

Exploratory on Purpose

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Santa Clara Valley SQA



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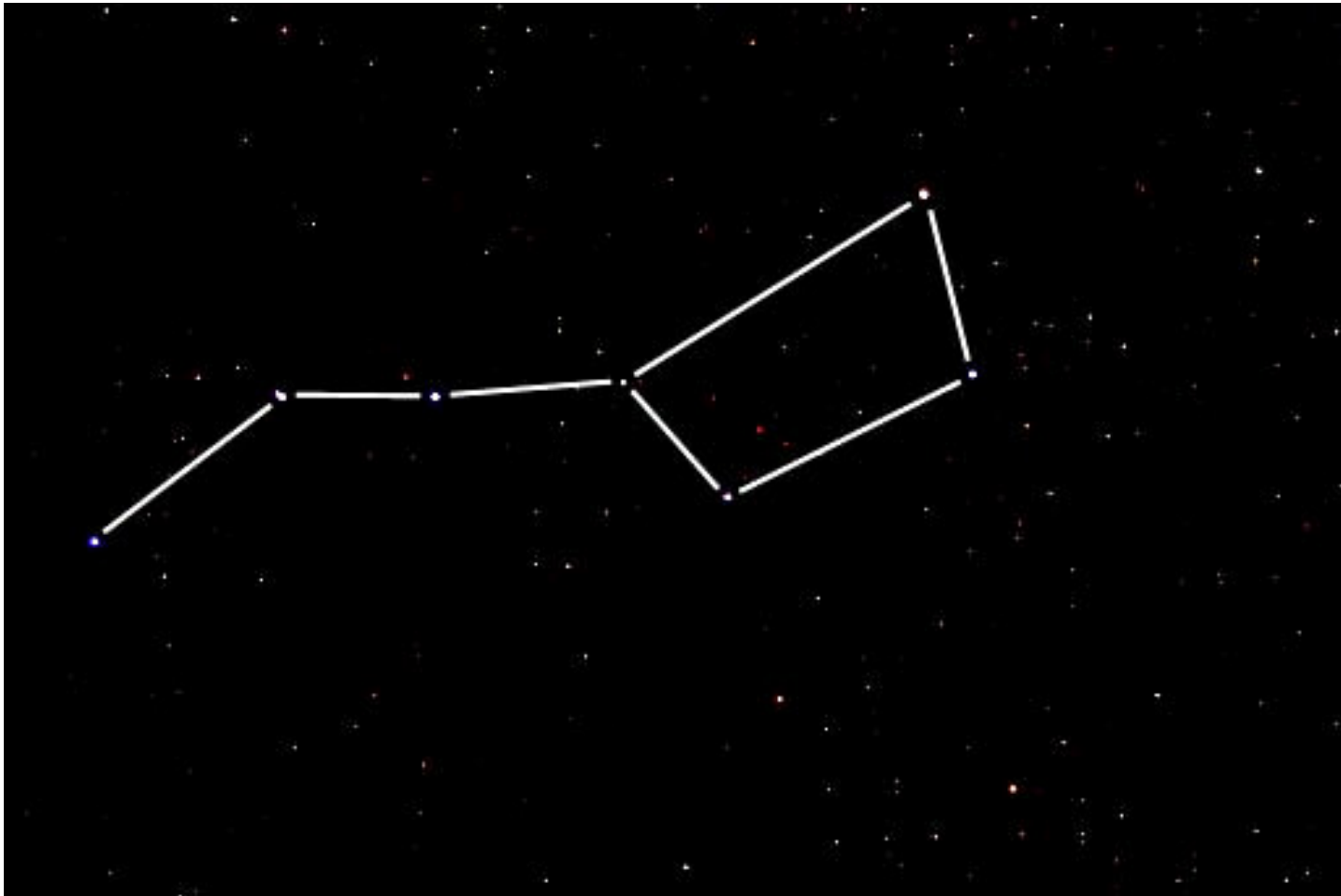
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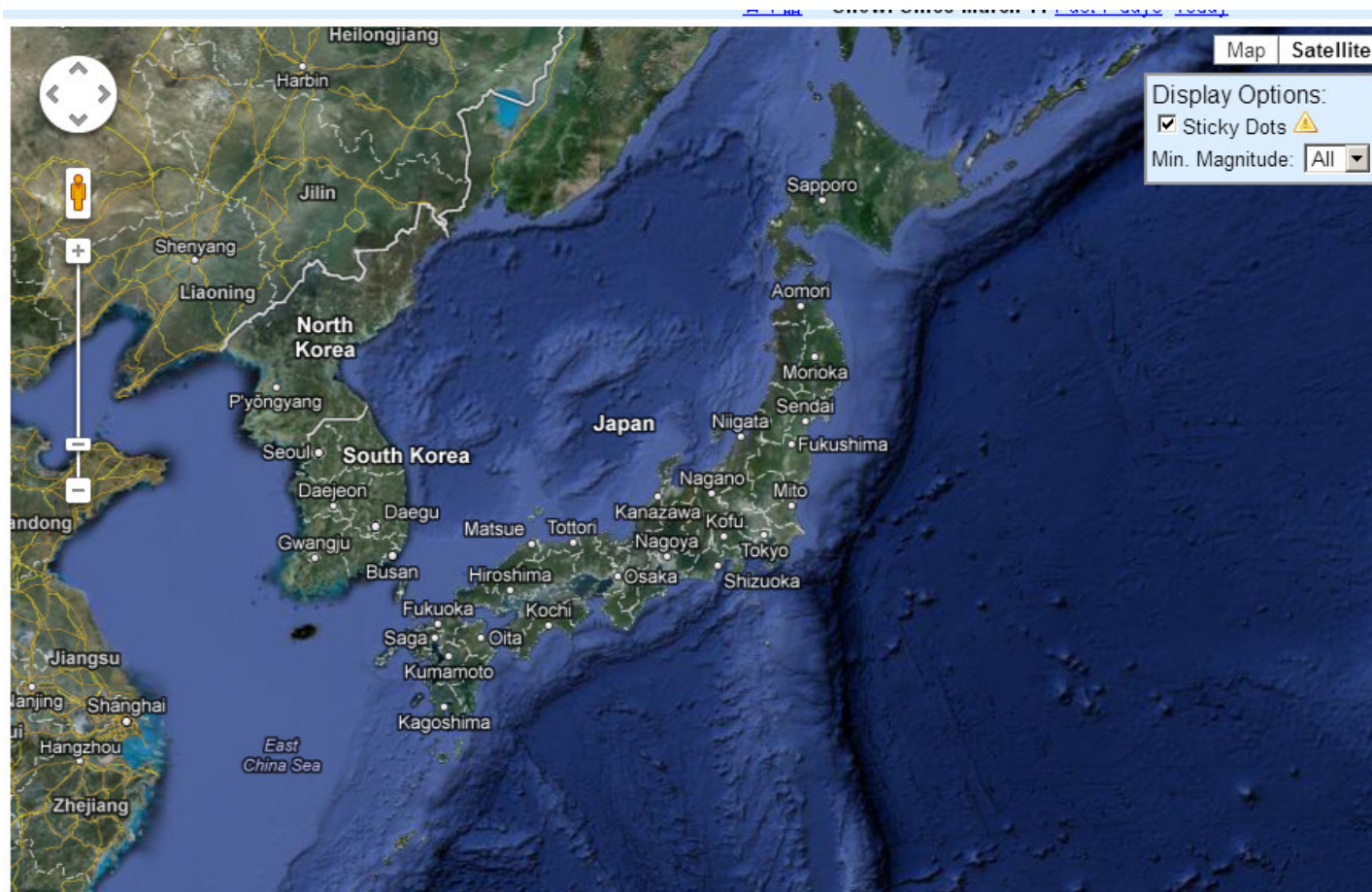
Do you see structure here?



