1. The Classic FizzBuzz (For Loop)

Goal: Iterate through numbers 1 to 50.

- If the number is divisible by 3, print "Fizz".
- If the number is divisible by 5, print "Buzz".
- If it's divisible by both, print "FizzBuzz".
- Otherwise, just print the number.

Why do it? It’s the industry standard for testing if you understand the modulo operator (%) and basic iteration.

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2. The Investment Calculator (While Loop)

Goal: Start with a balance of $1,000. Ask the user for an annual interest rate (e.g., 0.05 for 5%). Use a while loop to calculate how many years it will take for the balance to double ($2,000).

Tip: In each iteration, update the balance: balance += balance * interestRate;

3. Number Guessing Game (Do-While Loop)

Goal: Generate a random number between 1 and 10. Use a do-while loop to prompt the user to guess the number. The loop should continue until the user guesses correctly.

Example Logic:

C#

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Random rand = new Random();

int secret = rand.Next(1, 11);

int guess;

// Your loop here
```

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4. The Pyramid Builder (Nested Loops)

Goal: Ask the user for a number (height). Use nested for loops to print a right-aligned triangle of asterisks.

If the input is 4, the output should look like:

Plaintext

```
*

**

***

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```

Challenge: Can you make it an inverted pyramid?

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5. Factorial Finder (for loop)

Goal: Ask the user for a positive integer (e.g., 5). Calculate the factorial of that number.

- **Logic:** The factorial of n (written as $n!$) is the product of all positive integers less than or equal to n.
- **Example: $5! = 5 * 4 * 3 * 2 * 1 = 120.**