

table of contents

manifesto..... 6-7

① first steps

preserve the crime scene..... 9
read the error message..... 10
reread the error message..... 11
reproduce the bug..... 12
inspect unreproducible bugs..... 13
identify one small question..... 14
retrace the code's steps..... 15
write a failing test..... 16

② get organized

brainstorm some suspects..... 18
rule things out..... 19
keep a log book..... 20
draw a diagram..... 21

③ investigate

add lots of print statements..... 23
use a debugger..... 24
jump into a REPL..... 25
find a version that works..... 26
look at recent changes..... 27
add assertions everywhere..... 28
comment out code..... 29
analyze the logs..... 30

④ research

read the docs..... 32
find the type of bug..... 33
learn one small thing..... 34
read the library's code..... 35
find a new source of info..... 36

⑤ simplify

write a tiny program..... 38
one thing at a time..... 39
tidy up your code..... 40
delete the buggy code..... 41
reduce randomness..... 42

⑥ get unstuck

take a break..... 44
investigate the bug together..... 45
timebox your investigation..... 46
write a message asking for help... 47
explain the bug out loud..... 48
make sure your code is running..... 49
do the annoying thing..... 50

⑦ improve your toolkit

try out a new tool..... 52
types of debugging tools..... 53
shorten your feedback loop..... 54
add pretty printing..... 55
colours, graphs, and sounds..... 56

⑧ after it's fixed

do a victory lap..... 58
tell a friend what you learned..... 59
find related bugs..... 60
add a comment..... 61
document your quest..... 62