

Using Subprograms to Organize Your Coin Toss Code

Adjust the Coin Toss application to make the code more organized by breaking it down into smaller sections.

To do this, you will create subprograms.

A **subprogram** contains a small set of instructions to complete a task and is referenced and called to action by the main program. In Scratch, when we make a new block, we have made a subprogram.

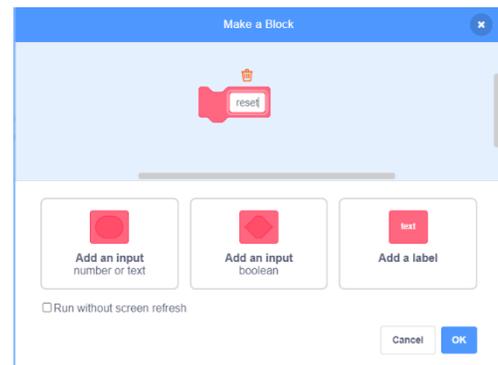
Start with the code you wrote by following the guided materials in Master 10. If you do not have your code saved, you can begin with this link:

<https://scratch.mit.edu/projects/806111487/editor/>

You will create two subprograms: one for resetting the variables and one for tossing the coin. The conditional statement part of the code will remain as part of the main part of the program.

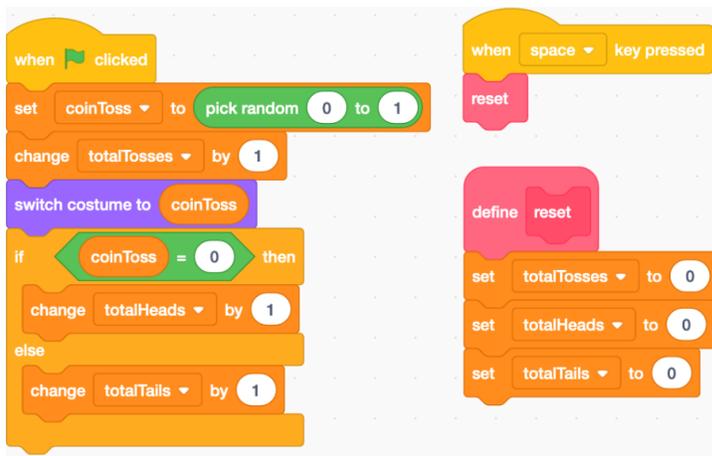
Part 1: Creating a Reset Subprogram

1. To create a subprogram in Scratch, you need to make your own block. Under **My Blocks**, select **Make a Block**. Name the block **reset**.



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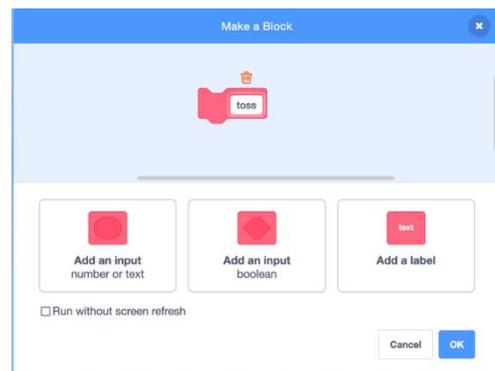
2. A new block appears in the code editing area that says **define reset**. There is also a new block under **My Blocks** called **reset**. Move your code that resets the variables, which was below the **when space key pressed** block, to below the **define reset** block. From under **My Blocks**, select the **reset** block and drag it to below the **when space key pressed** block. The code is shown below.



The application should work as before, but now you have reorganized the code to contain one subprogram.

Part 2. Creating a Toss Subprogram

1. The second subprogram you will create will be to toss the coin. Under **My Blocks**, select **Make a Block**. Name the block **toss**.

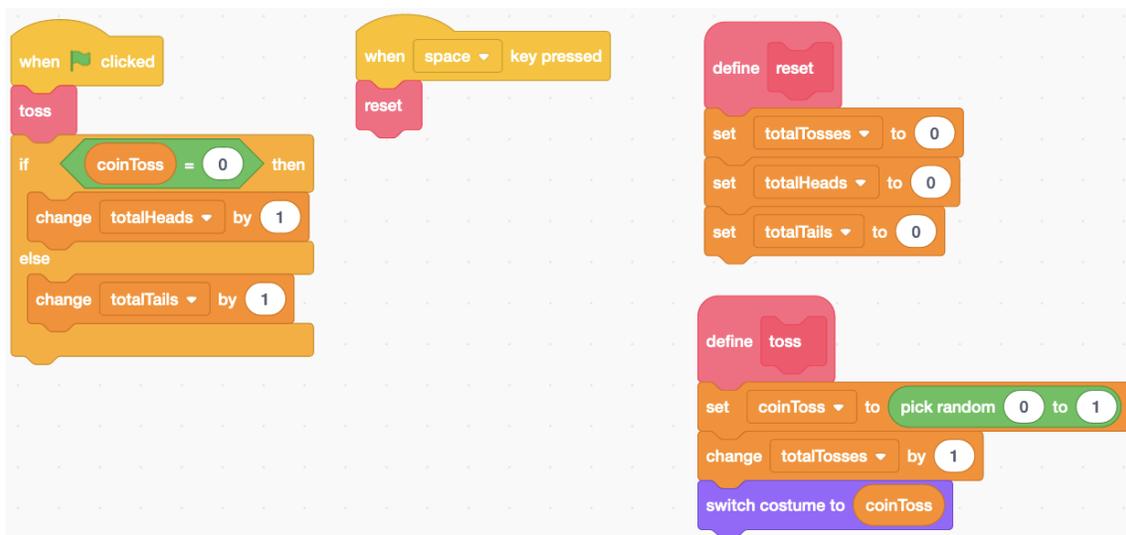


Using Subprograms to Organize Your Coin Toss Code (cont'd)

2. Drag the 3 blocks of code associated with the actual coin toss to below the **define toss** block as shown below. Drag the new **toss** block below the **when green flag clicked** block.

The code is displayed on the below.

Tip: You might find it helpful to pull apart the code, and temporarily place it elsewhere in the code editing window before snapping it back together.



The application should work the same as before, but now the code is broken down and organized into smaller parts, called subprograms!

3. Try out the application to ensure that it still works. You can do this by clicking on the green flag above the stage many times. What happens to the number of heads? The number of tails? If the results aren't what you expect, look through your code for any errors.