W18

Test Analytics, AI/ ML

2019-05-01 14:45

The Next-Generation Skills Needed for the Future of Testing

Presented by:

Jeremias Rößler and Jennifer Bonine

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888-268-8770 · 904-278-0524 - info@techwell.com - http://www.stareast.techwell.com

Jeremias Rößler

Dr. Jeremias Rößler (@roesslerj) is the founder of retest, bringing AI to testing. He routinely speaks at international conferences, and is a blogger, developer & computer scientist. He is concerned with AI in testing and how to solve the automation bottleneck. He loves to be approached and talked to, so don't hesitate to make contact.

The Next-Generation Skills Needed for the Future of Testing

Jennifer Bonine, tap|QA
Dr. Jeremias Rößler, retest.dev

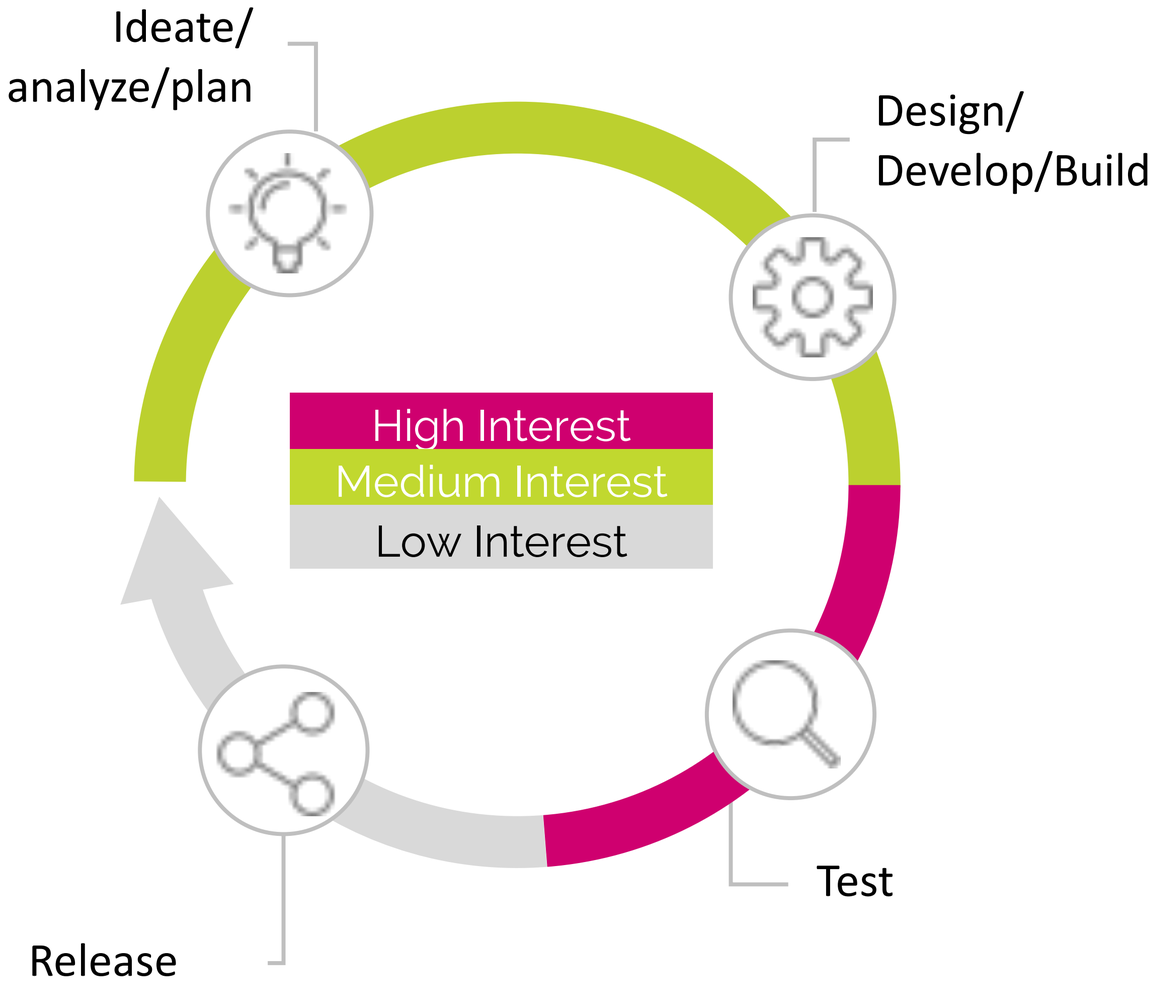
tap QA™

STAR EAST
A TECHWELL EVENT

I need your help…..

GOAL : Understand you key learning or take-away from this session

TASK: Write down on the note card your thoughts on what you want to learn and leave with today.



Source: Forrester Research, Inc

Capgemini: 40% of the total IT budget will be allocated to QA + Testing in 2019.

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A TECHWELL EVENT

- “99% of respondents face some kind of **challenge with testing** in agile development.”

- “**Test automation tools are fundamental** to achieving the continuous testing approach required by DevOps.”

- “by 2021, 50% of enterprises will **leverage intelligent test automation** driven by AI and machine learning.”

*Source: Gartner 2017, Magic Quadrant for Software Test Automation

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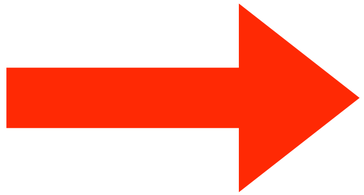
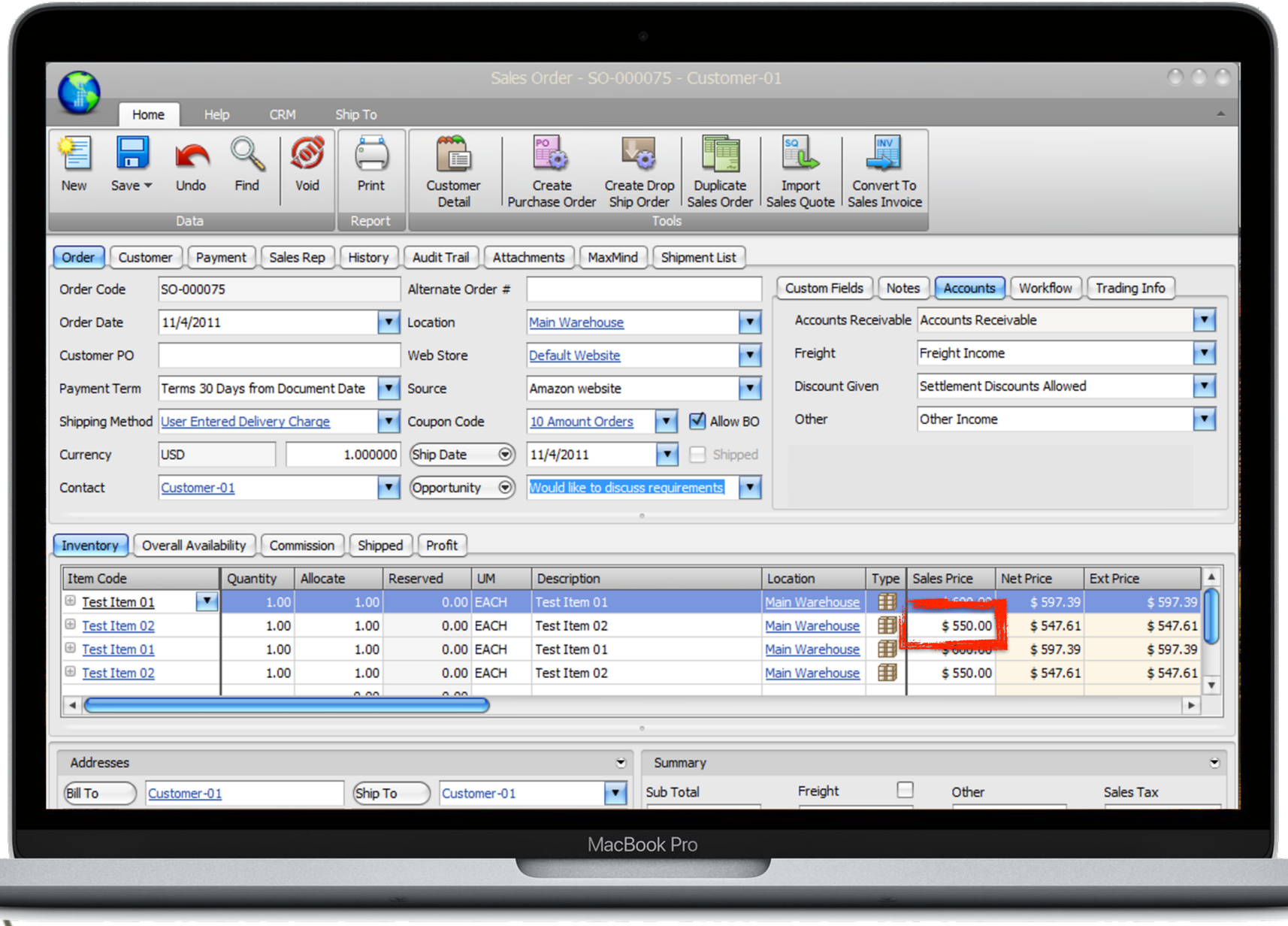
A TECHWELL EVENT


IBM Watson



Who of you

- is a professional tester?
- has ever tested?
- has ever spotted a bug?
- … uses Windows?