How about now?



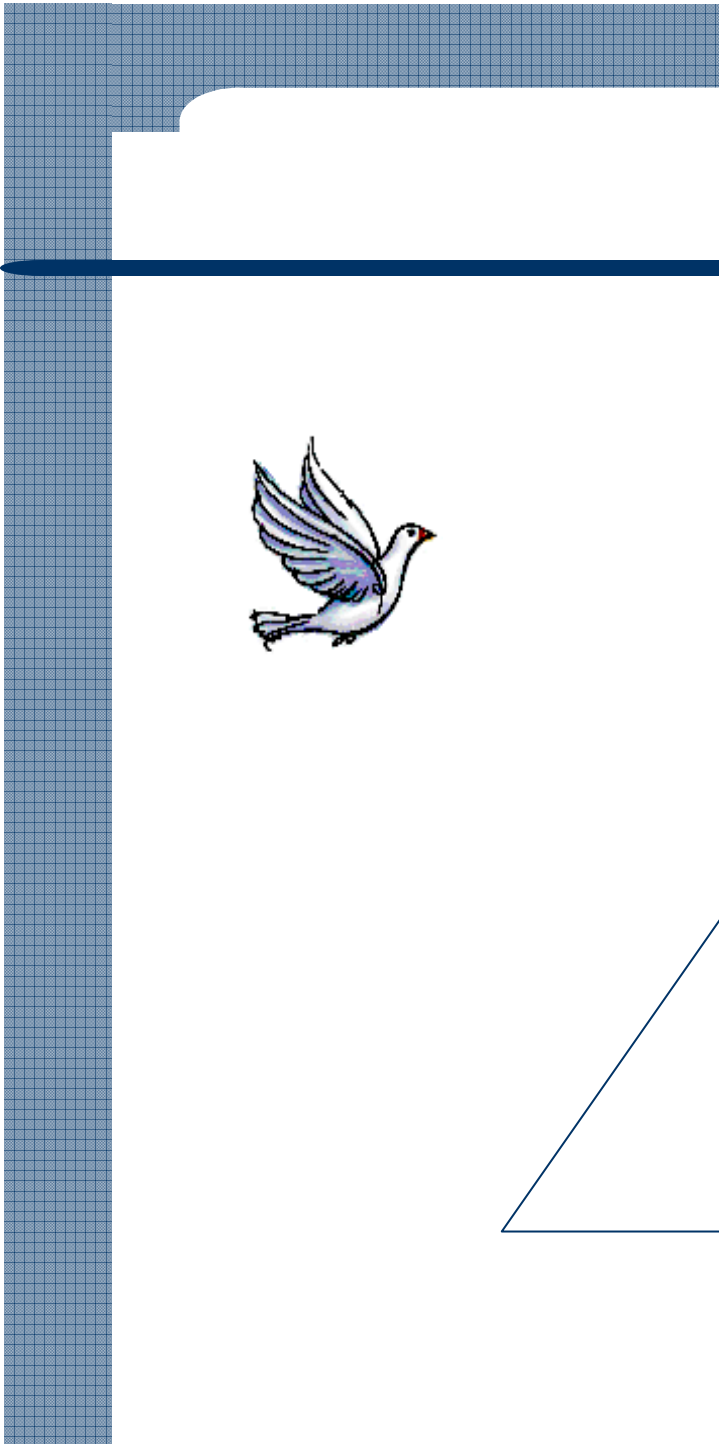
... or here?



<http://www.japanquakemap.com/>

... or here?





Preamble

Ever use the term "playing around" to describe your testing?

Ever cringe after saying it, wishing there was a better way of describing what you did than to give the impression it was all accidental and random?

If so, this talk may help you understand and explain exploratory testing as a thoughtful, purposeful approach whose results stand up under scrutiny.

