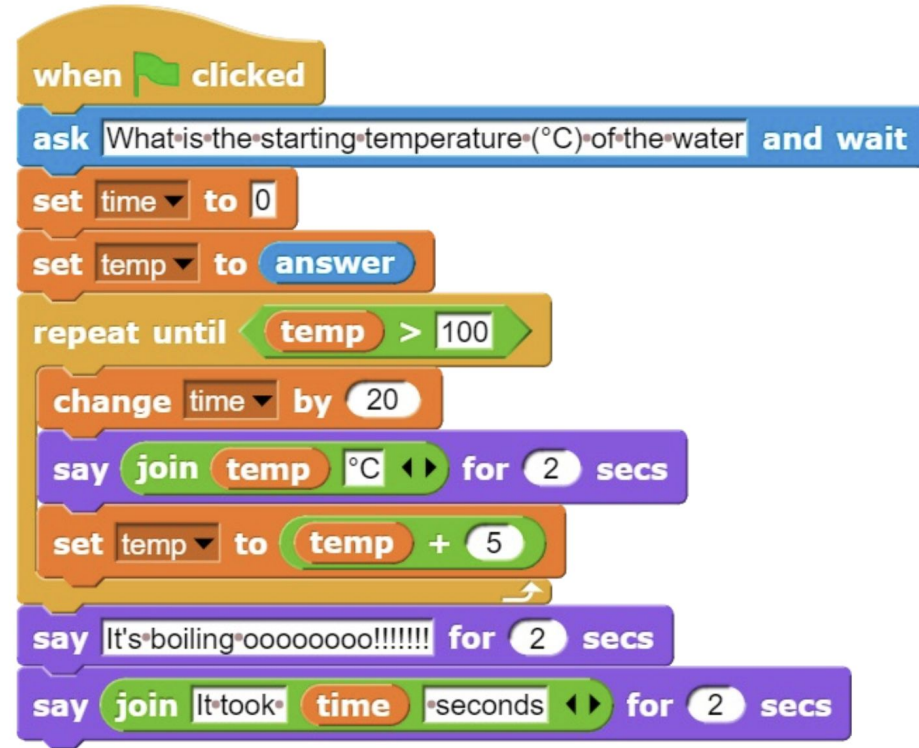




What is the purpose of this block?

The block consumes the starting temperature for water
It increases the temperature and time

It produces the time it takes to get the water from the starting temperature to 100 degree Celsius

