Jest JavaScript test runner

CONCEPTS

Through npm, put -- before flags: npm test -- -t "login". Flags override the config file.

Find tests testMatch
↓ transform
Run in workers per file
↓ expect
Report results, coverage

Each test file runs in its own sandbox, so mocks and module state do not leak between files.

RUN TESTS

npx jest
Run every test

npx jest *<pattern>*
Run test files matching a regex

npx jest -t "*<name>***"**
Run tests whose name matches

npx jest --watch
Rerun tests related to changes

npx jest --watchAll
Rerun all tests on any change

npx jest --onlyChanged
Only tests for uncommitted changes

npx jest --bail
Stop after the first failing suite

OUTPUT AND SPEED

npx jest --coverage
Collect and print coverage

npx jest --verbose
List every test with its result

npx jest --ci
Never write new snapshots

npx jest --runInBand
Run serially in one process

npx jest --maxWorkers=*<n>*
Limit parallel workers (n or 50%)

SNAPSHOTS

npx jest -u
Re-record failing snapshots

npx jest -u -t "*<name>***"**
Update snapshots of matching tests only

SNAPSHOTS (cont.)

expect(*<value>***).toMatchSnapshot()**
Compare against a stored snapshot

WRITING TESTS

test("*<name>***", () ⇒ { ... })**
Define a test (alias: it)

describe("*<name>***", () ⇒ { ... })**
Group tests

test.only("*<name>***", fn)**
Run only this test in the file

test.skip("*<name>***", fn)**
Skip this test

test.each([[a, b], ...])("*<name>***", fn)**
Run one test per table row

beforeEach(fn) / afterEach(fn)
Run before or after every test

beforeAll(fn) / afterAll(fn)
Run once per file

expect(*<value>***).toBe(***<x>***)**
Strict equality (Object.is)

expect(*<value>***).toEqual(***<x>***)**
Deep equality

expect(*<value>***).toContain(***<x>***)**
Array item or substring

expect(*<fn>***).toThrow(***<msg>***)**
Function throws

await expect(*<promise>***).resolves.toBe(***<x>***)**
Assert on a resolved promise

await expect(*<promise>***).rejects.toThrow()**
Assert on a rejected promise

Async tests must return or await the promise, or Jest finishes before the assertions run.

MOCKS

jest.fn()
Create a mock function

jest.spyOn(*<obj>***, "***<method>***")**
Spy on a method, keep the original

MOCKS (cont.)

jest.mock("*<module>***")**
Auto-mock a module (hoisted)

jest.mock("*<module>***", () ⇒ ({...}))**
Mock a module with a factory

mockFn.mockReturnValue(*<x>***)**
Always return x

mockFn.mockResolvedValue(*<x>***)**
Return a promise resolving to x

mockFn.mockImplementation(*<fn>***)**
Set the implementation

toHaveBeenCalledWith(*<args>***)**
Assert on call arguments

expect(mockFn).toHaveBeenCalledTimes(*<n>***)**
Assert on call count

jest.useFakeTimers()
Fake setTimeout and friends

jest.advanceTimersByTime(*<ms>***)**
Move fake time forward

CONFIG

testEnvironment: "jsdom"
Browser-like DOM (needs jest-environment-jsdom)

RECIPES

Debug one failing test

```
npx jest path/to/file.test.js -t "<name>" --runInBand
# attach a debugger:
node --inspect-brk node_modules/.bin/jest --runInBand
```

Pre-commit: test what you changed

```
npx jest --bail --findRelatedTests src/a.js src/b.js
```

CI run with coverage

```
npx jest --ci --coverage --maxWorkers=50%
# split over 3 machines:
npx jest --ci --shard=1/3
```

Mock a module and assert

```
jest.mock("./api");
const api = require("./api");
api.getUser.mockResolvedValue({ id: 1 });
await run();
expect(api.getUser).toHaveBeenCalledWith(1);
```