

Guided Materials in Scratch: Data Analysis and Sleep

Part 1: Determining the minimum number of hours slept in one week

Read the code.

Execute the code by clicking on the green flag .

To test the application, enter these numbers, one at a time, with a return after each entry:

8
7
6
9
8
7
8

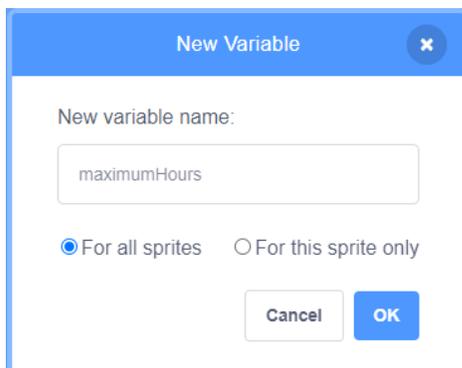
Did the application output the least number from the list?

Part 2: Determining the maximum number of hours slept in one week

Create another variable called maximumHours.

1. Go to **Variables** and select **Make a Variable**.

Call it **maximumHours** and select **OK**.

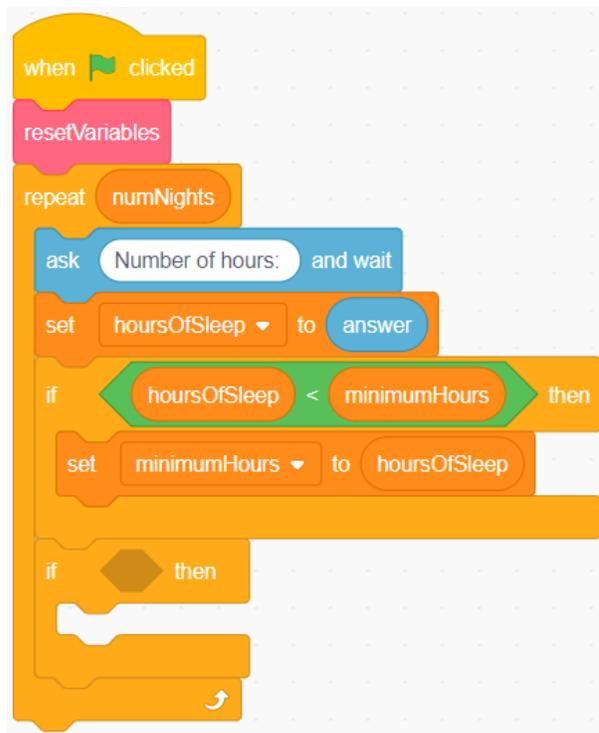


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2. Add a **set** block to the end of the **resetVariables** subprogram. Ensure **maximumHours** is selected in the pulldown menu and that it's set to **0**.

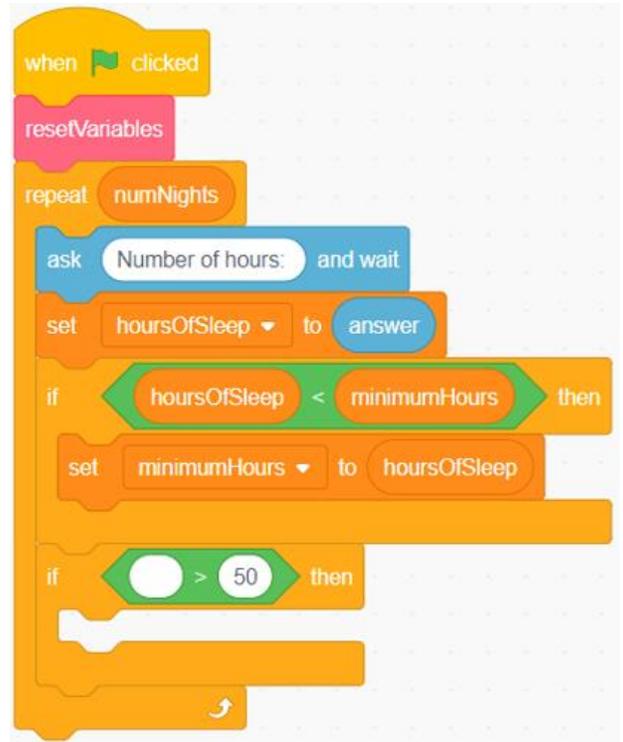


3. Under **Control**, select an **if () then** block and place it inside the **repeat** block after the first **if () then** block.