Sales Order - SO-000075 - Customer-01
Home
Help
CRM
Ship To
New
Save
Undo
Find
Void
Print
Customer Detail
Create Purchase Order
Create Drop Ship Order
Duplicate Sales Order
Import Sales Quote
Convert To Sales Invoice
Data
Report
Tools
Order
Customer
Payment
Sales Rep
History
Audit Trail
Attachments
MaxMind
Shipment List
Order Code
SO-000075
Order Date
11/4/2011
Customer PO
Payment Term
Terms 30 Days from Document Date
Shipping Method
User Entered Delivery Charge
Currency
USD
1.000000
Contact
Customer-01
Alternate Order #
Location
Main Warehouse
Web Store
Default Website
Source
Amazon website
Coupon Code
10 Amount Orders
Allow BO
Ship Date
11/4/2011
Shipped
Opportunity
Would like to discuss requirements
Custom Fields
Notes
Accounts
Workflow
Trading Info
Accounts Receivable
Accounts Receivable
Freight
Freight Income
Discount Given
Settlement Discounts Allowed
Other
Other Income
Inventory
Overall Availability
Commission
Shipped
Profit
Item Code
Quantity
Allocate
Reserved
UM
Description
Location
Type
Sales Price
Net Price
Ext Price
Test Item 01
1.00
1.00
0.00
EACH
Test Item 01
Main Warehouse
$ 597.39
$ 597.39
Test Item 02
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Test Item 02
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Test Item 01
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Test Item 01
Main Warehouse
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Test Item 02
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Test Item 02
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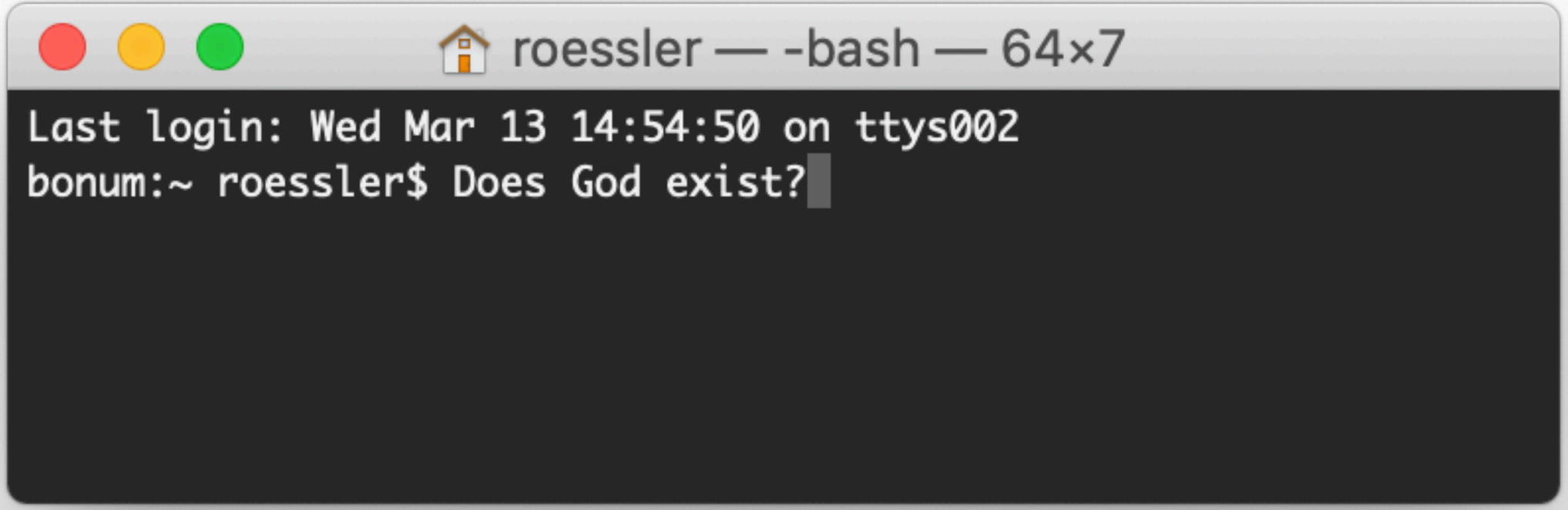
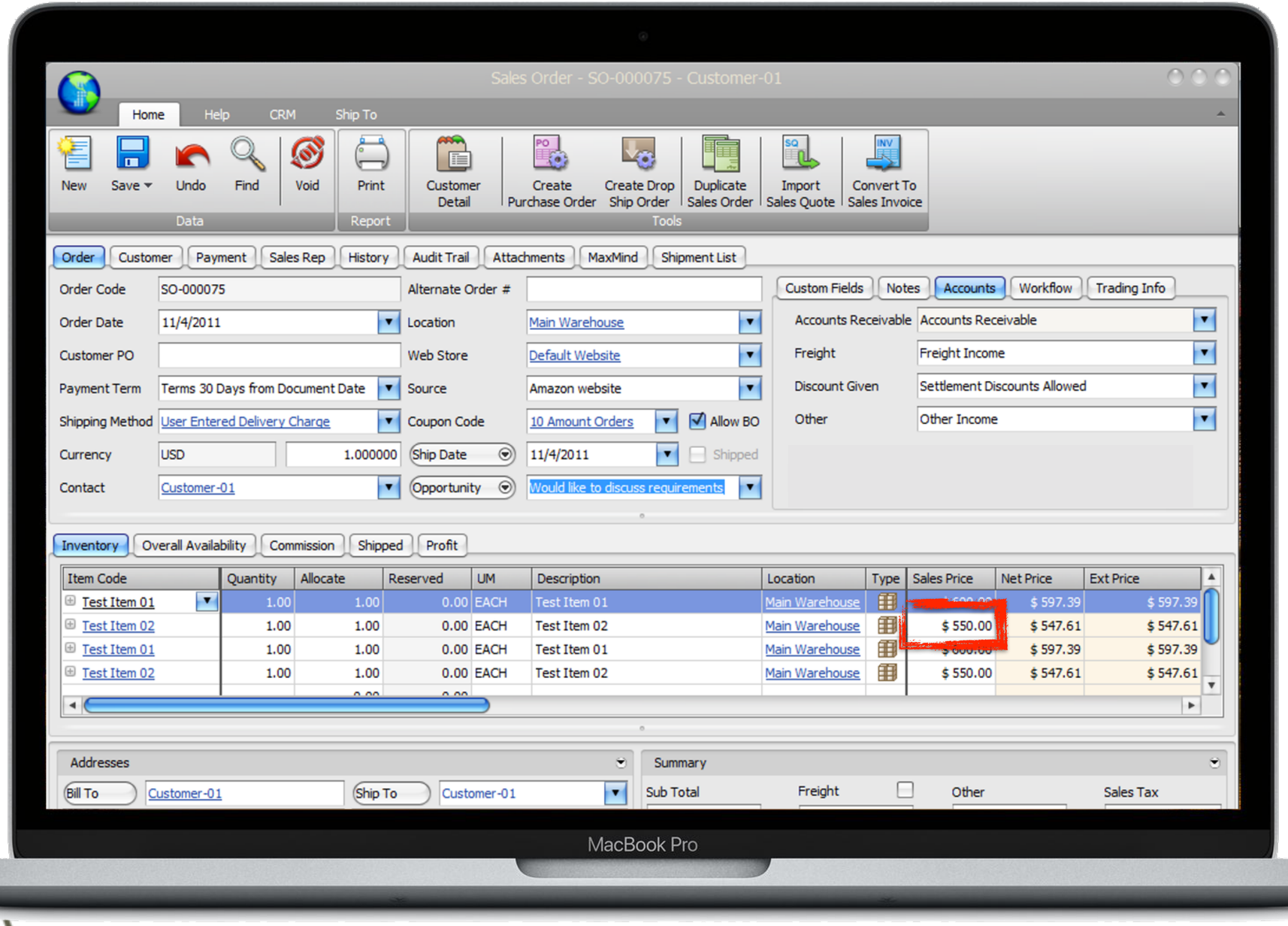
Addresses
Bill To
Customer-01
Ship To
Customer-01
Summary
Sub Total
Freight
Other
Sales Tax
MacBook Pro


roessler — -bash — 64×7
Last login: Wed Mar 13 14:54:50 on ttys002
bonum:~ roessler$ Does God exist?


ORACLE PROBLEM


Sales Order - SO-000075 - Customer-01
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Create Purchase Order
Create Drop Ship Order
Duplicate Sales Order
Import Sales Quote
Convert To Sales Invoice
Data
Report
Tools
Order
Customer
Payment
Sales Rep
History
Audit Trail
Attachments
MaxMind
Shipment List
Order Code
SO-000075
Order Date
11/4/2011
Customer PO
Payment Term
Terms 30 Days from Document Date
Shipping Method
User Entered Delivery Charge
Currency
USD
1.000000
Contact
Customer-01
Alternate Order #
Location
Main Warehouse
Web Store
Default Website
Source
Amazon website
Coupon Code
10 Amount Orders
Allow BO
Ship Date
11/4/2011
Shipped
Opportunity
Would like to discuss requirements
Custom Fields
Notes
Accounts
Workflow
Trading Info
Accounts Receivable
Accounts Receivable
Freight
Freight Income
Discount Given
Settlement Discounts Allowed
Other
Other Income
Inventory
Overall Availability
Commission
Shipped
Profit
Item Code
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Allocate
Reserved
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$ 547.61
$ 547.61
Addresses
Bill To
Customer-01
Ship To
Customer-01
Summary
Sub Total
Freight
Other
Sales Tax
MacBook Pro

Problem

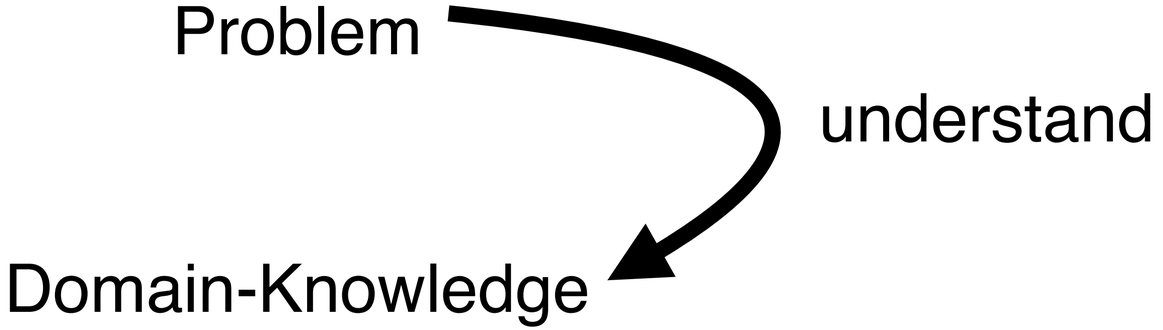
Pain

Fuzzy Need

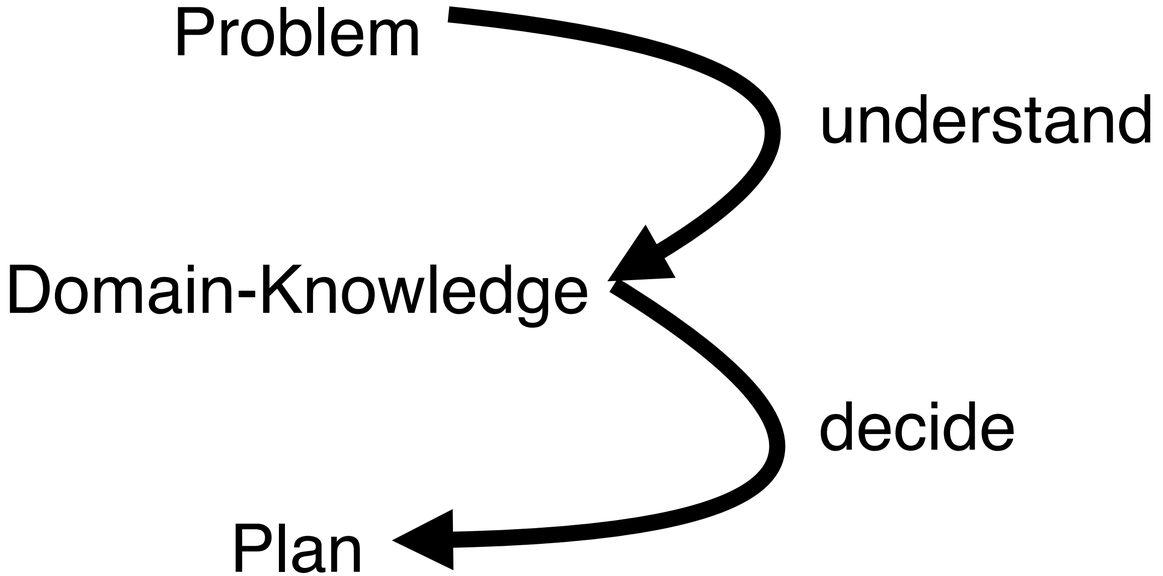
Unknown Desire

complexity

complexity



complexity



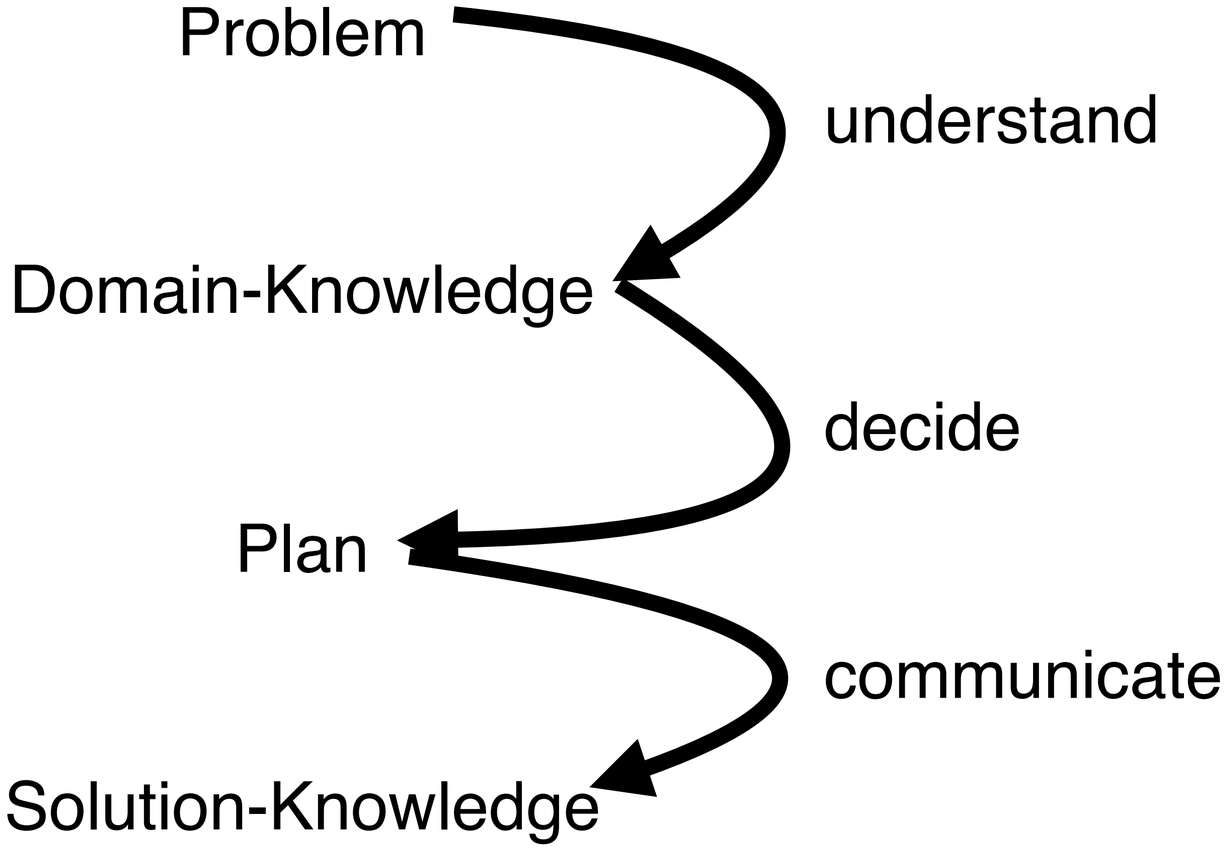
myspace.com

vs.

