Code Review Report

Report Information

Generated	2025-10-12 23:01:17
Files Reviewed	2
Model Used	qwen/qwen-2.5-coder-32b-instruct:free
Total Tokens	1414

Code Files Reviewed

File 1: factorial.js

Size: 709 bytes | Type: text/javascript

```
function calculateFactorial(n) {
if (n < 0) {
throw new Error("Factorial is not defined for negative numbers");
}
if (n === 0 || n === 1) {
return 1;
}
return n * calculateFactorial(n - 1);
}
```

```
function validateInput(input) {
const num = parseInt(input);
if (isNaN(num)) {
throw new Error("Invalid input: not a number");
}
return num;
}
```

```
// Main execution
try {
const userInput = prompt("Enter a number:");
const number = validateInput(userInput);
```

```
const result = calculateFactorial(number);
console.log(`Factorial of ${number} is ${result}`);
} catch (error) {
console.error("Error:", error.message);
}
```

File 2: fibonacci.py

Size: 516 bytes | Type: text/plain

```
def calculate_fibonacci(n):
"""Calculate the nth Fibonacci number"""
if n <= 1:
return n
return calculate_fibonacci(n-1) + calculate_fibonacci(n-2)
```

```
def main():
try:
num = int(input("Enter a number: "))
result = calculate_fibonacci(num)
print(f"Fibonacci({num}) = {result}")
except ValueError:
print("Please enter a valid number")
except Exception as e:
print(f"An error occurred: {e}")
```

```
if __name__ == "__main__":
main()
```

Code Quality & Readability

`factorial.js`
• **Clarity**: The code is clear and easy to understand. The function names (`calculateFactorial` and `validateInput`) are descriptive.
• **Naming Conventions**: The naming conventions are consistent and follow JavaScript conventions.
• **Structure**: The code is well-structured with clear separation of logic into functions and a main execution block.

`fibonacci.py`
• **Clarity**: The code is clear and easy to understand. The function name (`calculate_fibonacci`) is descriptive.
• **Naming Conventions**: The naming conventions are consistent and follow Python conventions.
• **Structure**: The code is well-structured with clear separation of logic into functions and a main execution block.

Modularity & Architecture

`factorial.js`
• **Organization**: The code is organized into two functions: one for calculating the factorial and another for validating input. This separation of concerns is good.
• **Reusability**: The functions can be reused in other parts of the application or in other projects.

`fibonacci.py`
• **Organization**: The code is organized into two functions: one for calculating the Fibonacci number and another for the main execution. This separation of concerns is good.
• **Reusability**: The functions can be reused in other parts of the application or in other projects.

Potential Bugs

`factorial.js`
• **Edge Cases**: The code handles negative numbers and non-numeric inputs correctly by throwing errors.
• **Recursion Depth**: For large values of `n`, the recursive approach may lead to a stack overflow. Consider using an iterative approach or memoization.

`fibonacci.py`
• **Edge Cases**: The code handles non-integer inputs correctly by catching `ValueError`.
• **Recursion Depth**: For large values of `n`, the recursive approach may lead to a stack overflow. Consider using an iterative approach or memoization.

Security Issues

`factorial.js`
• **Input Validation**: The code validates the input to ensure it is a number, which is good practice.
• **Error Handling**: Errors are caught and logged, which is good practice.

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Performance Analysis

`factorial.js`
• **Efficiency**: The recursive approach is simple but not efficient for large `n` due to repeated calculations.
• **Optimization**: Consider using an iterative approach or memoization to improve performance.

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Best Practices

`factorial.js`
• **Error Handling**: Use specific error messages to help with debugging.
• **Comments**: Add comments to explain complex logic or important decisions.
• **Code Style**: Follow a consistent code style, such as using camelCase for function names.

`fibonacci.py`
• **Error Handling**: Use specific error messages to help with debugging.
• **Comments**: Add comments to explain complex logic or important decisions.
• **Code Style**: Follow a consistent code style, such as using snake_case for function names.

Improvement Suggestions

`factorial.js`
• **Iterative Approach**: Replace the recursive approach with an iterative one to avoid stack overflow.
• **Memoization**: Implement memoization to cache results of previous calculations.
• **Testing**: Add unit tests to ensure the correctness of the functions.

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By addressing these suggestions, the code will be more robust, efficient, and maintainable.