Quiz 1
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QUESTION 1: Time Complexity Analysis
Analyze the time complexity of the following algorithm in terms of Big O notation:

```java
int sum = 0;
for (int i = 0; i < n; i++) {
    for (int j = 0; j < i; j++) {
        sum += i * j;
    }
}
```

ANSWER 1:
The outer loop runs n times. For each iteration i of the outer loop, the inner loop runs i times. This gives us: 0 + 1 + 2 + ... + (n-1) iterations of the inner loop, which is the sum of the first (n-1) natural numbers: $(n-1)n/2 \approx n^2/2$.

Therefore, the time complexity is $O(n^2)$.