Variables Activity 2

Scratch can be used to create programs that help users do boring calculations and tasks. Today we’re going to combine the ask and wait block with custom logic to make a series of simple programs. For example, the program below asks the user for a number and doubles it.

A screenshot of a chat

Description automatically generated

In particular, notice that:

* We ask the user a question with the ask and wait block
* We use the user’s answer (stored in the answer variable) to create our response

Assignment:

First, we’re going to experiment a little bit with the ask and wait block. Create a program exactly like the one seen below:

A screenshot of a computer game

Description automatically generated

1. Describe in 1-2 sentences what the program does.
2. Explain in 1-2 sentences why there must be a space after the “is” in “The sum is”.
3. Why do we need two variables for this program?
4. What would happen if we put this entire program (from the first ask and wait all the way up to the say) in a forever loop?

Now that we understand the basics, we’re going to use ask and wait to create small programs to complete each of the following tasks. Each time you complete a task, **move the program into the “backpack”**, and then start a new piece of code.

* 1. Write a program that asks the user for their name and then prints “Hi NAME!”.
  2. Write a program that asks the user to input two numbers: the height and width of a rectangle and prints the area of the rectangle. Then, if the area is smaller than 10, the program prints “That’s a small rectangle!”.
  3. Write a program that asks the user for the radius of a circle and prints out the area of the circle. Then, if the area is bigger than 100, the program prints “That’s a big circle!”.
  4. Write a program that asks the user for two numbers and then prints the larger one.
  5. Write a program that asks the user for a temperature in Fahrenheit and converts it to Celsius. If the temperature in Celsius is greater than 100, the program prints “boiling”. If the number is less than 0, the program prints “freezing”.
  6. Write a program that counts down from 10 to 0 and then prints “blast off” using *seven or fewer blocks* (hint: use a loop).
  7. Write a program that quickly says all the numbers between 101 and 200.
  8. Write a program that asks the user for a number and then counts downs from that numbers all the way to 0.
  9. Write a program the prints the largest of three numbers given by a user (hint: use the and block).
  10. Create a program that asks the user for 5 numbers then prints the sum of all the numbers (hint: if you use a loop, you’ll only need to use ask and wait once).
  11. (Bonus): Write a program that prints the number of spaces in a sentence given by a user.
  12. (Bonus): Write your own program that implements an algorithm you use in another class.