Agenda

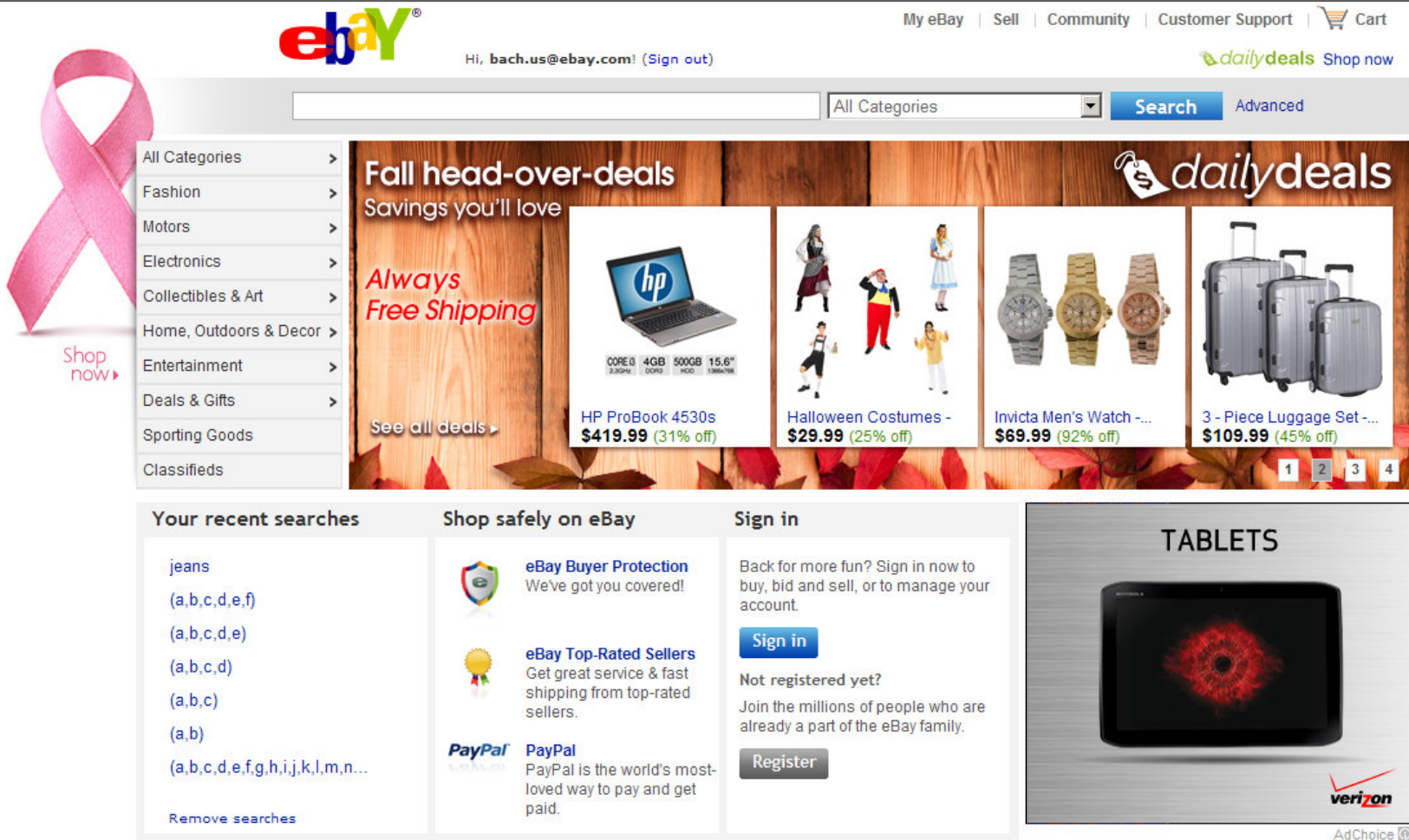
- Participate in exercises that focus on bug isolation and investigation, risks and vulnerabilities.
- Learn some frameworks and heuristics of exploration to use in tight situations
- Discover ways to report your exploration so it stands up to scrutiny.

There is structure and purpose if you know how to identify it and tell a story about it.

Why this talk?

- 1) Exploratory testers want respect: When testers explore during testing, they find great bugs. However, since they often don't know how to describe their thinking, it's considered to be dismissed as "playing around".
- 2) The documentation dilemma: Project managers may insist that all testing be documented, so how to balance time spent documenting with time spent testing?
- 3) Your work might be scrutinized: You may have to give a report someday about something you did that was exploratory – like attending this conference.

“I want you to test this...”



The image shows the eBay homepage with a pink ribbon overlay on the left side. The ribbon has the text "Shop now" written on it. The eBay logo is at the top left, and the user is logged in as "bach.us@ebay.com!". The top navigation bar includes links for "My eBay", "Sell", "Community", "Customer Support", and "Cart". A search bar is present with a dropdown menu for "All Categories" and a "Search" button. Below the search bar is a "Fall head-over-deals" banner with the text "Savings you'll love" and "Always Free Shipping". The banner features four product categories: HP ProBook 4530s laptop, Halloween costumes, Invicta Men's Watch, and a 3-Piece Luggage Set. Below the banner are three sections: "Your recent searches" (listing "jeans" and other search terms), "Shop safely on eBay" (featuring eBay Buyer Protection, eBay Top-Rated Sellers, and PayPal), and "Sign in" (with a "Sign in" button and a "Register" button). On the right side, there is a "TABLETS" section with a Verizon logo and an "AdChoice" icon.

Hi, [bach.us@ebay.com!](#) ([Sign out](#))

[dailydeals](#) [Shop now](#)

All Categories [Search](#) [Advanced](#)

[All Categories](#) [Fashion](#) [Motors](#) [Electronics](#) [Collectibles & Art](#) [Home, Outdoors & Decor](#) [Entertainment](#) [Deals & Gifts](#) [Sporting Goods](#) [Classifieds](#)

[Shop now](#)

Fall head-over-deals
Savings you'll love

Always Free Shipping

[See all deals](#)

HP ProBook 4530s
\$419.99 (31% off)

Halloween Costumes -
\$29.99 (25% off)

Invicta Men's Watch -...
\$69.99 (92% off)

3 - Piece Luggage Set -...
\$109.99 (45% off)

Your recent searches

- [jeans](#)
- [\(a,b,c,d,e,f\)](#)
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- [\(a,b\)](#)
- [\(a,b,c,d,e,f,g,h,i,j,k,l,m,n...\)](#)

[Remove searches](#)

Shop safely on eBay

eBay Buyer Protection
We've got you covered!

eBay Top-Rated Sellers
Get great service & fast shipping from top-rated sellers.

PayPal
PayPal is the world's most-loved way to pay and get paid.

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Back for more fun? Sign in now to buy, bid and sell, or to manage your account.

[Sign in](#)

Not registered yet?
Join the millions of people who are already a part of the eBay family.

[Register](#)

TABLETS

[verizon](#)

AdChoice

Key Idea

Testing is...
an infinite process
of comparing the invisible
to the ambiguous
in order to avoid the unthinkable
happening to the anonymous.

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Testing is...
an infinite process
of comparing the invisible
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happening to the anonymous.

What is testing?

“Try it and see if it works.”

really means...

Learn anything reasonable **that matters** about
whether it **can** work and how it might **not** work.

What is testing?

“Try it and see if it works.”

Procedures

Get it set up

Run it

Run it again, maybe

Coverage

Choose where to look

See what's there

See what's not there

Oracles

Read specs

See if product matches

Find problems...
...especially the bad
ones

Testers light the way



This is our role.

We see things for what they are.
We make informed decisions about quality possible,
because we think critically about software.