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4. Under **Operators**, select a **greater than operator** block. Place it inside the condition area of the **if () then** block.



5. From **Variables**, place the **hoursOfSleep** block inside the first part of the conditional operator, and the **maximumHours** block inside the second part of the conditional operator.

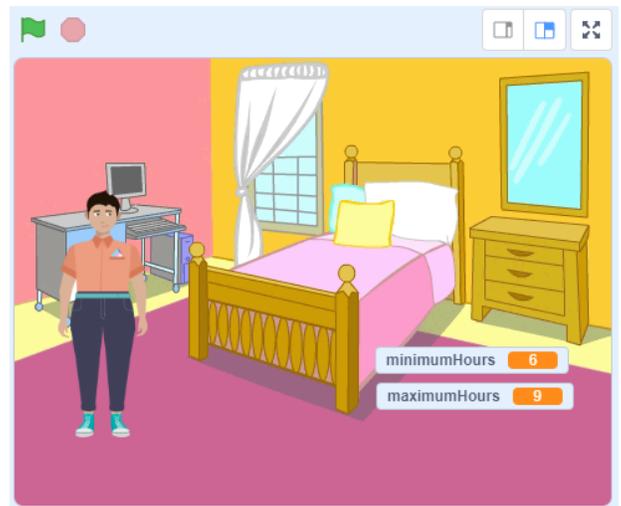


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6. Place a **set** block inside the conditional statement and ensure **maximumHours** is selected from the pulldown menu. Place the **hoursOfSleep** block inside the **set** block.



7. On the Stage, move the **maximumHours** variable beneath the **minimumHours** variable.

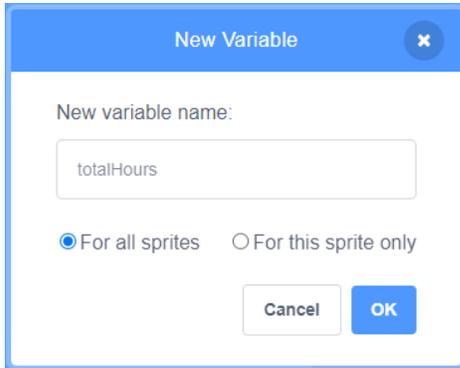


8. Test the application by clicking the **green flag** and entering the same list of numbers from earlier, or 7 numbers of your choice. Is the greatest number displayed in the **maximumHours** variable on the Stage?

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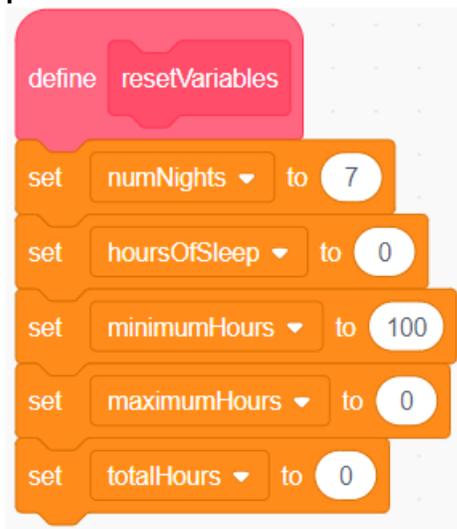
Part 3: Determining the total number of hours slept in one week

1. Under **Variables**, select **Make a Variable** and call it **totalHours**.



2. Place a new **set** block at the end of the **resetVariables** subprogram.

Ensure the **totalHours** variable is selected from the pulldown menu and that it's set to **0**.

