Answers to Questions from TT 7.2.1

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Hand execution using a trace table

Demonstrate how the following code is executed in the computer.

```ruby
def whatshouldthisfunctionbecalled?(data, val)
    i = 0
    result = false
    while i < data.length
        if data[i] == val
            result = true
            return result
        end
        i = i + 1
    end
    return result
end
```

Draw and complete trace tables for the following two sets of data and place the final result in the table below:

data	val	Result
[2, 6, -4, 3, 7	3	true
[-2, 8, 2, -5, 9]	6	false

Once you have completed your trace tables (below) write the name you chose for the function above:

value_in_array

Place your trace tables below:

For data set: **data** = [2, 6, -4, 3, 7] **val** = 3

Count	i	result_initial	data[i]	val	if (status)	result_final
1	0	false	2	3	false	false
2	1	false	6	3	false	false
3	2	false	-4	3	false	false
4	3	false	3	3	true	true

After 4 steps, the function returns **true** after finding number 3.

For data set: **data** = [-2, 8, 2, -5, 9] **val** = 6

Count	i	result_initial	data[i]	val	if (status)	result_final
1	0	false	-2	6	false	false
2	1	false	8	6	false	false
3	2	false	2	6	false	false
4	3	false	-5	6	false	false
5	4	false	9	6	false	false

After going through the array, the function cannot find the number 6, so it returns **false.**

Improvement Suggestion:

Since the return statement immediately stops the function, we don't need the variable **"result"** to keep track of the final result.
We can return **true** when we find the number and return **false** at the end of the function.

```
def value_in_array?(data, val)
  i = 0
  while i < data.length
    if data[i] == val
      return true
    end
    i = i + 1
  end
  return false
end
```