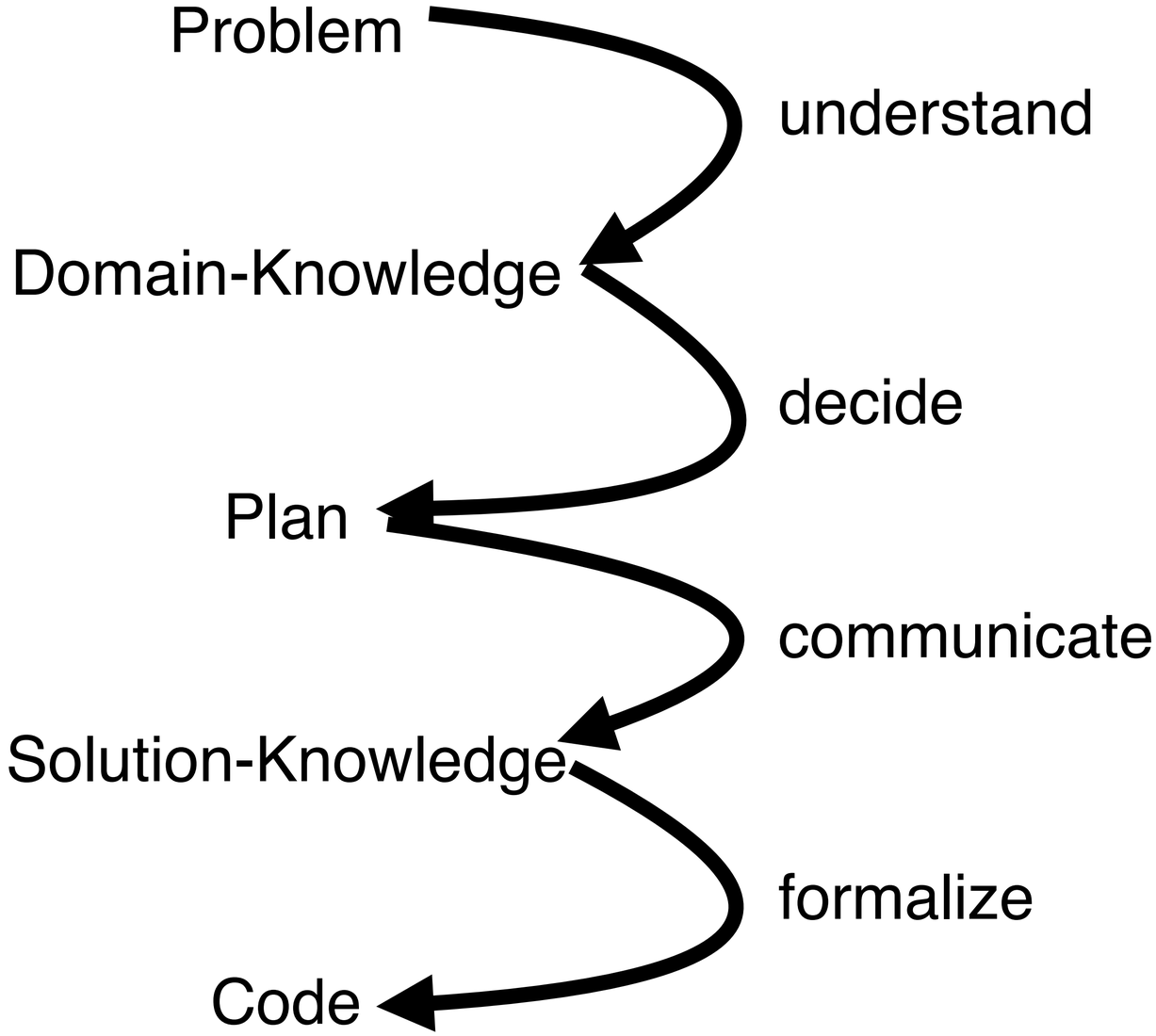
facebook

VS

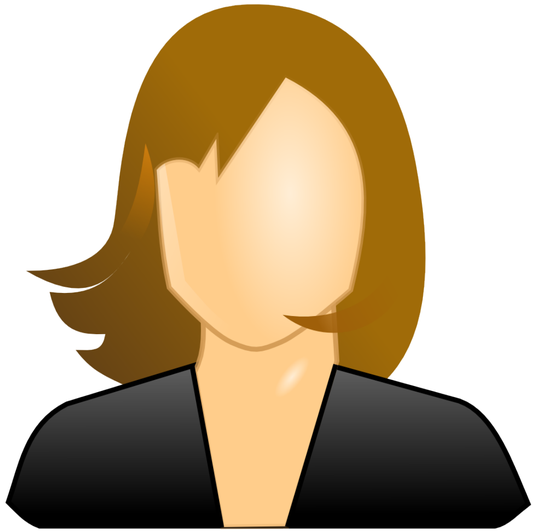
complexity


Problem
understand
Domain-Knowledge
decide
Plan
communicate
Solution-Knowledge

complexity


Problem
understand
Domain-Knowledge
decide
Plan
communicate
Solution-Knowledge
formalize
Code

User



UI

simple

intuitive

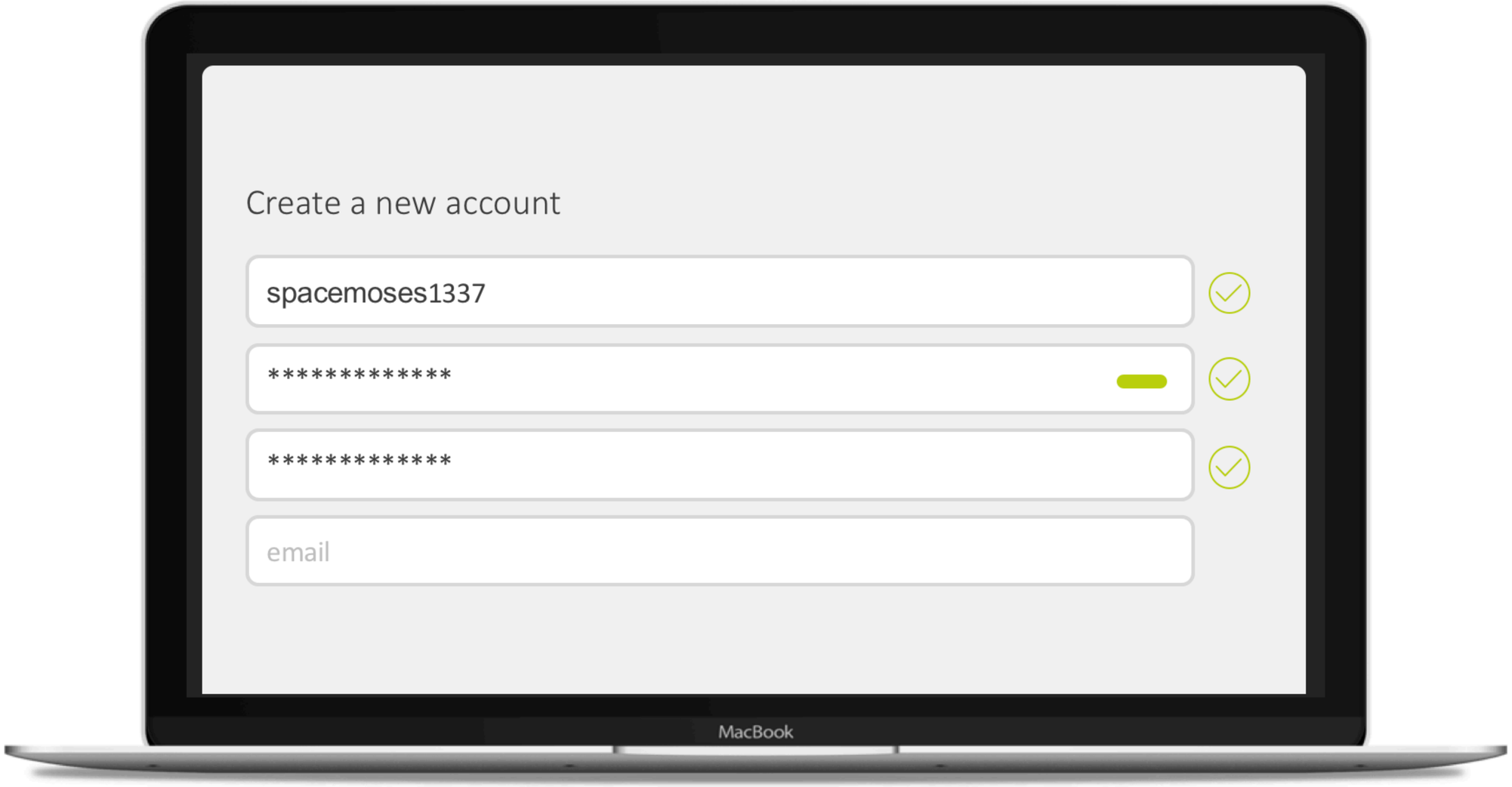
easy-to-use

Software

complexity

The **purpose** of software:

Make your life easier


Create a new account
spacemoses1337
****
****
email
MacBook

User

component recognition

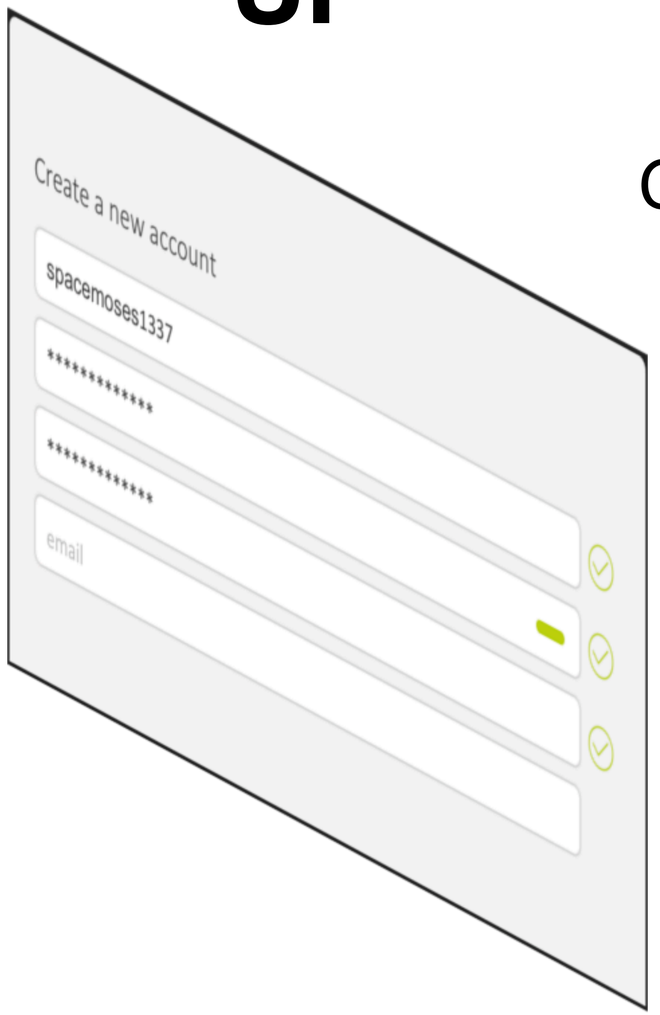
enter text (action)

click button (action)

username (text)

password (text)