Exploratory Testing

- **Sabourin**: “continuous test design as testing continues; continuous testing as design continues; continuous test planning as testing continues”
- **Hendrickson**: a style of testing in which you explore the software while simultaneously designing and executing tests, using feedback from the last test to inform the next (Test-Driven Testing?)
- **Bolton**: Operating and observing the product with the freedom and mandate to investigate it in an open-ended search for information about the program.
- **Kaner**: Simultaneous learning, design and execution, *with an emphasis on learning.*

“The” ET Definition

A style of software testing...
that emphasizes the personal freedom...
and responsibility of the individual tester...
to continually optimize the quality of his/her work...
by treating test-related learning...
test design...
test execution...
and test result interpretation...
as mutually supportive activities...
that run in parallel...
throughout the project.

-- Cem Kaner, 2006

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Analogyes

Psychologist

Driving a car

“20 Questions”

Sports

Bounty Hunter

Going to a testing conference

Job Interview

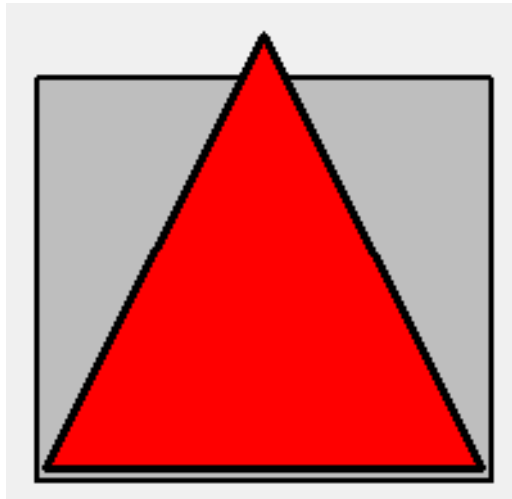
Jam session

Newspaper reporter

Skills of Exploration

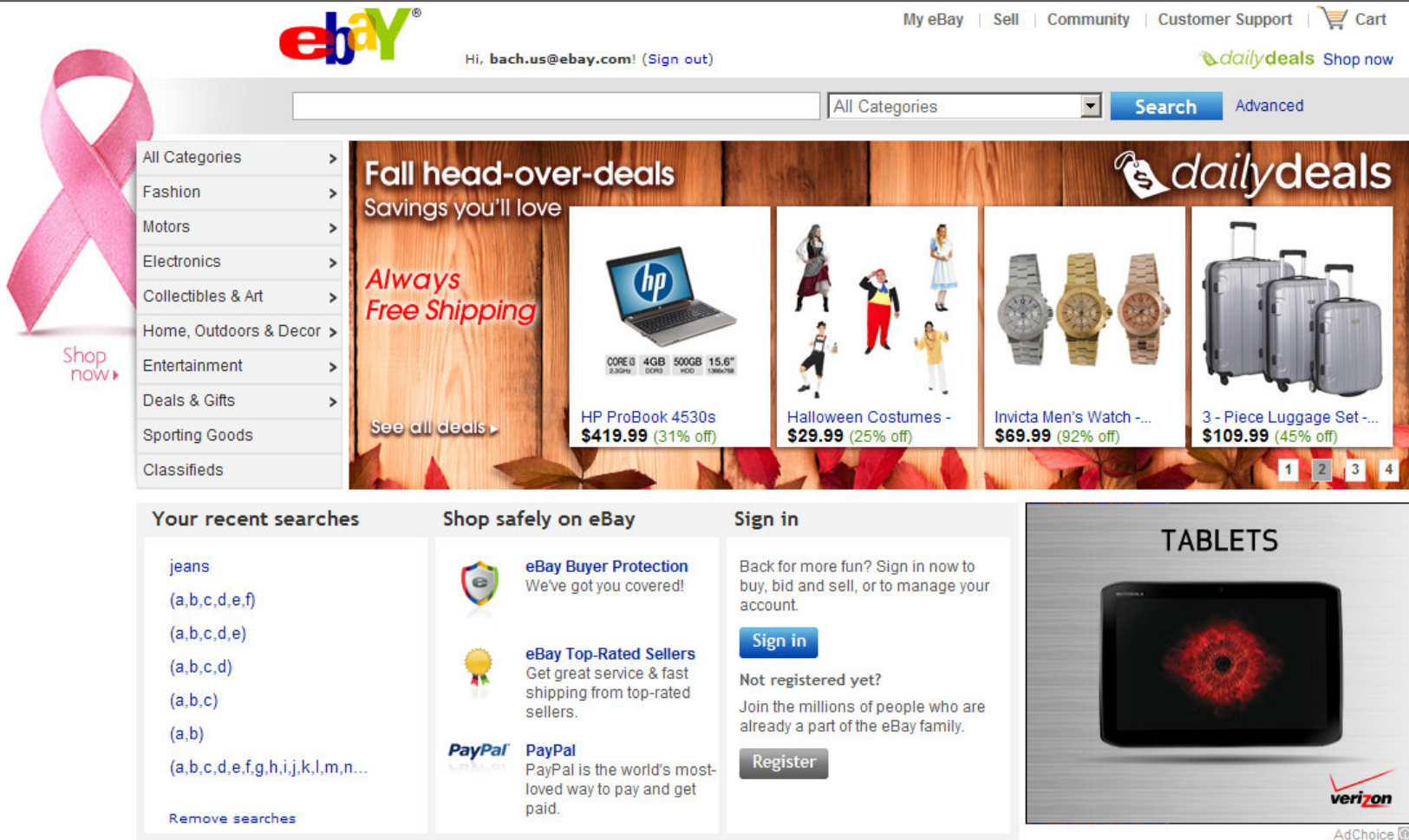
- Put the **tester's mind** at the center of testing.
- Learn to **deal with complexity** and ambiguity.
- Learn to **tell a compelling testing story**.
- Develop **testing skills** through practice, not just talk.
- **Use heuristics** to guide and structure your process.
- **Be a service** to the project community, not an obstacle.
- **Consider cost vs. value** in all your testing activity.
- **Diversify** your team and your tactics.
- Dynamically **manage the focus** of your work.
- Your **context should drive your choices**, both of which evolve over time.

“I want you to test this...”



My testing demo...

“I want you to test this...”