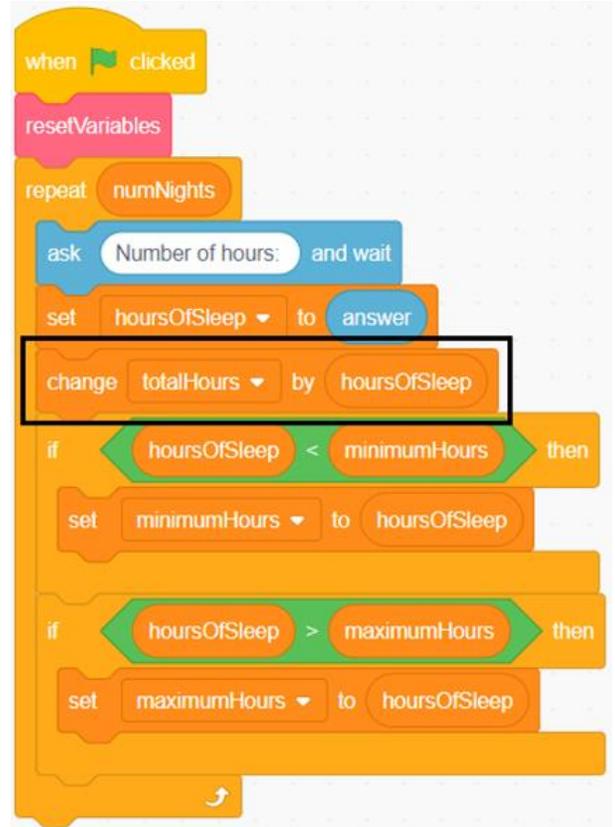


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3. Drag a **change** block inside the **repeat** block just before the first **if () then** block.

Ensure **totalHours** is selected from the pull-down menu.

Place an **hoursOfSleep** block inside the **change** block.



4. On the Stage, move the **totalHours** variable beneath the other two variables. Execute the code and test the application.

Does the code provide the sum of the numbers you entered?

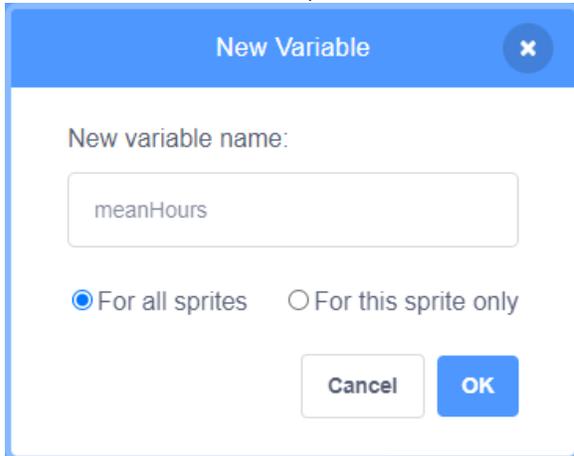
If not, look carefully at the code to check for any errors.



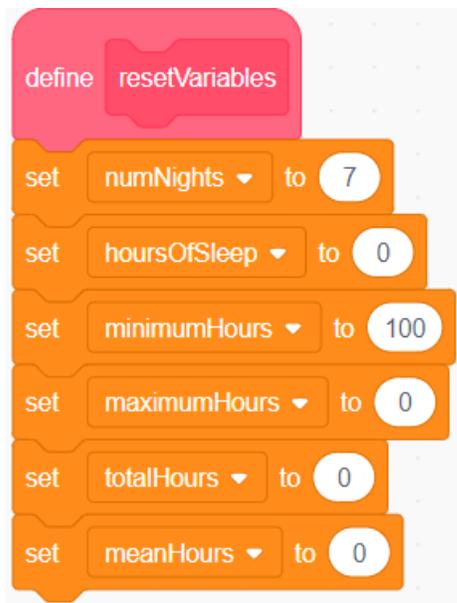
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Part 4: Determining the mean number of hours of sleep in one week

1. From **Variables**, select **Make a Variable** and call it **meanHours**.



2. Drag a **set** block to the end of the **resetVariables** subprogram. Ensure the **meanHours** variable is selected from the pulldown menu, and that it's set to **0**.



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3. Drag a **set** block to the end of the **repeat** block. Ensure the **meanHours** block is selected from the pulldown menu. From **Operators**, drag a **division** operator inside the **set** block. From **Variables**, drag the **totalHours** block inside the first part of the **division** operator. Drag the **numNights** block inside the second part of the **division** operator.

```

when green flag clicked
  reset variables
  repeat (numNights)
    ask "Number of hours:" and wait
    set hoursOfSleep to answer
    change totalHours by hoursOfSleep
    if (hoursOfSleep < minimumHours) then
      set minimumHours to hoursOfSleep
    if (hoursOfSleep > maximumHours) then
      set maximumHours to hoursOfSleep
  set meanHours to (totalHours / numNights)
  
```

4. On the Stage, move the meanHours variable beneath the other variables. Execute the code to test your program.