UI



Software

GUI (HTML)

layout

data persistence

data model

glue code

architecture

cryptographic algorithm

logging

scalability

load balancing

tap QA™

STAR EAST
A TECHWELL EVENT

Tester

component recognition

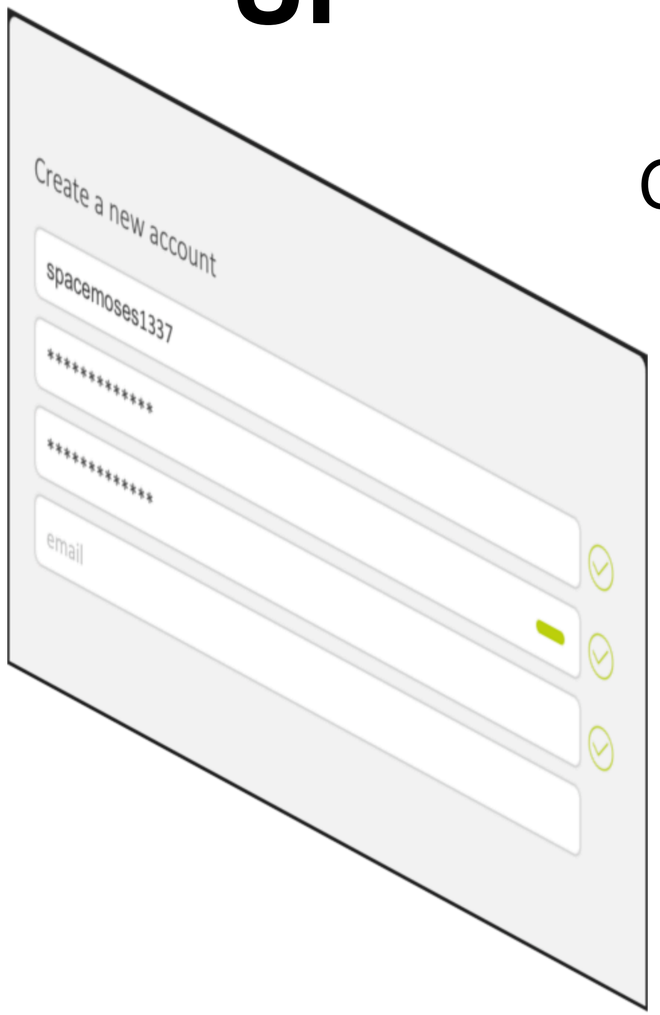
enter text (action)

click button (action)

username (text)

password (text)

UI



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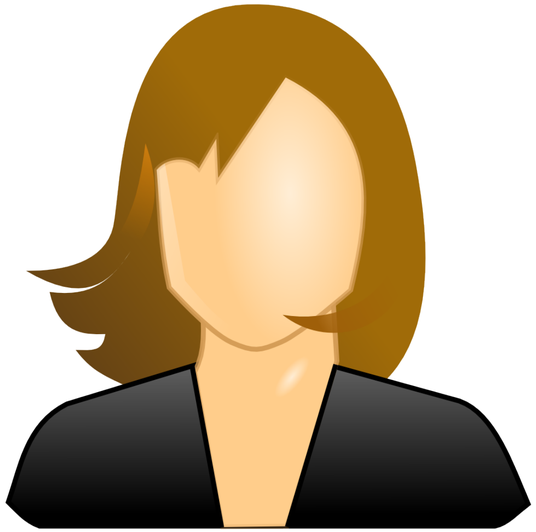


UI

simple

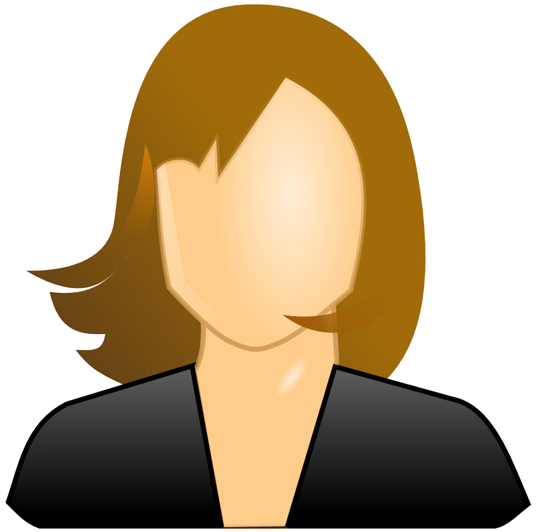
intuitive

easy-to-use

Software

complexity

Tester



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Software

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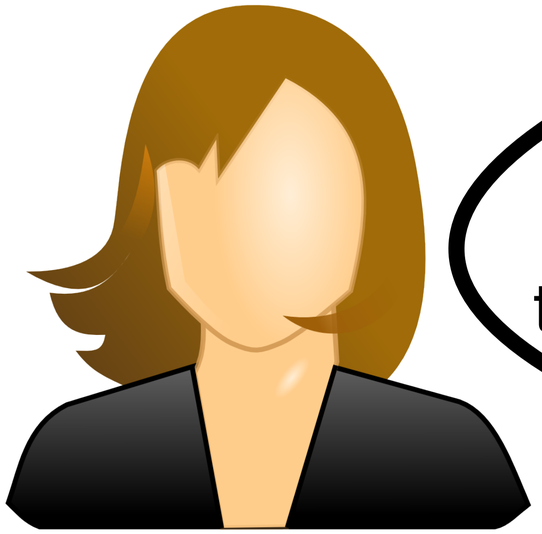
Tester



Solution-Knowledge

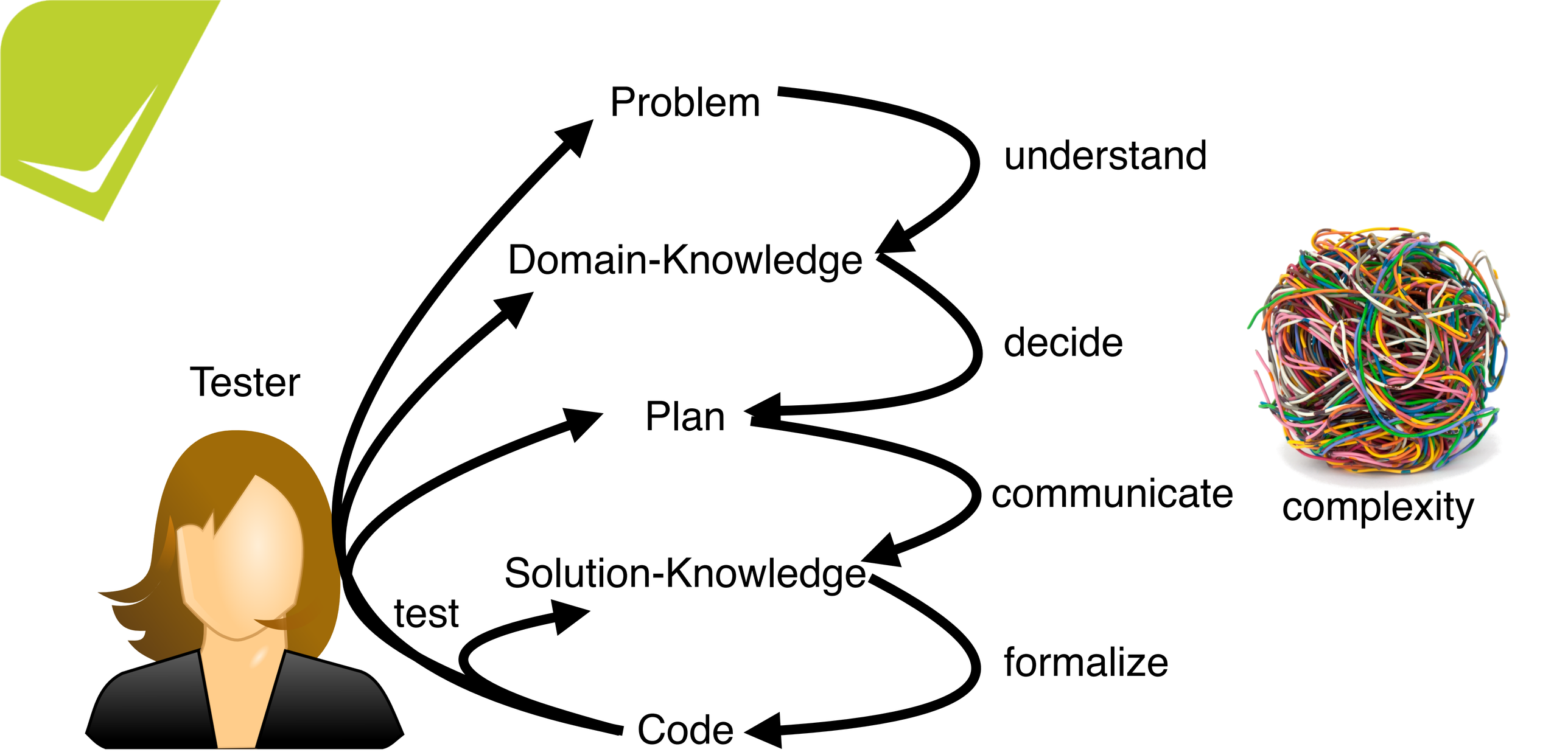
test

formalize

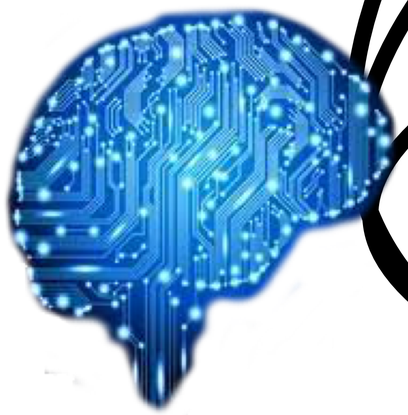
Code

complexity

Source: https://dojo.ministryoftesting.com/dojo/lessons/what-do-software-testers-do-version-0-1


Problem
understand
Domain-Knowledge
decide
Tester
Plan
communicate
Solution-Knowledge
test
formalize
Code

