



Why are
methods
useful?

Organization
Reusability
Abstraction
Testing
Extensibility



ORATE – to make a speech, especially pompously or at length.



ORATE – Italian for a Sea Bream fish

Organization

Breaks up code into smaller logical units.
Think: Tasks in your RPG from last year.

Reusability

Instead of copy/pasting code, call the method. Think: Less copy/paste errors.

Abstraction

To a method, no understanding is needed.
Just call it using the signature. Think: IO

Testing

Methods reduce repeated code and thus reduce white box testing. Think: Testing the if 5 times!

Extensibility

Methods mean future changes occur in 1 place.
With repeated code, changes also need repeating.



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Instead of
copy/pasting code,
call the method.

(a) Which of the ORATE principles applies best to the Pizza Party Program? (2 points, one sentence each) /2

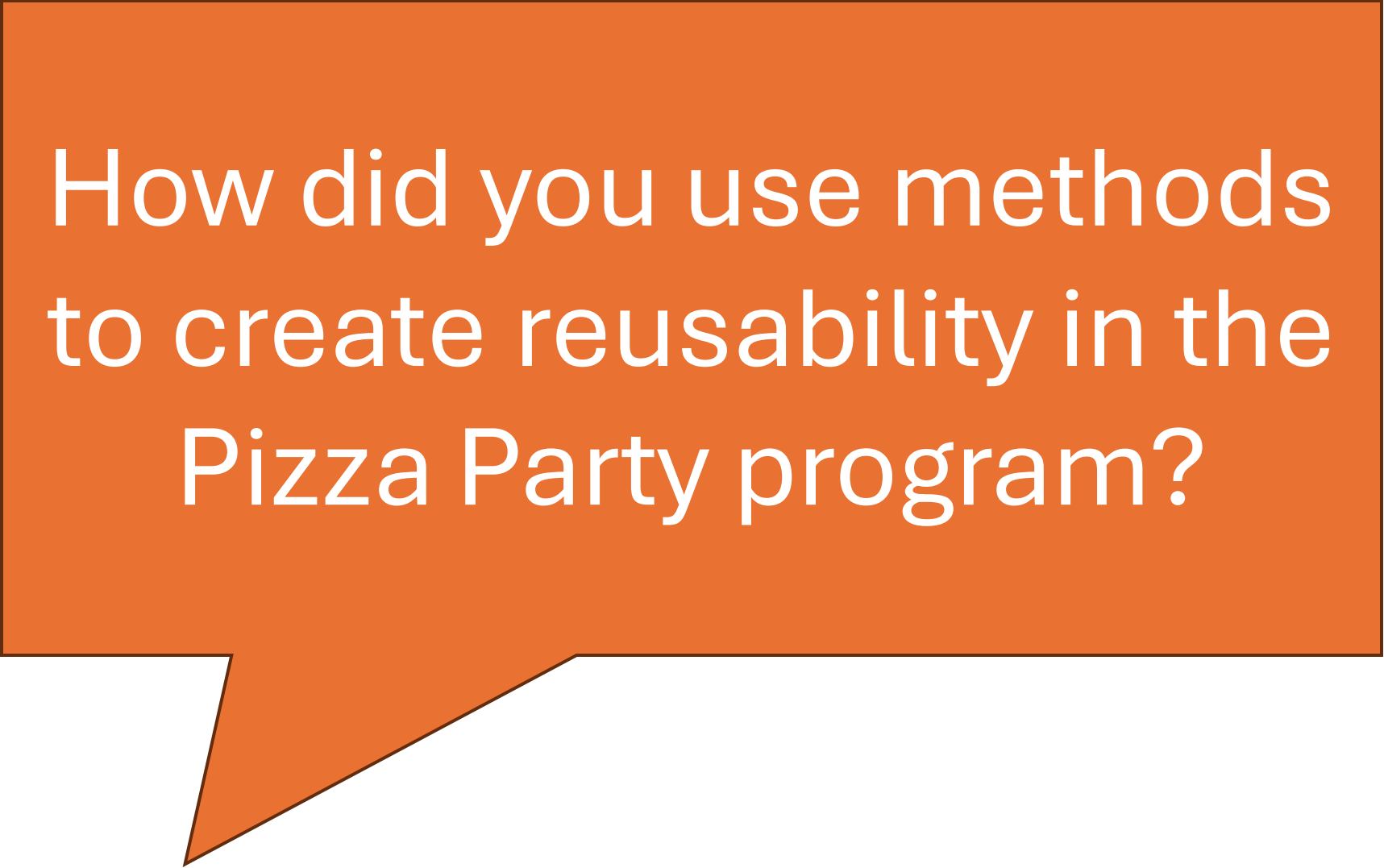
Specifically refer to it
Reusability means that, once written, a method can be called multiple times to avoid repeating code. In the Pizza Party program, two methods, roll big and roll small, were needed to change all the JLabels and JButtons. This avoided duplicated ifs in ActionPerformed and avoided copy/paste errors. *specifics here*



How did you use methods
to create organization in
your RPG project last year?