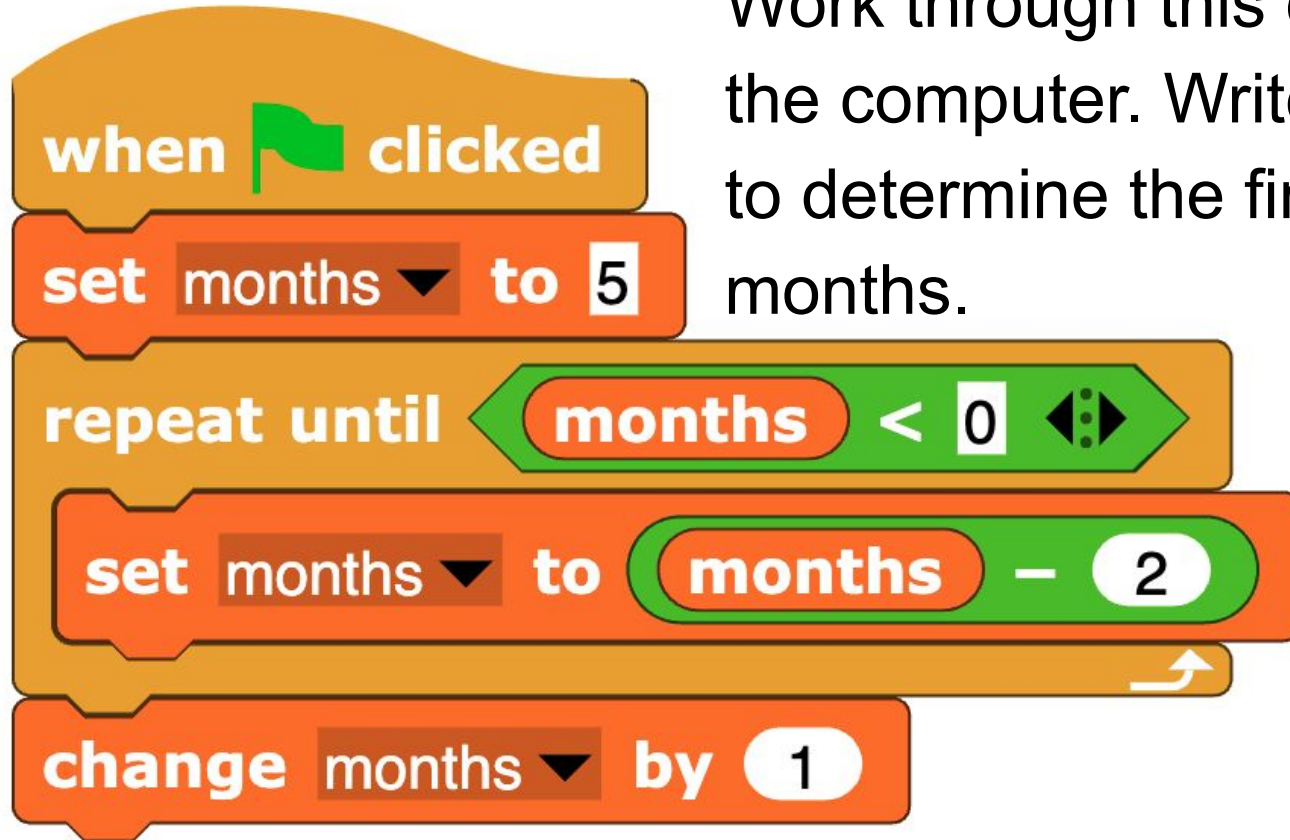


Code Tracing Activity



Activity - Step through this code

Work through this code as if you're the computer. Write down each step to determine the final value of months.



Take-Home Activity

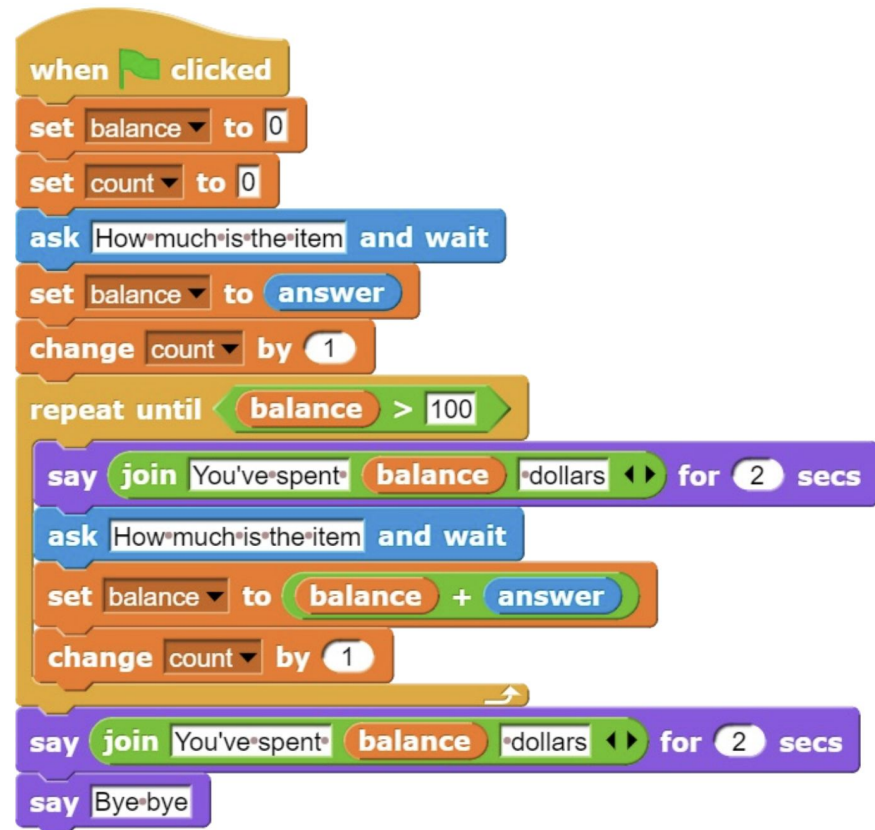
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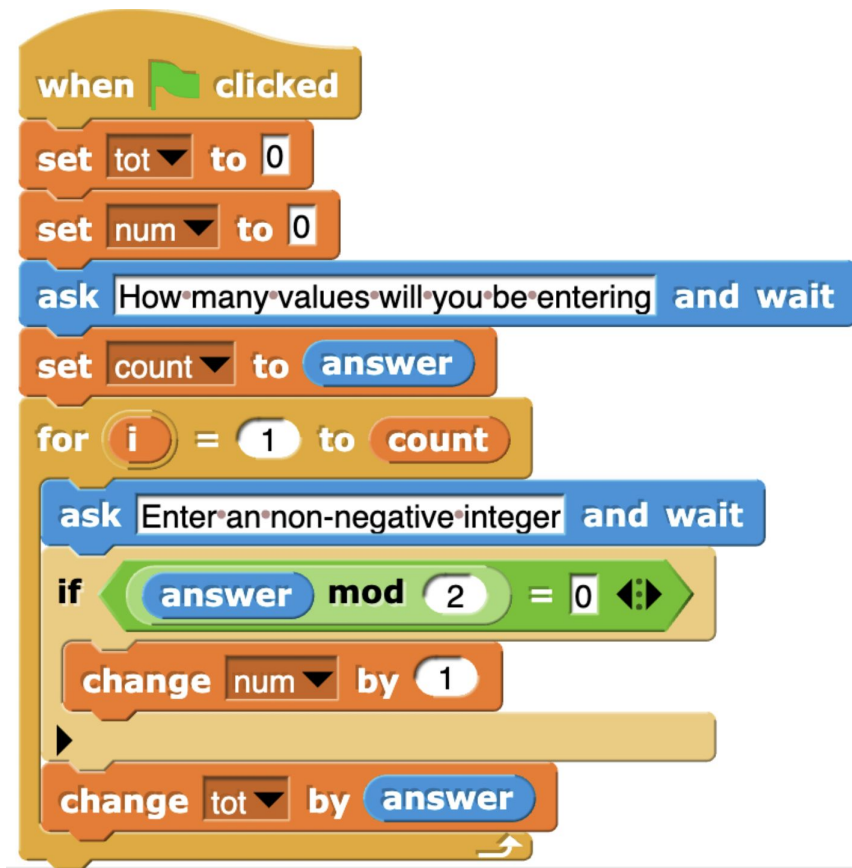
It produces/displays/reports...



