How to debug JavaScript programs

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JavaScript mechanisms helpful for debugging

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Syntax, Runtime and Logic Errors

Debuggers

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What is debugging?

It's the process of analyzing a program's code in order to find errors and fix them.



Motivation

Debugging is usually time-consuming. You must learn how to debug properly!







Basic methods

JavaScript mechanisms helpful for debugging

Basic methods

- console.log()
- "node" command
- use strict
- Exceptions

- Not suitable for large projects
- Don't have many functionalities

JavaScript's Exceptions

```
let dontChangeMe = 3;
try {
 dontChangeMe = 2;
 dontChangeMe /= 0;
} catch (error) {
  console.log('You have divided by zero');
 finally {
  dontChangeMe = 3;
```

- Can be thrown by "throw" keyword
- Can be handled by a try-catch-finally block
- New types of exceptions can be created



Types of errors

Syntax Errors, Runtime Errors, and Logic Errors

Types of errors

Syntax Errors

The compiler / interpreter can't understand your code

Runtime Errors

Errors that happen while the program is executing

Logic Errors (bugs)

Related to a bad / unexpected behaviour of the program





Basics of debugging

What is a debugger?

What is a debugger?

- Development tool
- Helps fixing and locating errors
- Sophisticated tools specifically designed for a task



Tools for debugging

Breakpoints

- ∨ BREAKPOINTS
 - ☐ Caught Exceptions
 - Uncaught Exceptions
- Intervals.js

Call stack

- **∨ CALL STACK**
 - ∨ ☼ Launch Program: intervals....

main

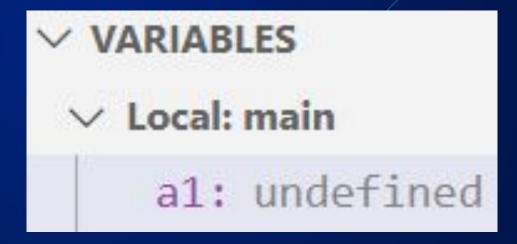
<anonymous>

Tools for debugging

Execution flow buttons



Variable Window





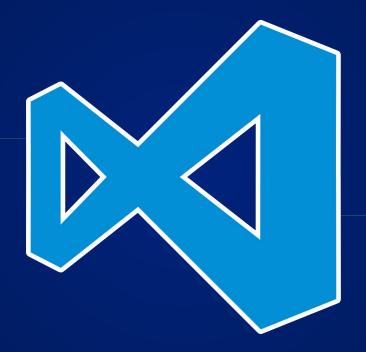
VSCode local JavaScript program



Chrome using node -inspect



VSCode web server



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Thanks!!

Any questions?

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