The screenshot shows the eBay homepage. On the left, there is a pink ribbon graphic with the text "Shop now" below it. The main navigation bar includes the eBay logo, a user greeting "Hi, bach.us@ebay.com! (Sign out)", and links for "My eBay", "Sell", "Community", "Customer Support", and "Cart". A search bar is present with a dropdown menu set to "All Categories" and buttons for "Search" and "Advanced". Below the navigation bar, a "dailydeals" banner features the text "Fall head-over-deals Savings you'll love" and "Always Free Shipping". The banner displays four product categories: HP ProBook 4530s laptop (\$419.99, 31% off), Halloween costumes (\$29.99, 25% off), Invicta Men's Watch (\$69.99, 92% off), and a 3-Piece Luggage Set (\$109.99, 45% off). Below the banner, there are three sections: "Your recent searches" listing "jeans" and other terms; "Shop safely on eBay" featuring "eBay Buyer Protection", "eBay Top-Rated Sellers", and "PayPal"; and "Sign in" with a "Sign in" button and a "Register" button. On the right, a "TABLETS" section shows a tablet with a red eye graphic and the Verizon logo.

Shop now

Hi, bach.us@ebay.com! (Sign out)

My eBay | Sell | Community | Customer Support | Cart

dailydeals Shop now

All Categories Search Advanced

Fall head-over-deals Savings you'll love

Always Free Shipping

See all deals

HP ProBook 4530s \$419.99 (31% off)

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1 2 3 4

Your recent searches

jeans (a,b,c,d,e,f) (a,b,c,d,e) (a,b,c,d) (a,b,c) (a,b) (a,b,c,d,e,f,g,h,i,j,k,l,m,n...)

Remove searches

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PayPal PayPal PayPal is the world's most-loved way to pay and get paid.

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Register

TABLETS

verizon

AdChoice

How did you **find** that?

Some Exploration Skills and Tactics

“MR.Q COMP GRABC R&R?”

Modeling
Resourcing
Questioning

Chartering
Observing
Manipulating
Pairing

Generating/Elaborating
Refocusing
Alternating
Branching/Backtracking
Conjecturing

Recording
Reporting

Exploratory testing is a mindset using this skillset.

Ways we find bugs

CIDTESTDSFDPOTCRUSSPICSTMPPLFDSFSCURA

Project Environment

Customers
Information
Developer relations
Team
Equipment & tools
Schedule
Test Items
Deliverables

Product Elements

Structure
Function
Data
Platform
Operations
Time

Quality Criteria

Capability
Reliability
Usability
Security
Scalability
Performance
Installability
Compatibility

Development Criteria

Supportability
Testability
Maintainability
Portability
Localizability

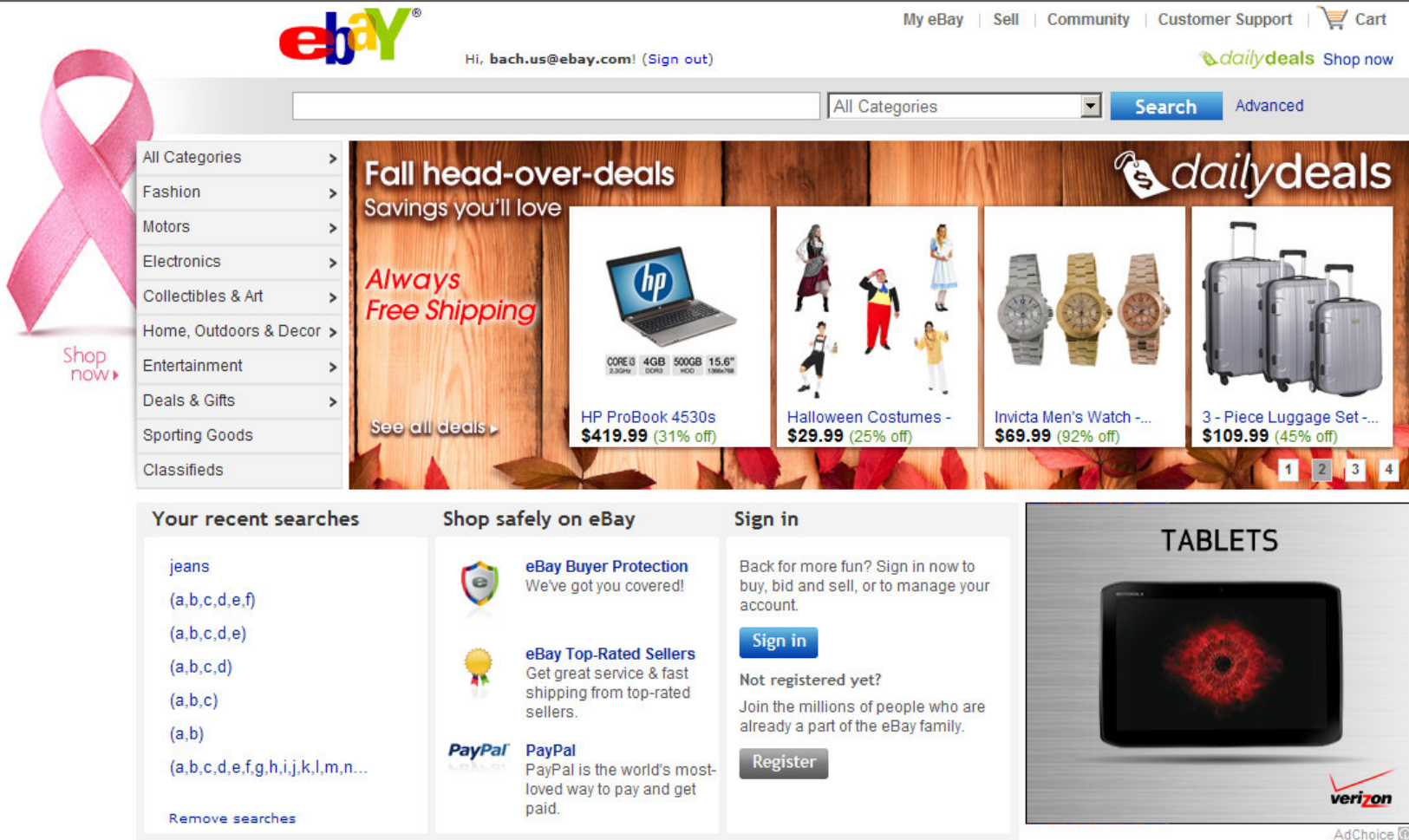
General Test Techniques

Function testing
Domain testing
Stress testing
Flow testing
Scenario testing
Claims testing
User testing
Risk testing
Automatic testing

Missions that inspire ET

- Change test case variables
- Execute a checklist
- Regress a list of bugs
- Confirm a rumor
- Design a test case
- Write some automation

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Hi, [bach.us@ebay.com!](#) ([Sign out](#))

[dailydeals](#) [Shop now](#)

All Categories Search [Advanced](#)

[All Categories](#) [Fashion](#) [Motors](#) [Electronics](#) [Collectibles & Art](#) [Home, Outdoors & Decor](#) [Entertainment](#) [Deals & Gifts](#) [Sporting Goods](#) [Classifieds](#)

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Fall head-over-deals
Savings you'll love

Always Free Shipping

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HP ProBook 4530s
CORE i3 3.3GHz 4GB 500GB 15.6" 1366x768
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Your recent searches

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TABLETS

[verizon](#)

AdChoice

Exercise (ebay Search)

Most bizarre thing for sale on ebay?