complexity



AI

Problem

understand

Domain-Knowledge

decide

Plan

communicate

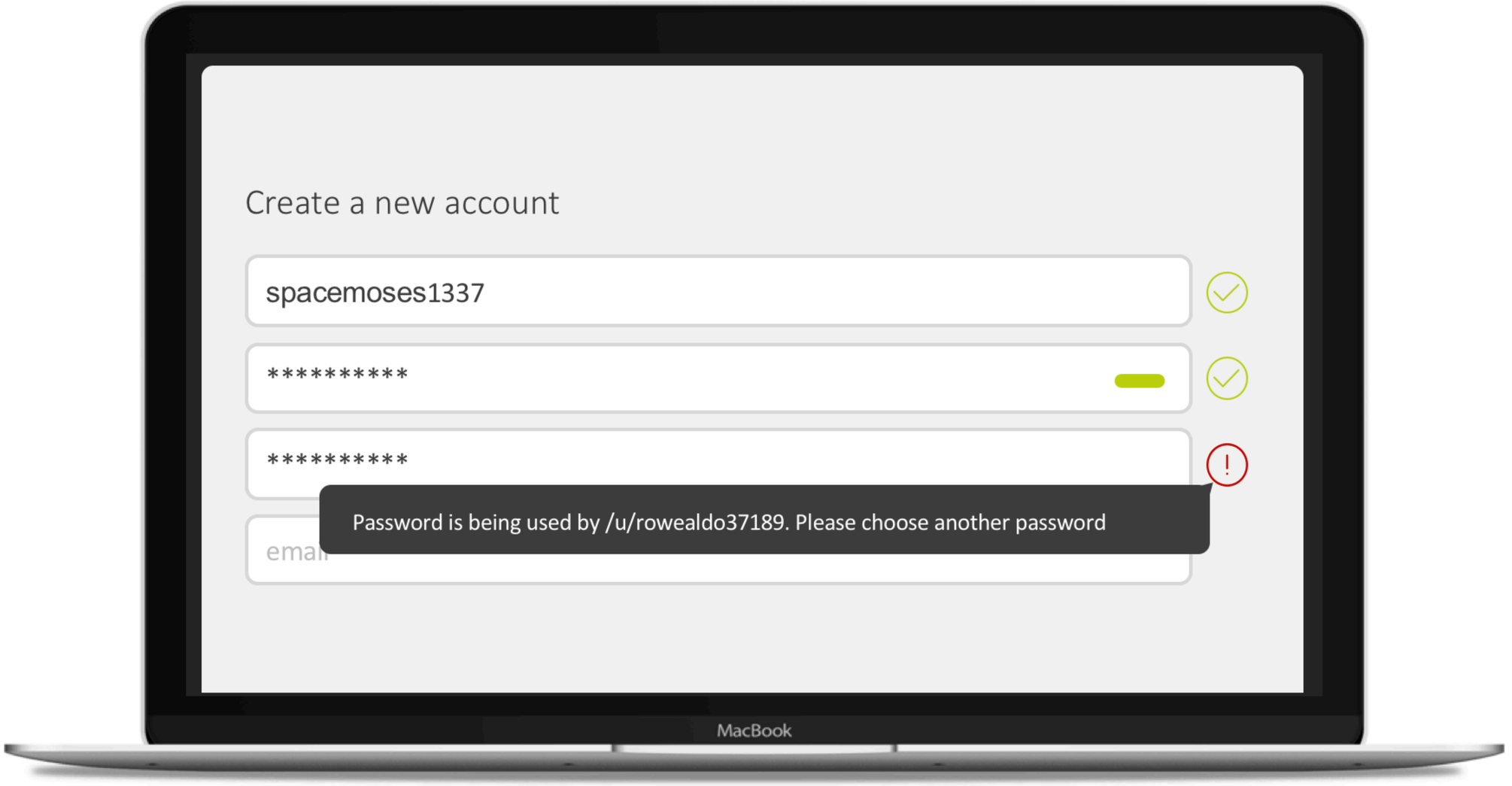
Solution-Knowledge

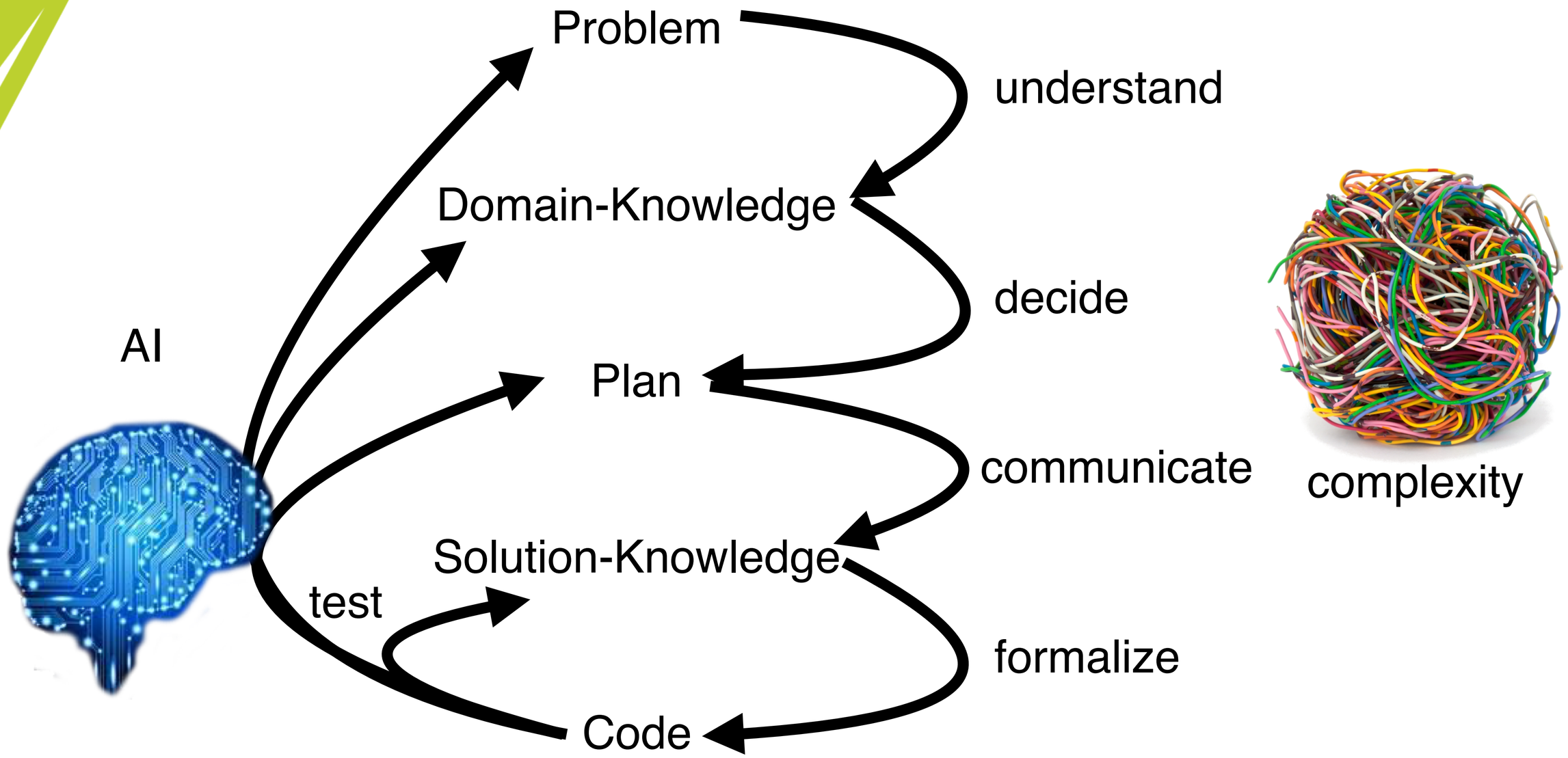
test

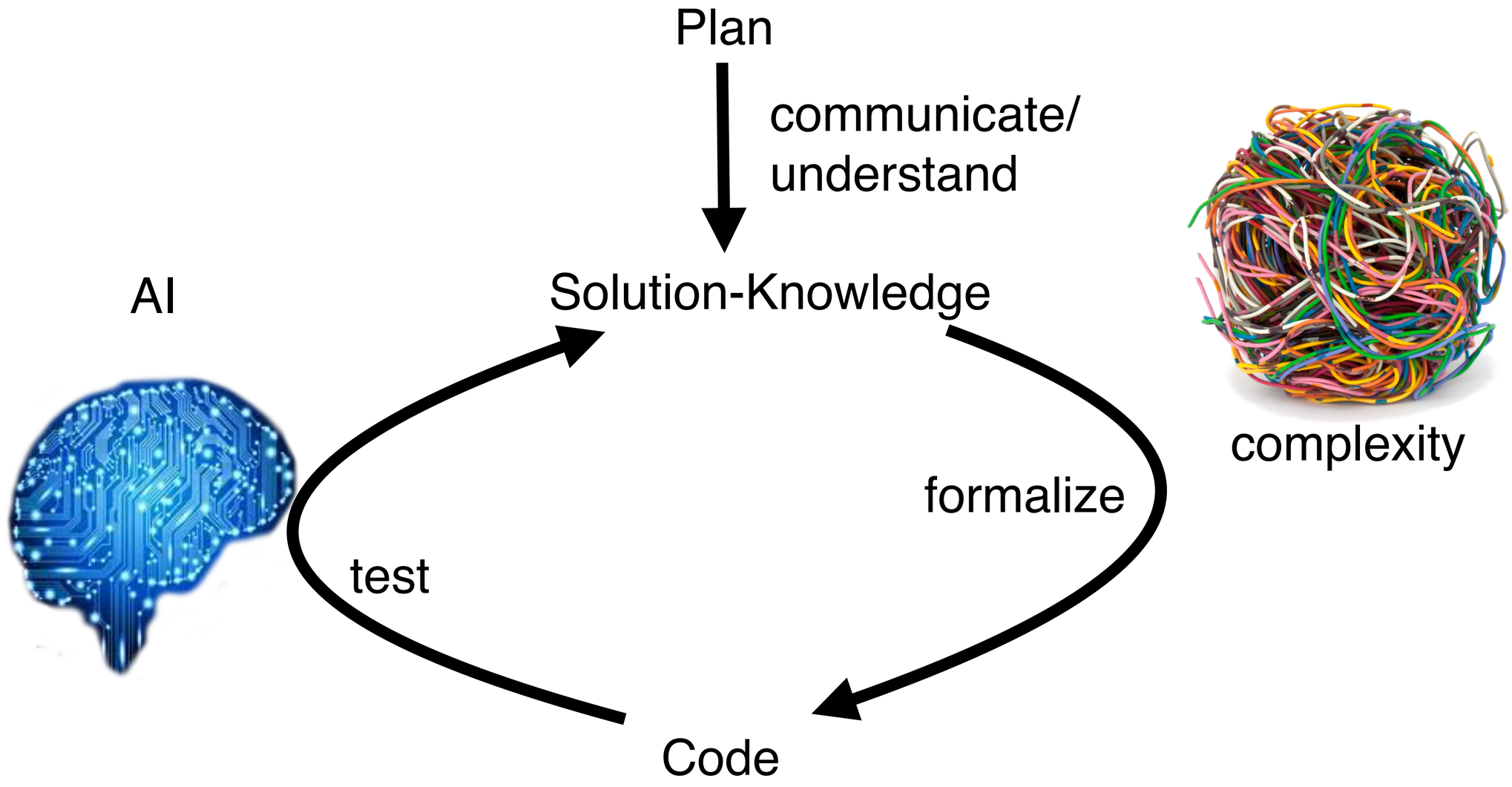
formalize

Code

complexity


Create a new account
spacemoses1337
****
****
Password is being used by /u/rowealdo37189. Please choose another password
MacBook


Problem
understand
Domain-Knowledge
decide
AI
Plan
communicate
Solution-Knowledge
test
formalize
Code
complexity


Plan
communicate/
understand
AI
Solution-Knowledge
complexity
formalize
test
Code

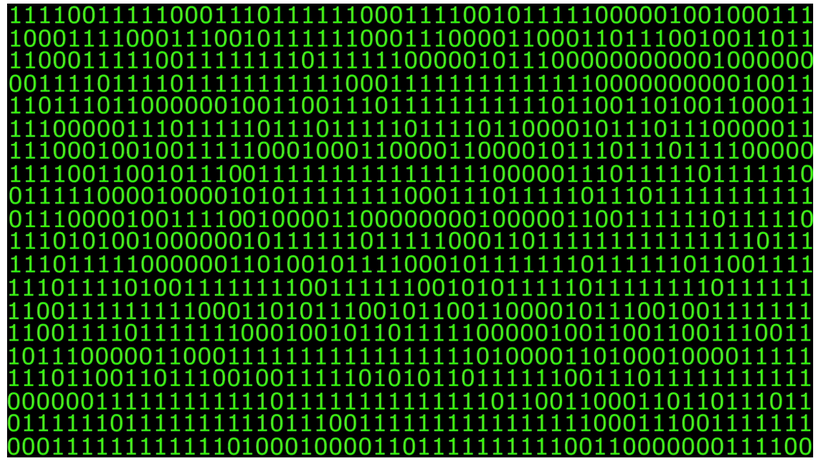
If AI masters the complexity of the problem,
why not have it
create the software
in the first place,
error free?

```
def add5(x):
    return x+5

def dotwrite(ast):
    nodename = getNodename()
    label=symbol.sym_name.get(int(ast[0]),ast[0])
    print '    %s [label="%s' % (nodename, label),
    if isinstance(ast[1], str):
        if ast[1].strip():
            print '= %s"];' % ast[1]
        else:
            print '"]'
     else:
        print '"];'
        children = []
        for  in n, childenumerate(ast[1:]):
            children.append(dotwrite(child))
        print ,'    %s -> {' % nodename
        for  in :namechildren
            print '%s' % name,
```