Last year, our RPG used Organization to break up code into smaller logical units.

We put each task into a separate method – Magic 8 Ball was separate from the Scavenger hunt.

An orange speech bubble with a black outline, pointing downwards and to the left. It contains white text.

How did you use methods
to create reusability in the
Pizza Party program?

In the Pizza Party, we used reusability to code the pizza dice topping buttons.

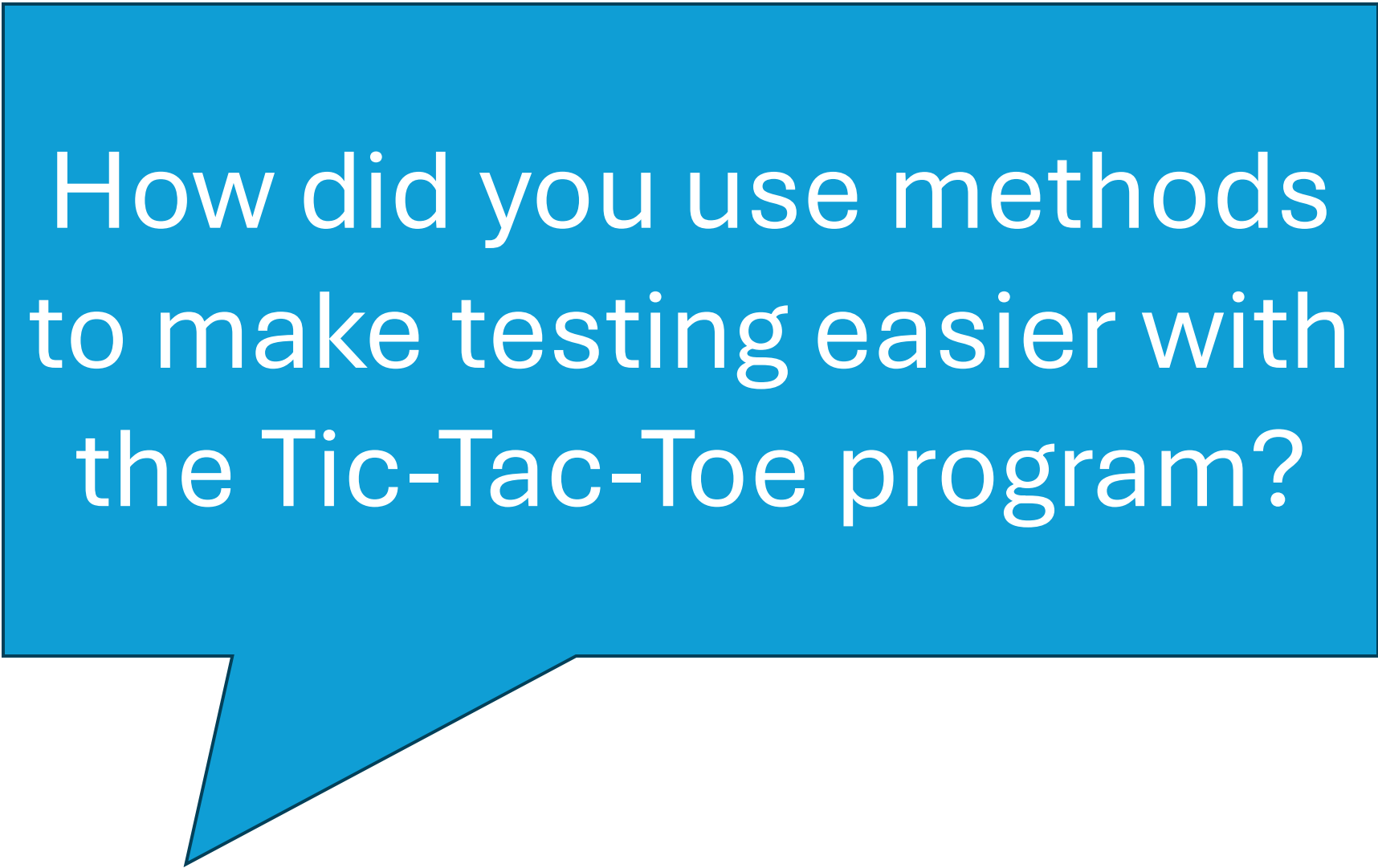
Instead of copy/pasting code, to change the mushrooms, tomatoes and cheese, we called the method.



How did you use
abstraction with IO's
methods last year?

When we used the IO methods last year, we used abstraction.