Most expensive thing on ebay?

What's trending?

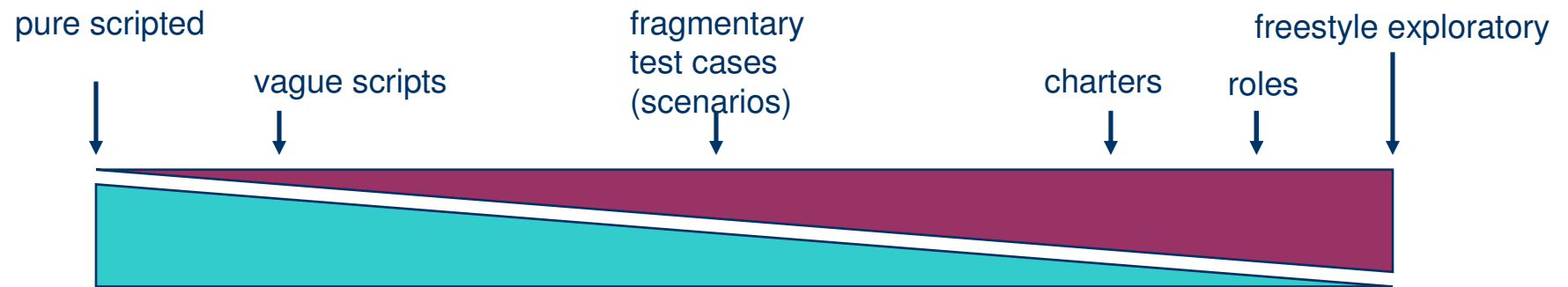
How can you find completed items?

What's the most common item sold?

How many categories of items for sale?

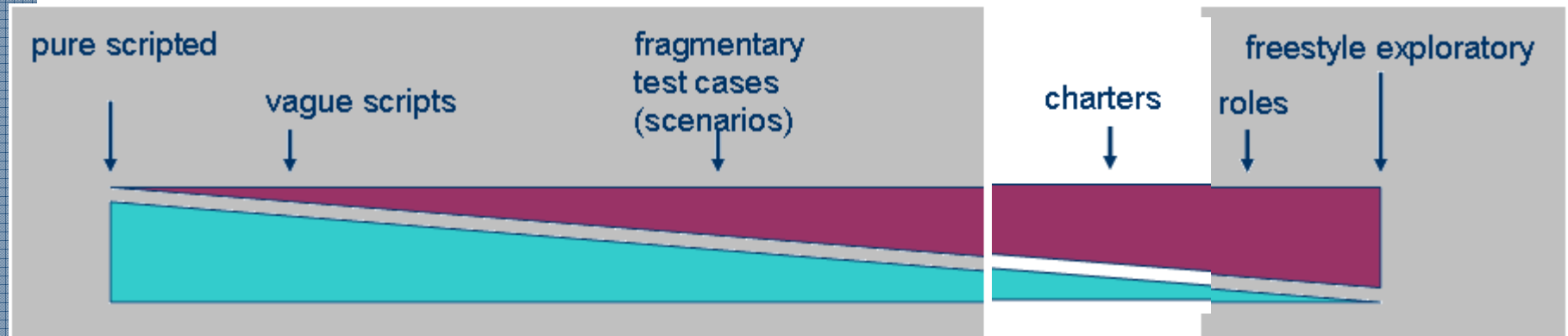
How many actual items?

The “tester freedom” scale



To know where a test falls on this scale, the tester must ask themselves: *“to what extent am I in control of the test, and from where did the idea originate?”*

Charters



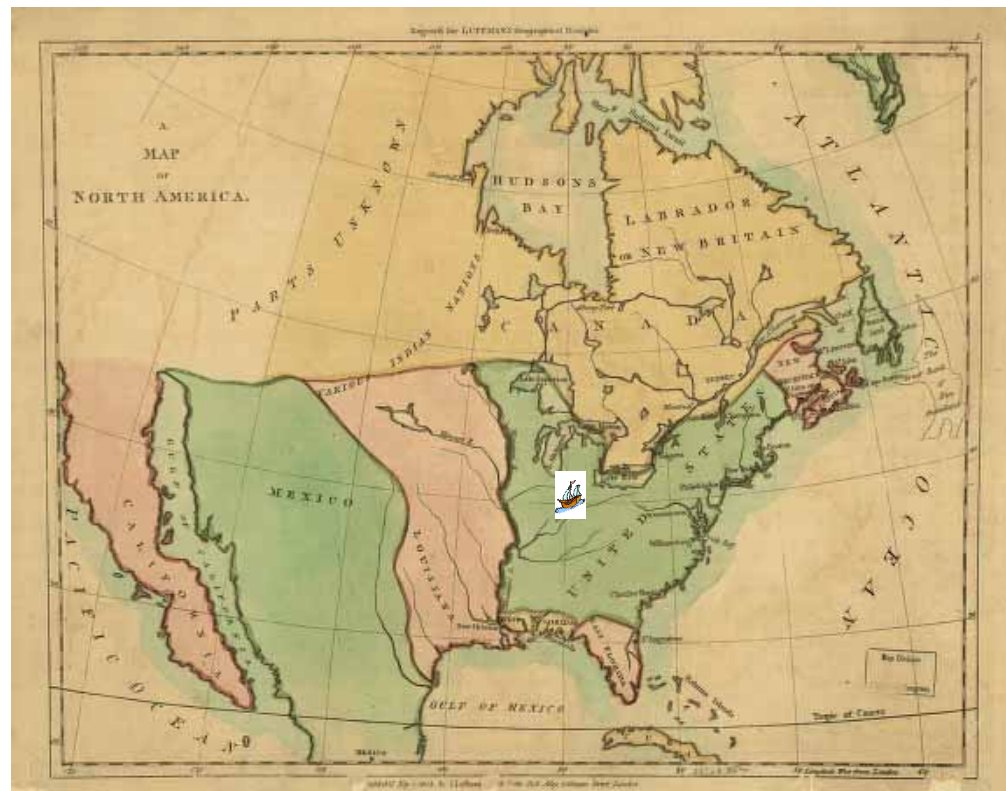
Chartering

Making your own decisions about what you will work on and how you will work. Understanding your client's needs, the problems you must solve, and assuring that your work is on target.