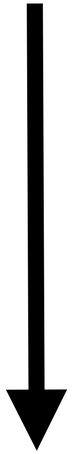
Compiler

error-free™



AI

Solution-Knowledge



error-free™

formalize

Code

complexity

Tester

revise

Plan

communicate

complexity

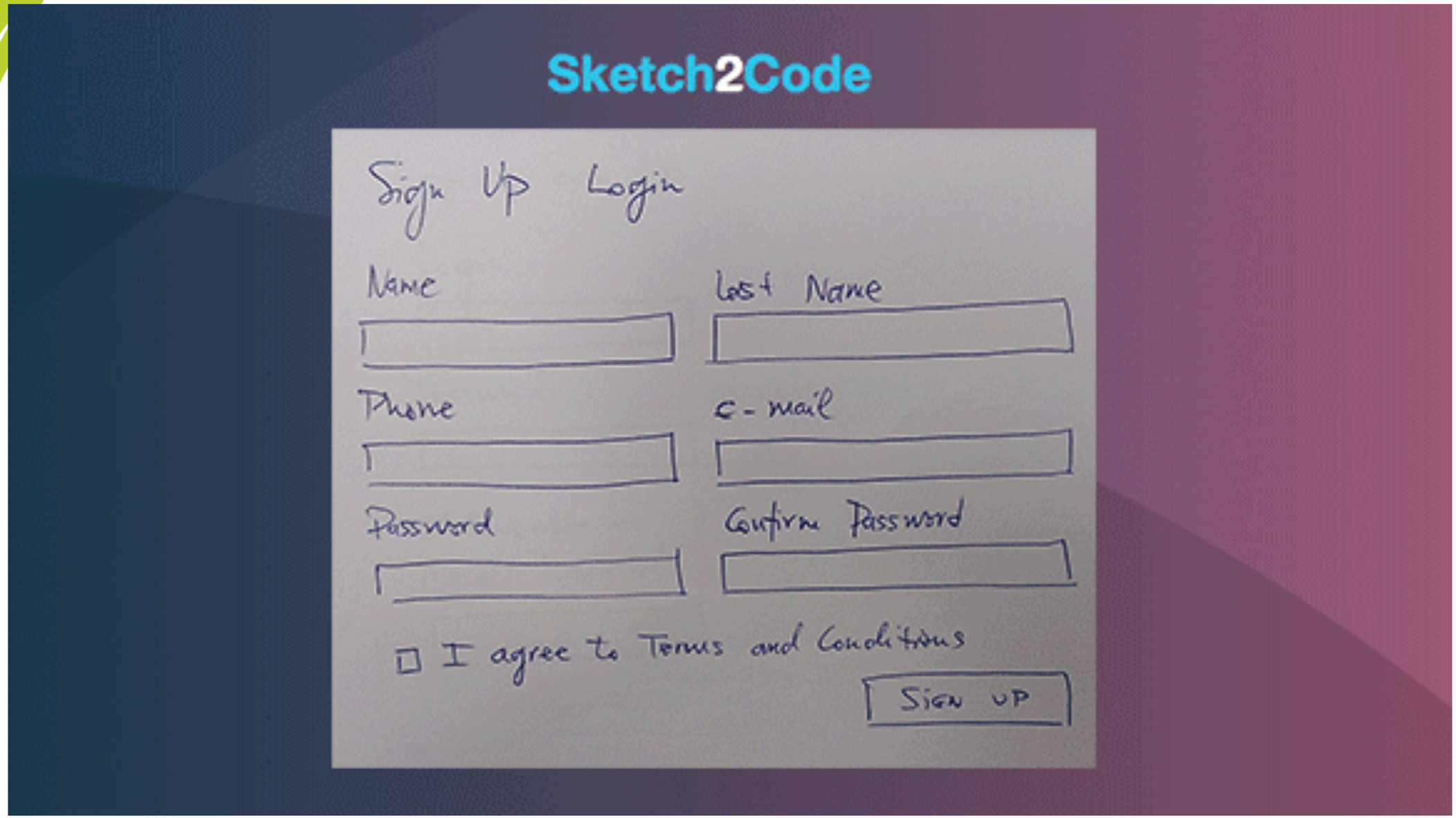
Solution-Knowledge

AI

error-free™

formalize

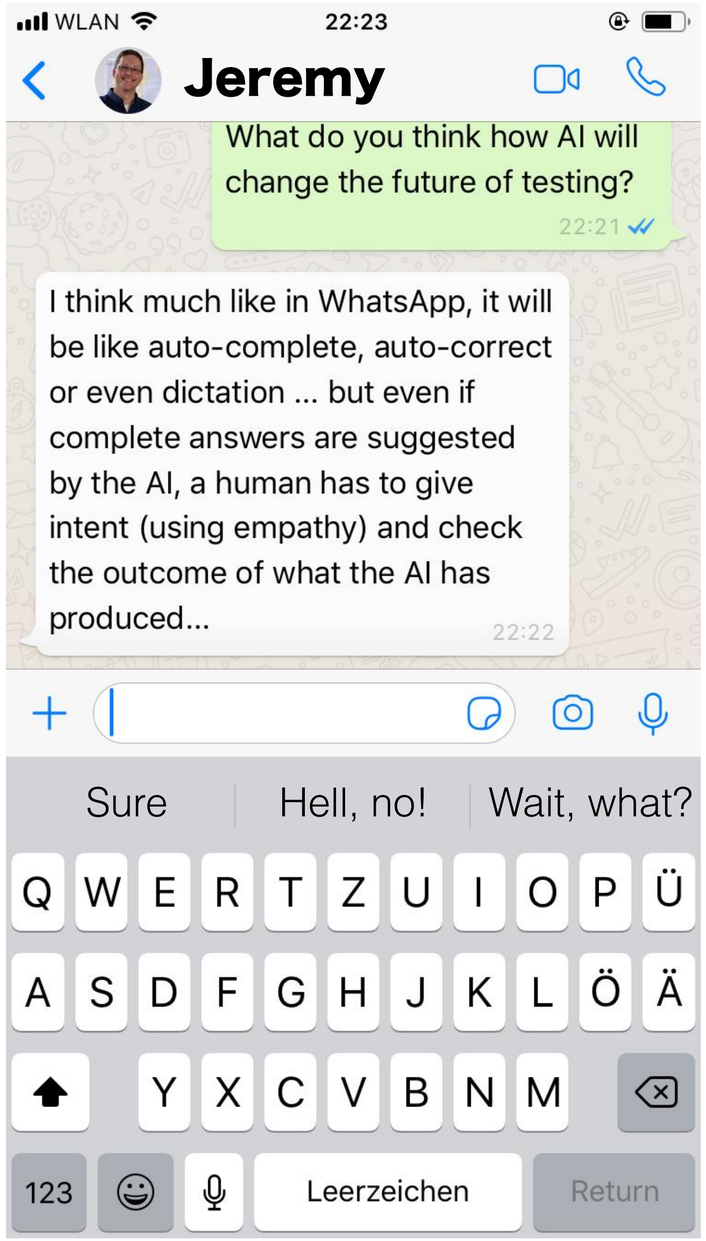
Code



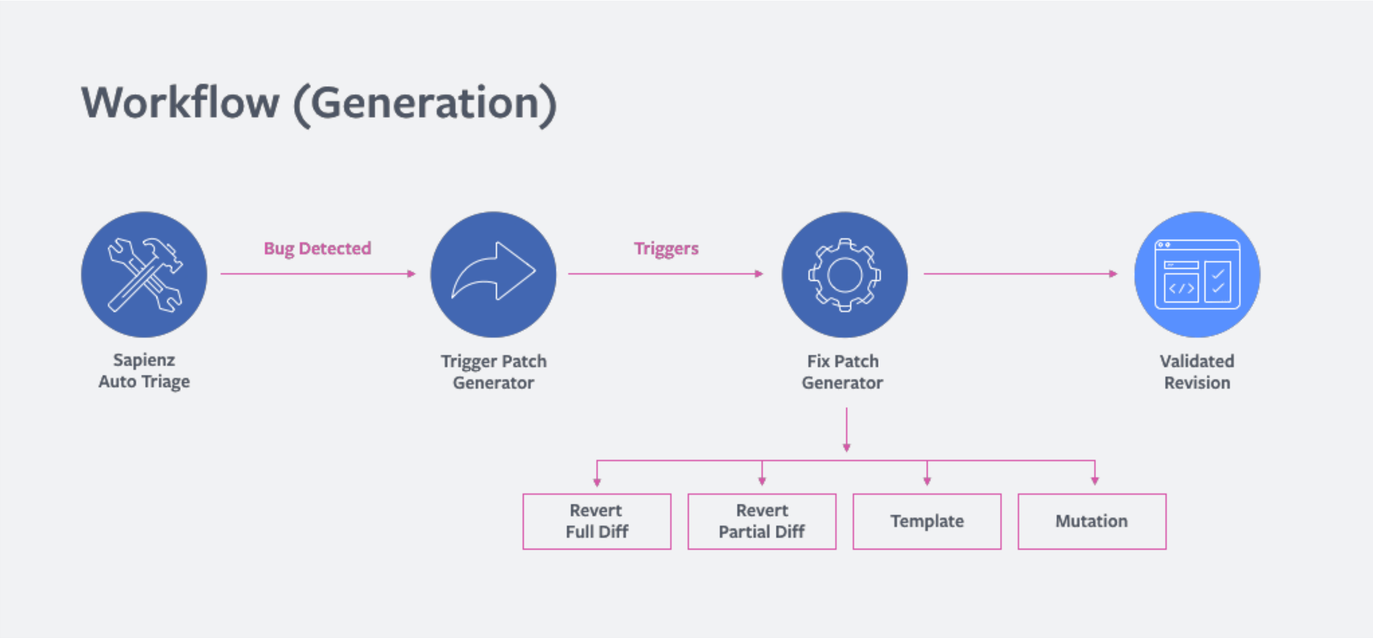
https://airbnb.design/sketching-interfaces/

https://github.com/tonybeltramelli/pix2code

https://github.com/Microsoft/ailab/tree/master/Sketch2Code

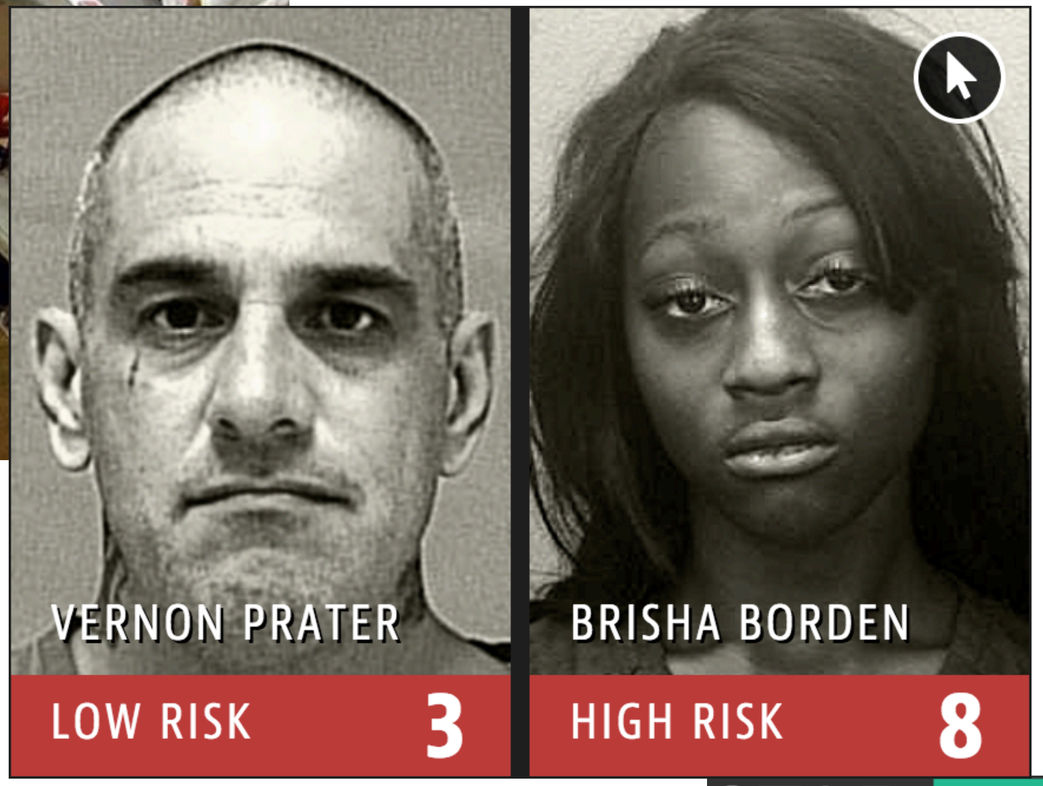

WLAN
22:23
Jeremy
What do you think how AI will change the future of testing?
22:21
I think much like in WhatsApp, it will be like auto-complete, auto-correct or even dictation ... but even if complete answers are suggested by the AI, a human has to give intent (using empathy) and check the outcome of what the AI has produced...
22:22
Sure
Hell, no!
Wait, what?
Q W E R T Z U I O P Ü
A S D F G H J K L Ö Ä
Y X C V B N M
123
Leerzeichen
Return

Automatically Fixing Bugs



https://code.fb.com/developer-tools/finding-and-fixing-software-bugs-automatically-with-sapfix-and-sapienz/

Washington Post: ‘Creative ... motivating’ and fired

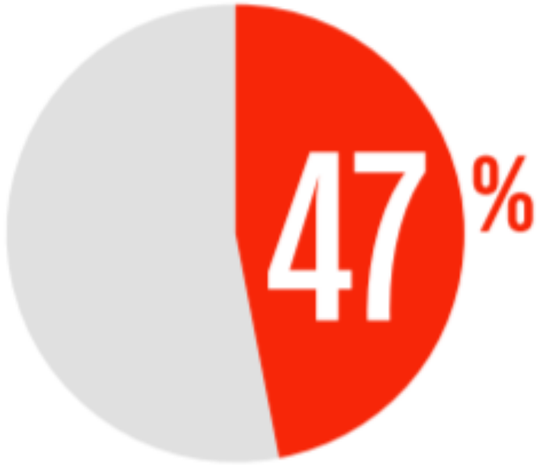


Find it on ProPublika

Source: https://dojo.ministryoftesting.com/dojo/lessons/what-do-software-testers-do-version-0-1


WORLD
QUALITY
REPORT
2017-18 | NINTH EDITION
Capgemini
MICRO FOCUS
SOGETI

The State of Testing



report that their role has changed due to the need for automation skills
(up from 34% in 2015)

primarily test APIs

"Intelligence in test automation is the future"