What does this code block do?

What is the value of **tot**, **num** and **count** when the block is run? *[for practice, you can assume a number between 1-6]*

What does this code block do?



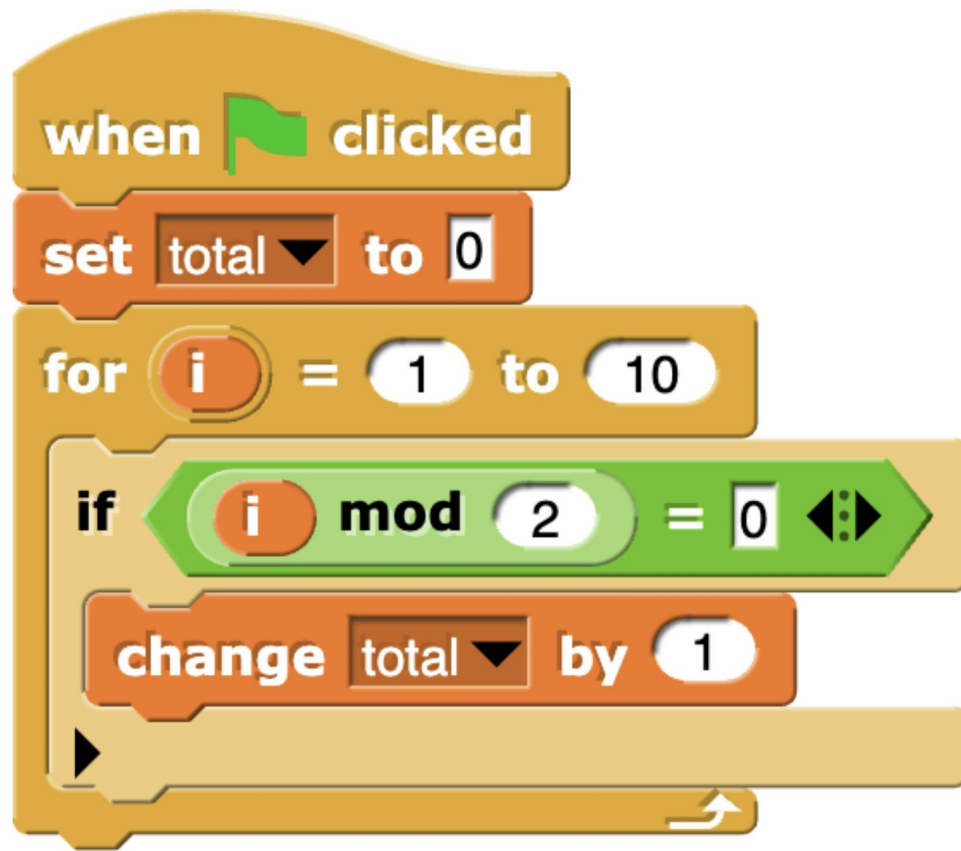
Q: What will the following expression report?



- A. True
- B. False

Q: What is the value of **total when this code block is run?**





What does this code block do?



Wrap up



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