Lewis & Clark, 1802

Mission: Find a water passage across North America...



The charter from Jefferson

“The object of your mission is to explore the Missouri river, & such principal stream of it, as, by its course & communication with the water of the Pacific ocean may offer the most direct & practicable water communication across this continent, for the purposes of commerce.”

<http://www.monticello.org/jefferson/lewisandclark/instructions.html>

Sponsors and stakeholders

- Test Manager
- Product Manager
- CEO
- Customer
- Developer
- Marketing
- Tech Writer
- Customer Support
- Other testers



Charter-based method #1

Session-Based Exploration

Think in time-boxed missions to explore, resulting in a test report with Notes, Bugs, and Issues.

A report of my exploration



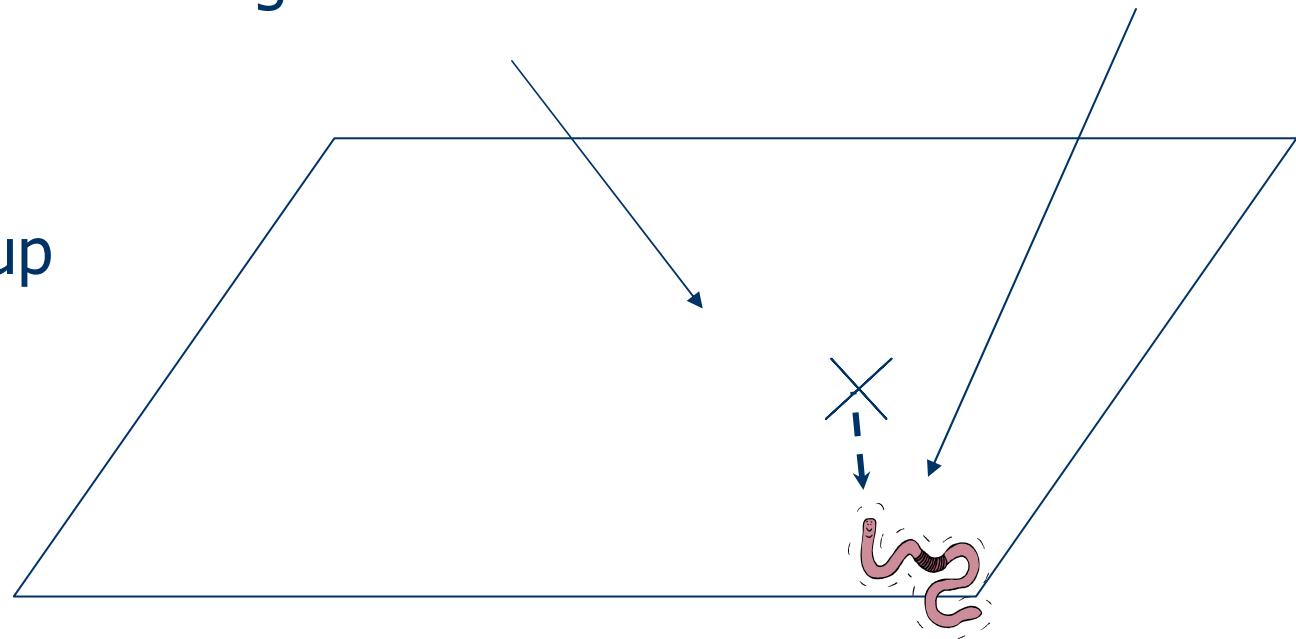
Activities to report



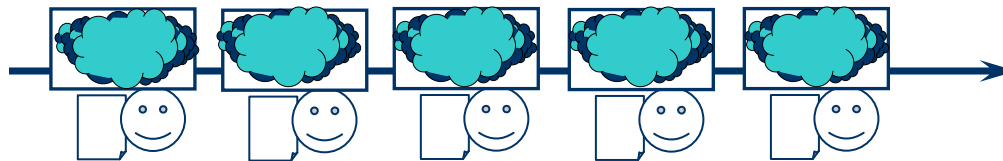
Test Design and Execution

Bug Investigation
(and Reporting)

Session Setup



Structure



The “Session”

- 1) Time Box
- 2) Reviewable Result
- 3) Debriefing

The deliverable: a session report

- **Charter**

- #AREAS

- **Metrics**

- #DURATION
- #TEST DESIGN AND EXECUTION
- #SESSION SETUP
- #BUG INVESTIGATION AND REPORTING
- #CHARTER / OPPORTUNITY



```
CHARTER
-----
Analyze MapMaker's View menu functionality and
report on areas of potential risk.

#AREAS
OS | Windows 2000
Menu | st-jab-010417-c.sesView
Strategy | Function Testing
Sample | Functional Analysis
START
-----
5/30/00 03:20 pm

TESTER
-----
Jonathan Bach

TASK BREAKDOWN
-----

#DURATION
short

#TEST DESIGN AND EXECUTION
65

#BUG INVESTIGATION AND REPORTING
25

#SESSION SETUP
20
```