World Quality Report

2017–18 | Ninth Edition

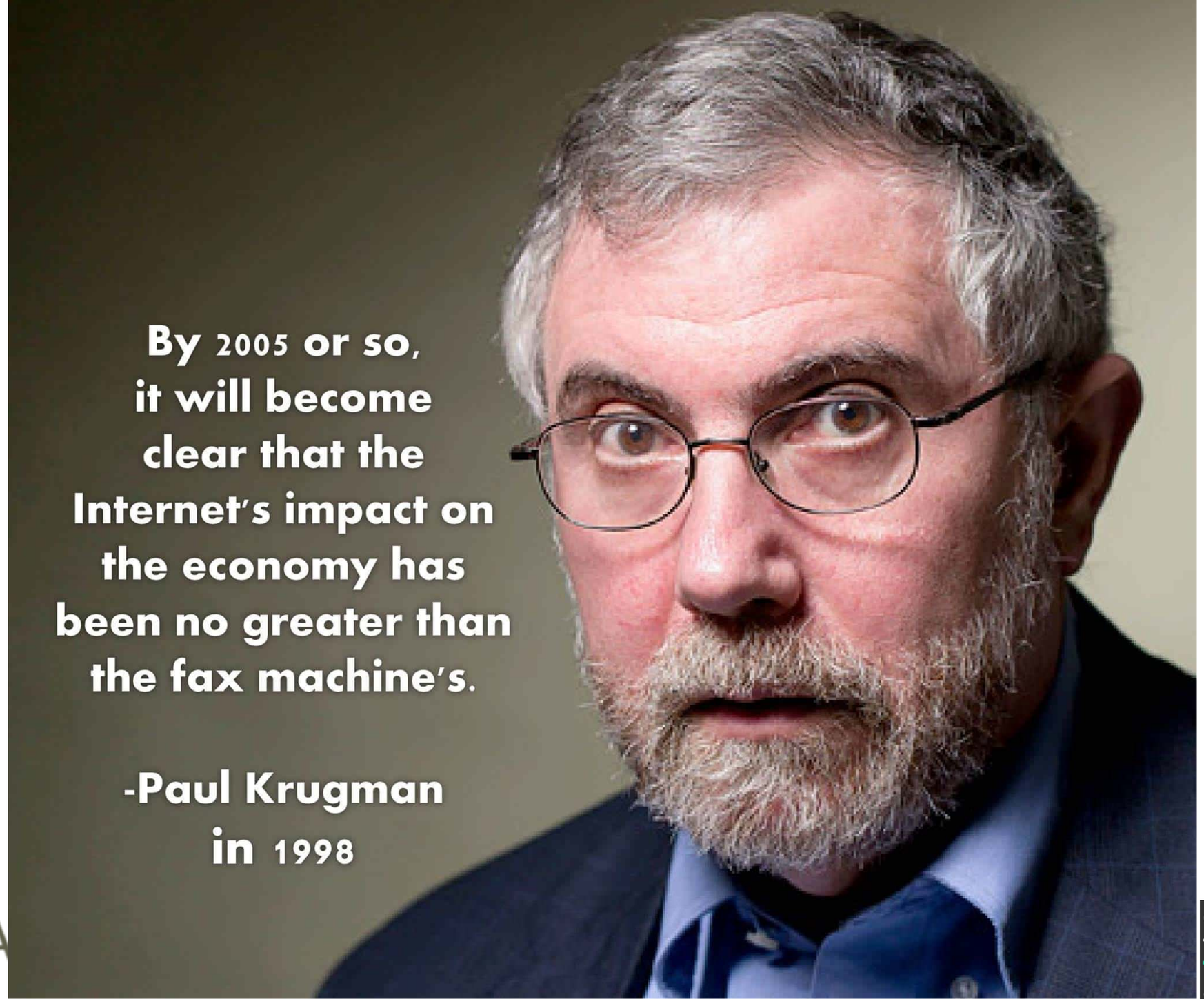
61% have continuous testing on their radar

https://stickyminds.com/sites/default/files/webform/file/2018/survey2018.pdf

Things are changing.

Fast.

Don’t believe me?



tap QA

STAR EAST
A TECHWELL EVENT

Things are changing.

1997: Don’t get into strangers cars.
Dont meet people from the internet.

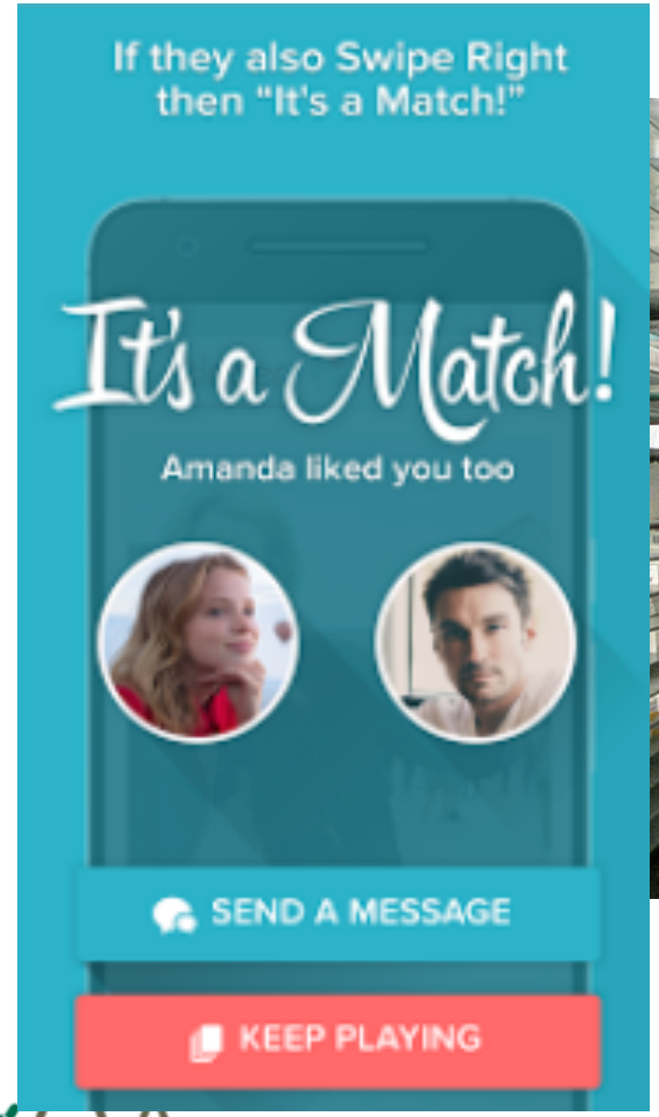
2017: Literally summon strangers from the internet to get into their cars.

Mom: Don’t sit too close to the TV. It’s bad for your eyes

Technology and Social Interactions

In the last years, the proliferation of new technologies such as televisions, mobiles & Smart-Phones, Social networks and Devices interconnected (internet of things) has affected social interactions changing radically our life.

Stop Thinking!

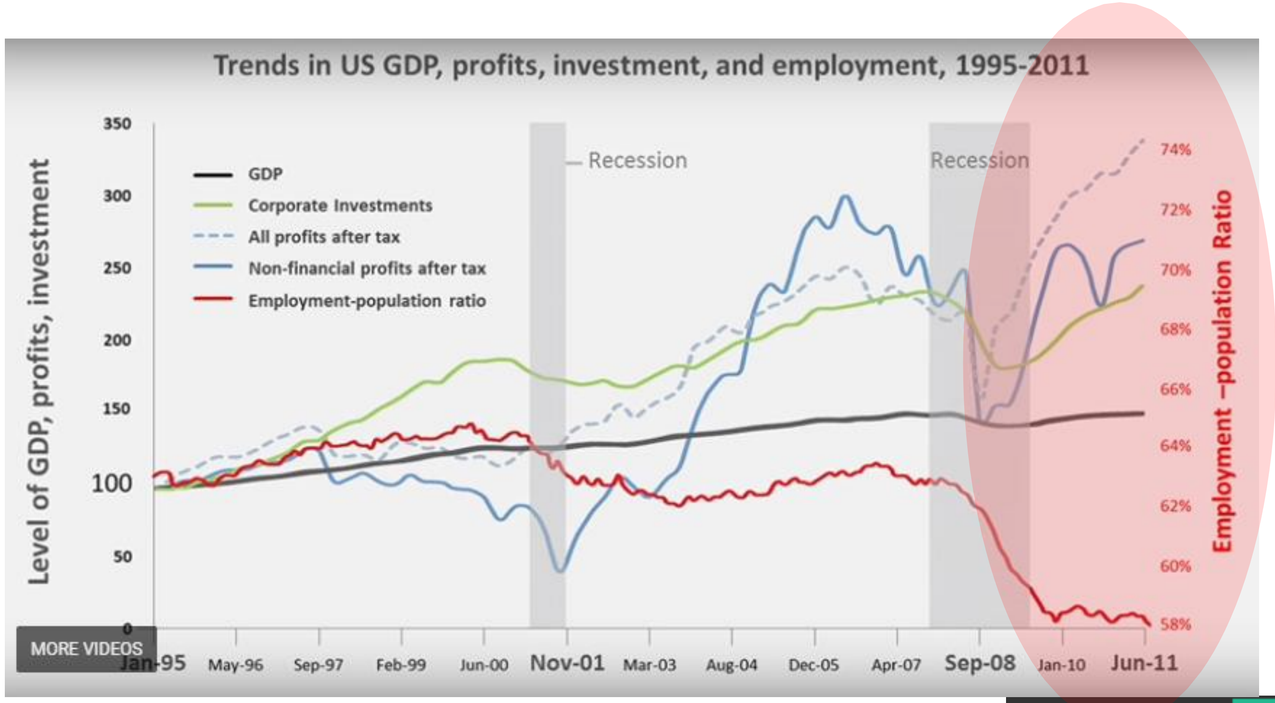


LinkedIn JOBS


BOEING 737 MAX 8
Lion

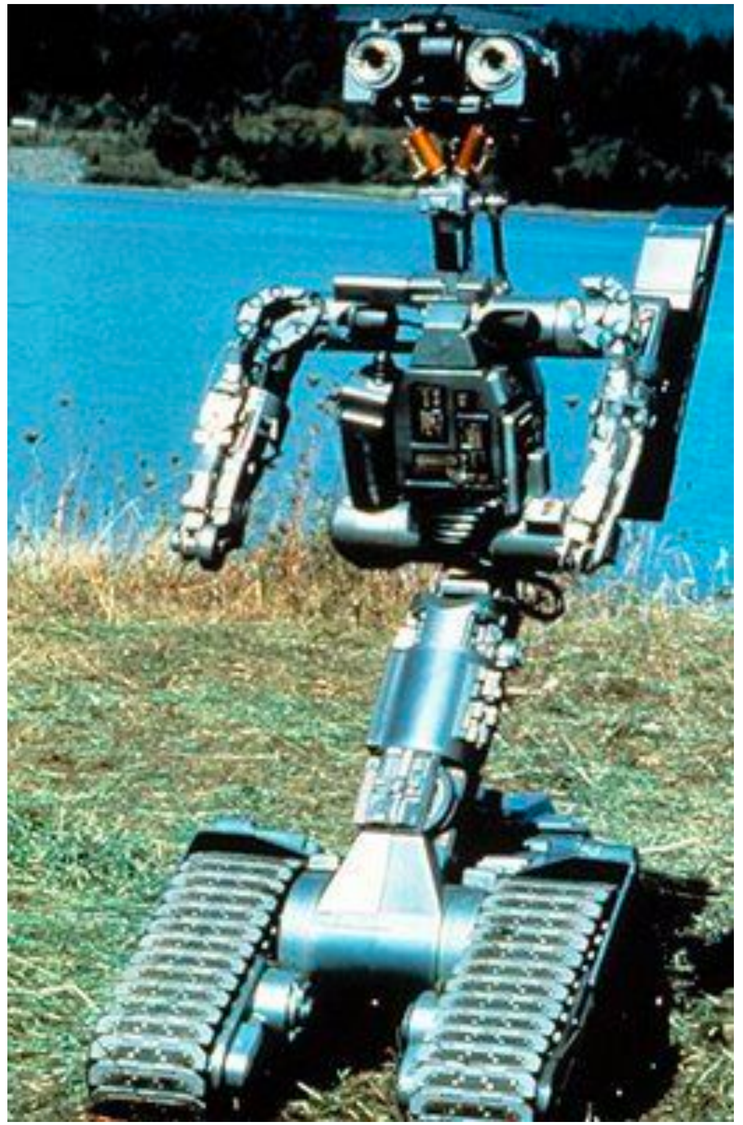
What has changed?

- The pace of change has accelerated
- The scope of technological change is increasing
- The adaptation has slowed



Race Against the Machine TedX: https://youtu.be/QfMGyCkBXTw

We’re not there yet…



What can humans do better?

Empathy, Cultural Sensitivity

Contextualized Intelligence

Creative, Collaborative, Problem Solving

Story Telling

So… How do we become a better Storyteller?

- **Put your phone down**
- **Shake hands**
- **Schedule F2F meetings**
- **Engage in community**

F


Change is inevitable. Trust your instincts and make an impact.
Follow your path. Embrace who you are.
Write your own ending.