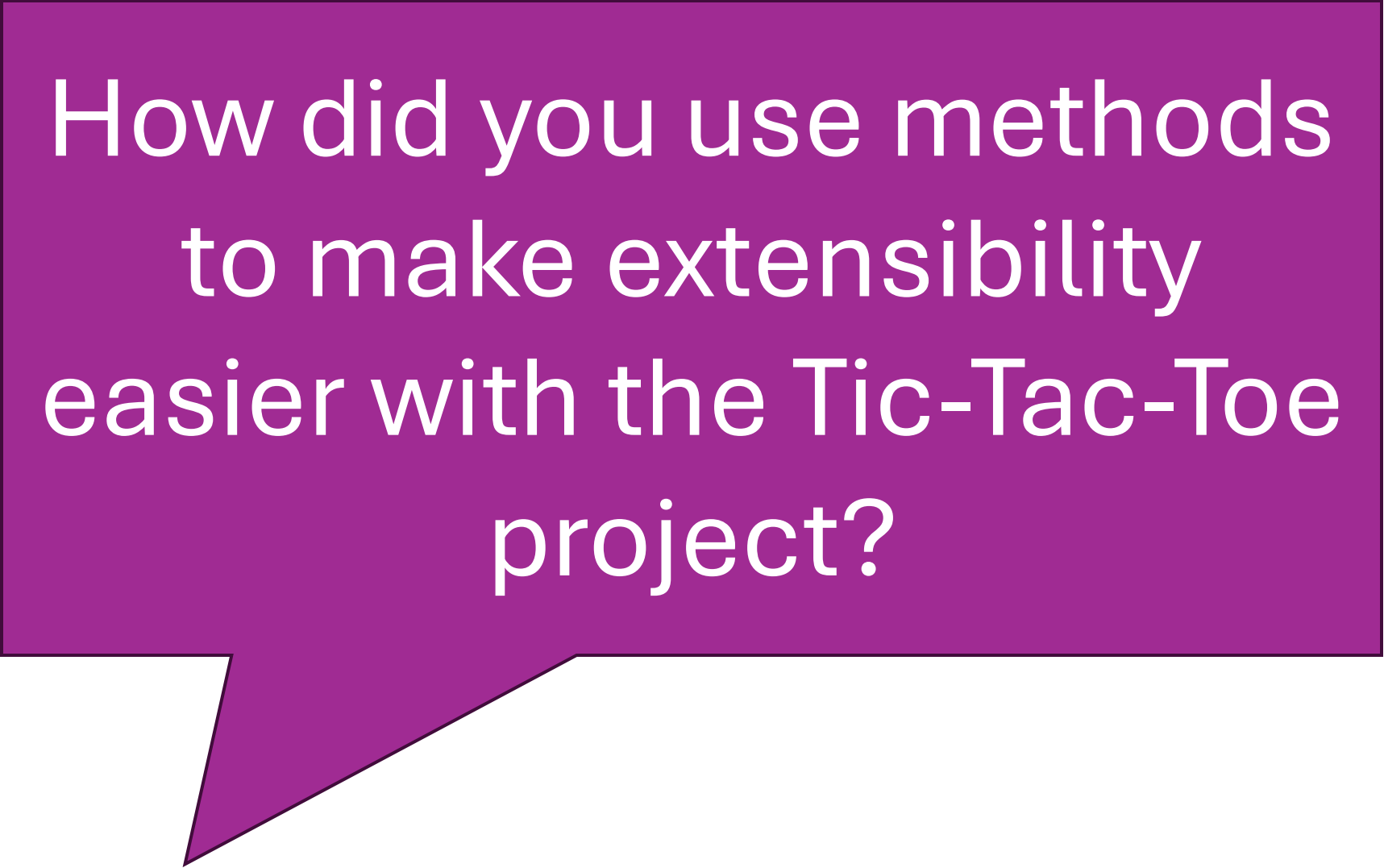
When we used `IO.printSlow` or `IO.inputInt`, we had no understanding of its details. We just called it using the signature.



How did you use methods
to make testing easier with
the Tic-Tac-Toe program?

When we coded Tic-Tac-Toe, we used methods reduce repeated code and thus reduce white box testing.

Our switchTurn and checkWin methods were called in each of the 9 buttons, reducing code.



How did you use methods
to make extensibility
easier with the Tic-Tac-Toe
project?

In our Tic-Tac-Toe project, we used extensibility. We made our methods for our buttons first.

Then, when we had to code our tic-tac-toe adaption, our future changes occurred in 1 place – the method. This saves us from changing each of the 9 buttons.

Other long answer questions look like this in the review questions sheet.

56. What is a base case used for?	1. Stops the recursion. 2. Returns the first value that all others build on
57. What is a recursive case use for?	1. Reduces the problem using a smaller parameter 2. Repeats by calling itself
58. Why does recursion have to be in a method?	1. Recursion needs to call a smaller version of itself. 2. This is needed to move the base case AND to repeat. 3. The way you “call” yourself is using a method.
59. Why does recursion need an if?	1. Recursion has two pieces: a base case and recursive case. 2. To CHOOSE between them, we need an if.
60. Why does recursion need a parameter?	1. Parameters get smaller in the recursive case. 2. When they are small, the recursion stops 3. Thus, parameters control the number of times the code is repeated.