- **Notes**

- **Bugs**

- #BUG

- **Issues**

- #ISSUE

eBay samples

```
CHARTER
-----
Analyze MapMaker's View menu functionality and report on areas of
potential risk.

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TASK BREAKDOWN
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short

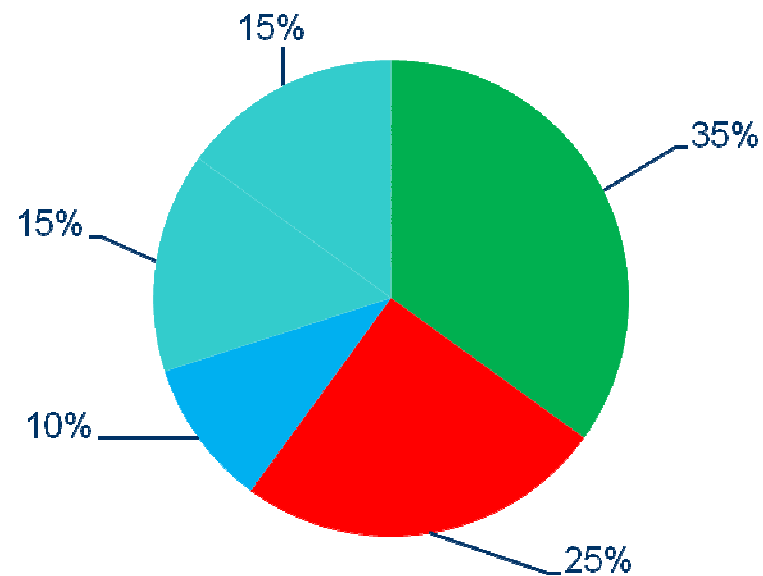
#TEST DESIGN AND EXECUTION
65

#BUG INVESTIGATION AND REPORTING
25

#SESSION SETUP
20"C:\Documents and Settings\jobach\Desktop\Live
Site\israt_sessions\Session_Listing_Promo.txt"
```

TBS Roll-up

- Test Design & Execution
- Bug Investigation
- Environment Config
- Automation (BLOCKERS)
- Learning-Gathering Requirements



Charter-creation method #2

Open-Book Testing

The act of creating open-ended questions such that...

Tools

- 1) Scan Tool (James & Jon Bach)
- 2) Session Tester (Jonathan Kohl)
- 3) Rapid Reporter (Shmuel Gershon)
- 4) TestExplorer (David Gilbert)

“Open Book” charters for eBay

What item for sale is nearest to you location?
Submitted the most and sold the least?
What item appears most with no bids?
What are the most recent items posted for any given category?
Which category has the most items?
Which search strings create null queries?
What are 3 examples of broad queries vs 3 examples of ambiguous queries?
What queries create invalid results?
How do you find "sold" items?
What is the most common item?
What is the most bizarre item?
What is the most expensive item?
Is it possible to restrict results to one category without the categories field?
Which seller has listed the most items which have not sold?
What search string takes the longest to return results?
Is there a search that works differently on different browsers?
What was the highest bid for an item in support of any charity?
Find an item that the seller has no business selling!
Find an item you find only on eBay, not Amazon.
What item could you find that had the most bids?
How many eBay stores are there?
What is the oldest object (not item) for sale on ebay?
Are results different if you are logged in?
Try a search on ebay.com and then try the same on on your mobile. What are the 3 major differences?
What item has the greatest difference between the highest and second highest bids?
What user has bid the most but won the least?
What item has been on eBay the longest? Is there a way to tell the age of the item ID?
Who has sold the most items?
Is there a way to find the most commonly misspelled item?
What item can be found in the most categories?

Testing ourselves

Chartering is an opportunity for testers and managers to cultivate and improve testing skill:

How did you arrive at that answer?

What did you see along the way?

Was there anything confusing about the questions?

Any riffs off of questions?

What test ideas did others have with the same question?

What managers might ask

How did you spend your time?

What did you find?

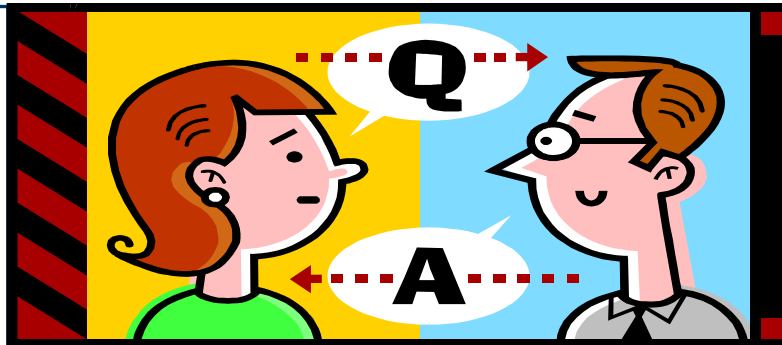
Did you need some help / tools?

Do you think there's more to do here?

Was this charter reasonable?

Agenda: "PROOF"

Past
Results
Obstacles
Outlook
Feelings



What to document

	Historical Explorer	Tester
Observations (To the degree you think they are relevant to stakeholders)	<ul style="list-style-type: none">• drawings of flora / fauna• descriptions of indigenous people• landmarks	<ul style="list-style-type: none">• feature model• text from log files• text from dialogs
Conjectures (Inferences based on experiences. After I test, I think I know something)	<ul style="list-style-type: none">• what is this thing?• where should we go today?• how do we get there?• new orders from HQ?• are those people hostile?	<ul style="list-style-type: none">• test ideas• questions• product and project issues• concerns• risks
Project information (Independent of observer)	<ul style="list-style-type: none">• mission• supplies and staff• latitude / longitude• death and disease• supply status	<ul style="list-style-type: none">• charter• test actions• config info• build details• tools used

Testing **is** journalism

It involves consulting sources, references, oracles -- and taking notes about those details.

It requires communication to an audience who wants information and who will either scrutinize or trust your report.

It involves a story formed by following up on rumors, tips, leads, conjectures, and questions – in pursuit of the truth.

When I was 10, Dad said...

Every story is this simple:



Somebody wants something...

Something stands in their way...

This is what they do about it...

Story Elements (Testing)

Characters <i>(Somebody)</i>	<i>Testers Customers Stakeholders</i>
Purpose <i>(Wants something)</i>	<i>"How stable are these new features?" "I want to print all of my recipes." "Try to repro this bug."</i>
Conflict <i>(Something's in the way)</i>	<i>Limited budget and time "How does this thing work?" "We have yet to run <these> tests."</i>
Actions <i>(What was done about it)</i>	<i>Risks exposed Techniques used Features covered</i>

Key Idea

**Agility is about the freedom
to create, learn, and adapt,
as we get fast feedback.**

[Responding to change
over following a plan]

Key Idea

**Exploratory testing is about
the freedom
to discover, learn, and adapt,
while delivering fast feedback.**

Conclusion

*There is structure and purpose in exploration ...
know how to identify it.*

- Management Method: Session-Based tests
- Chartering Method: Open-Book Testing
- Idea Method: Heuristic Test Strategy Model
- Technique inventory: stress, flow, risk, claims, etc...

“I want you to test this...”

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Product	Price	Discount
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[Verizon](#)

AdChoice