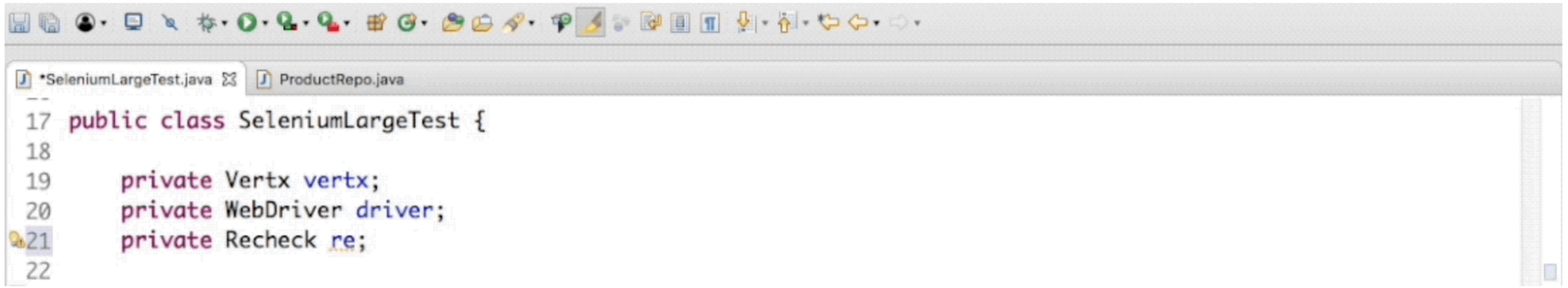
https://github.com/retest/recheck-web

README.md

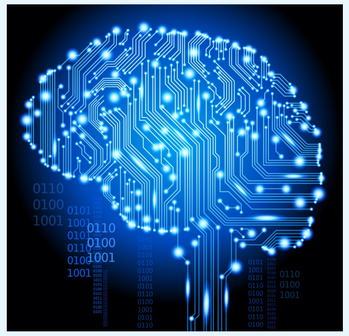
recheck for web apps

build passing | maven central 0.6.2 | license AGPL | PRs welcome | </> with ♥ by retest

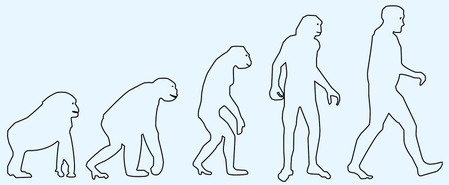
recheck is a Golden Master-based test framework on top of Selenium that comes with powerful features. Check everything at once and create unbreakable tests.



AI

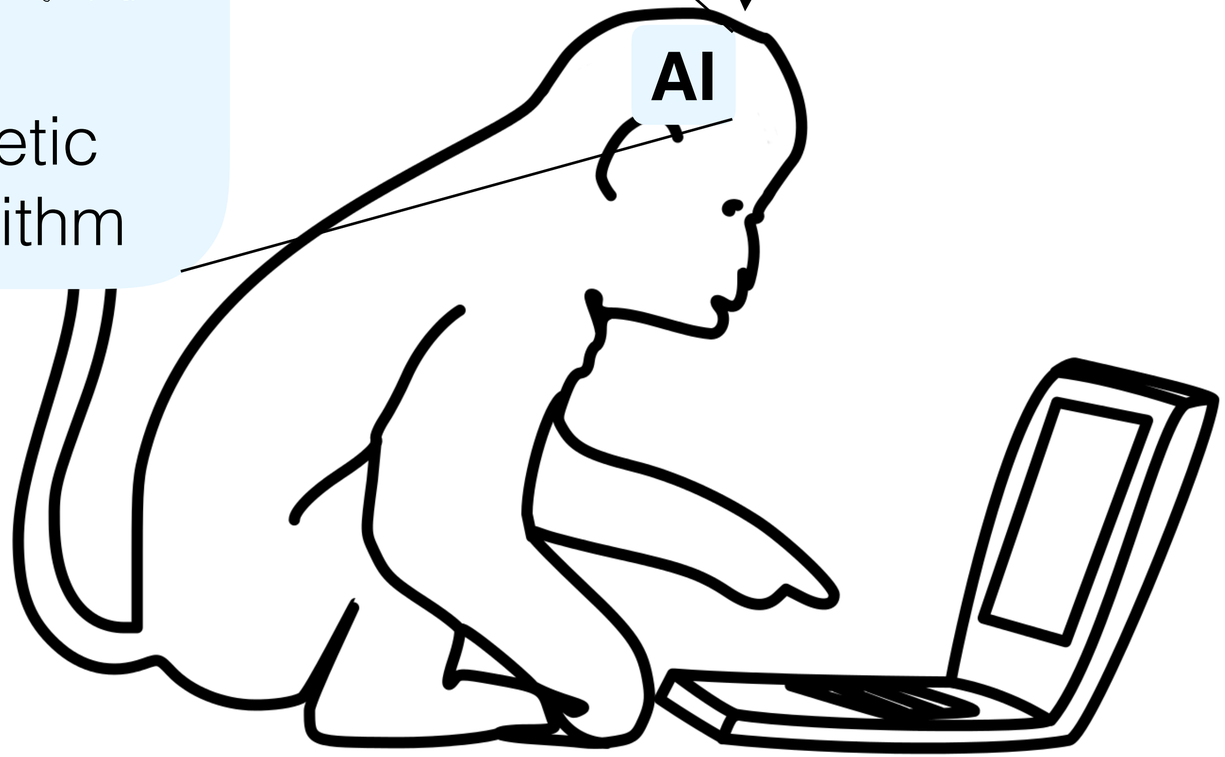


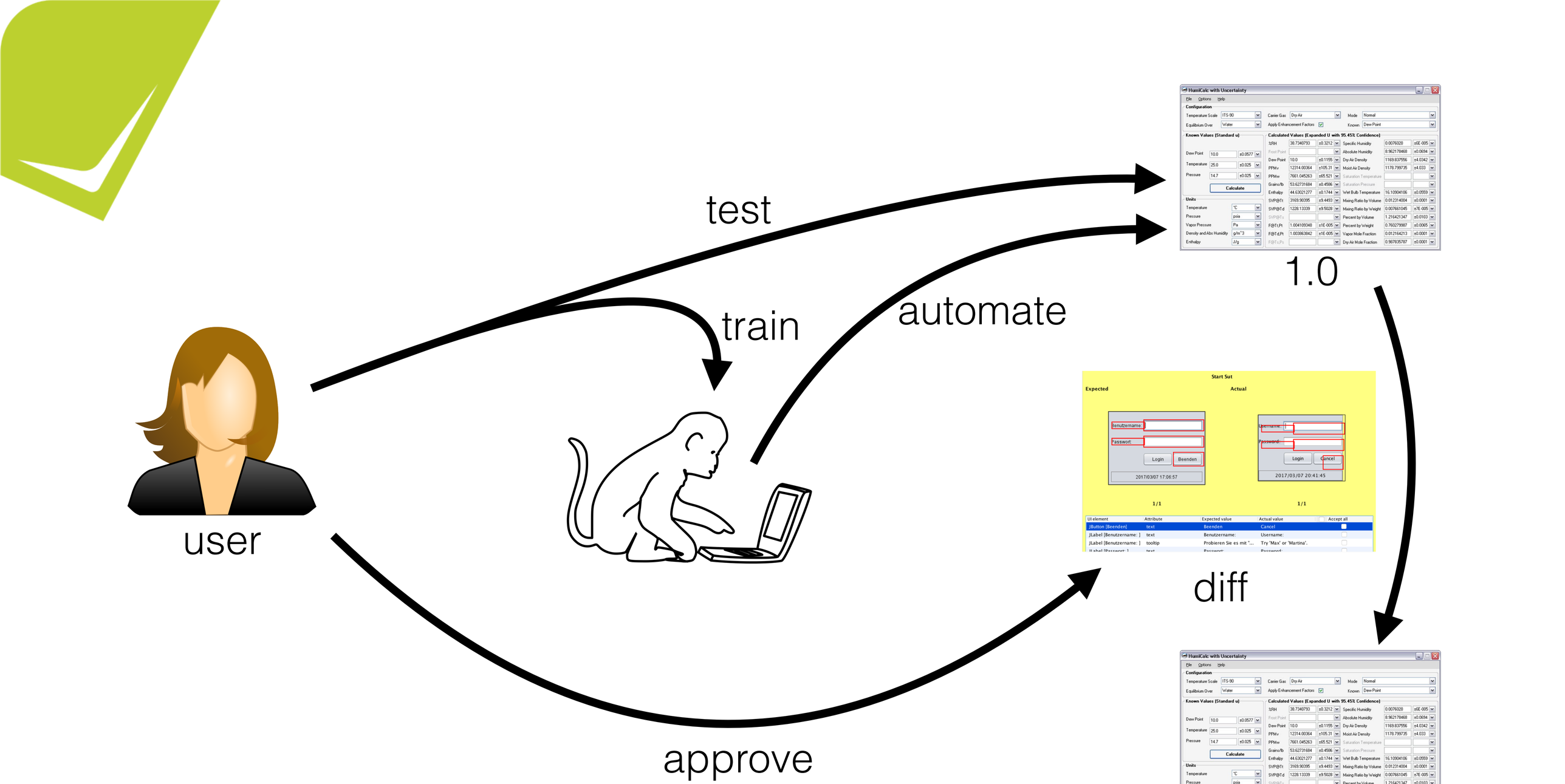
Artificial Neural Net



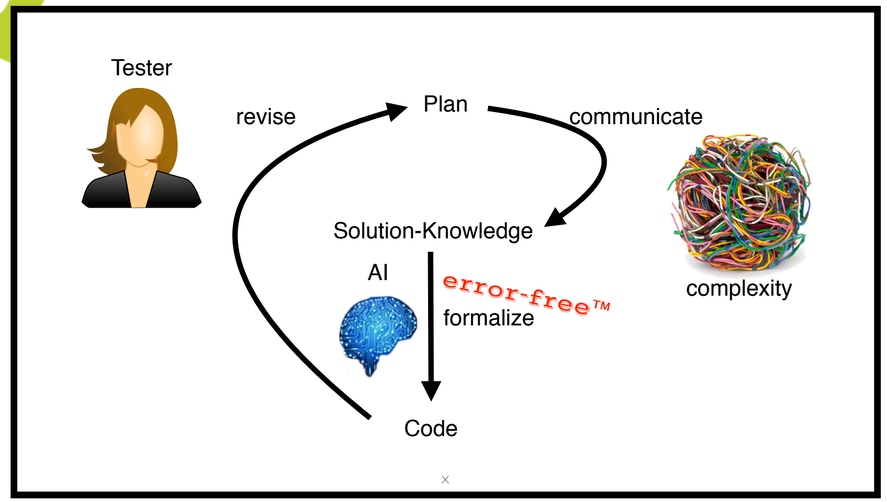
Genetic Algorithm

train



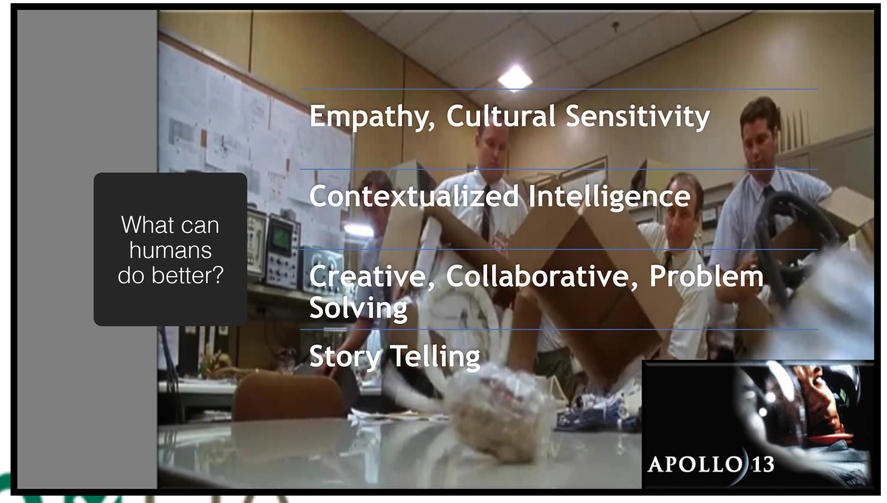

test
train
automate
user
approve
1.0
diff
1.1

Summary



You are working on the hardest problem

AI will learn test automation
AI will learn coding
Someone still has to test



Skills needed in the face of AI:

Empathy
Contextualized Intelligence
Story Telling

I never look back, darling.
It distracts from the now.

– *Edna Mode*

You determine your ending….