

salesforce

# Quality Assurance and Testing

Troy Sornson, LMTS  
[troy.sornson@salesforce.com](mailto:troy.sornson@salesforce.com)



# Agenda

- About Me
- What is Quality?
- What is the value of Testing?
- Q3 Testing
- Other Testing Considerations



# About Me



**Troy Sornson**

[troy.sornson@salesforce.com](mailto:troy.sornson@salesforce.com)

- With Salesforce for 8 years
- Lead Member of Technical Staff
- Attended Mines 2010-2015
  - Received BS in Applied Mathematics
  - MS in Computer Science from Mines
- I like to program :)



# About Salesforce



- Founded in 1999
- Founded the SaaS business model
- Started with Customer Relationship Management (CRM) software
- Now does everything else a business needs
- Salesforce is *BIG*



# Salesforce Company Values



1. *Trust*
2. *Customer Success*
3. Innovation
4. Equality
5. Sustainability



# What is Quality?



# What is Quality?



- Solves the Customer's Problem (as determined by the customer)
- Does Not Break the Customer's Existing Flows (no unexpected surprises)
- Well Tested Code (high code coverage, edge cases, etc.)
- Readable and easy to follow
- Well Documented



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# What is Quality?



LATEST: 10.17 UPDATE

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**CHANGES IN VERSION 10.17:**  
THE CPU NO LONGER OVERHEATS  
WHEN YOU HOLD DOWN SPACEBAR.

---

COMMENTS:

**LONGTIMEUSER4** WRITES:  
THIS UPDATE BROKE MY WORKFLOW!  
MY CONTROL KEY IS HARD TO REACH,  
SO I HOLD SPACEBAR INSTEAD, AND I  
CONFIGURED EMACS TO INTERPRET A  
RAPID TEMPERATURE RISE AS "CONTROL".

**ADMIN** WRITES:  
THAT'S HORRIFYING.

**LONGTIMEUSER4** WRITES:  
LOOK, MY SETUP WORKS FOR ME.  
JUST ADD AN OPTION TO REENABLE  
SPACEBAR HEATING.

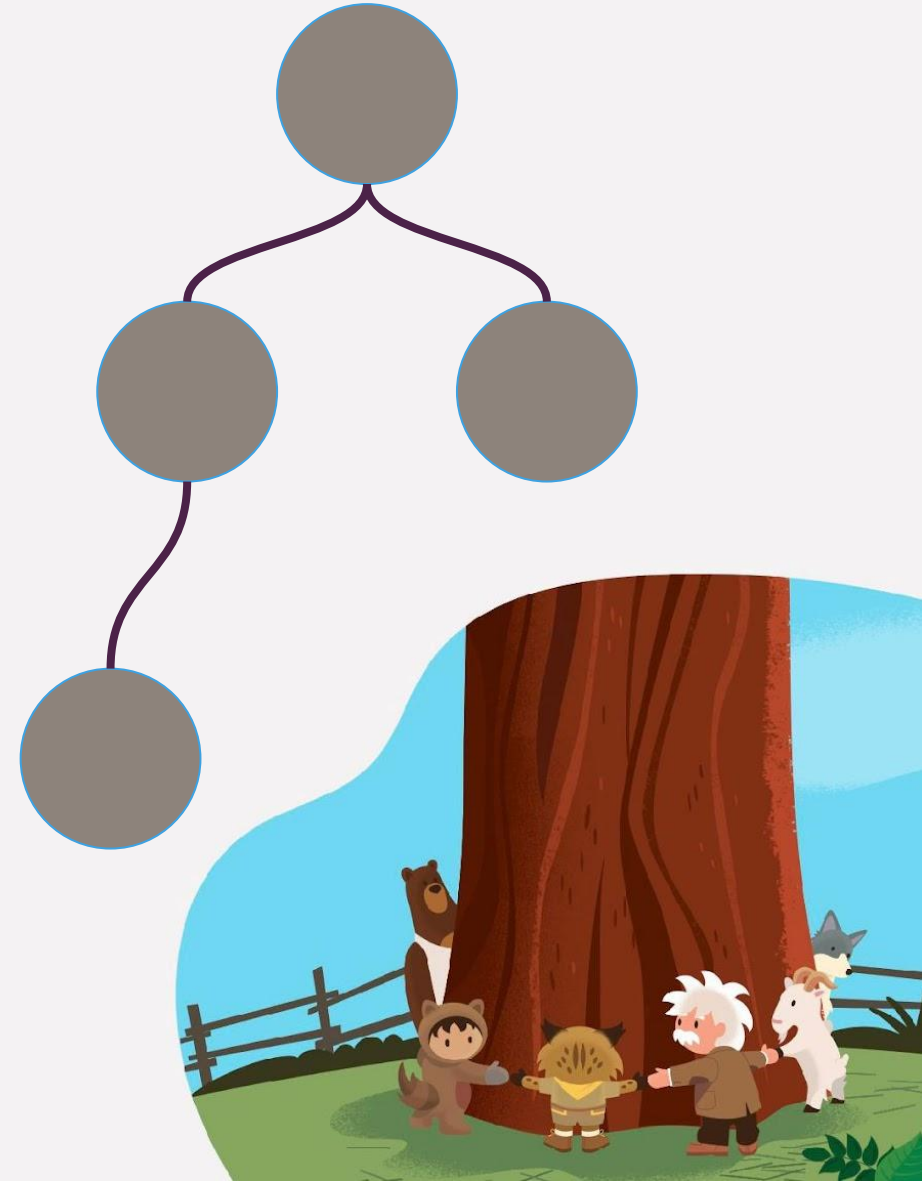
EVERY CHANGE BREAKS SOMEONE'S WORKFLOW.



# What is Quality?



- Salesforce adheres to not breaking customers
- Environment Hub - One Org to Manage Other Orgs
- Found a customer using a bug to build a business model
- We supported the bug (at least for awhile)



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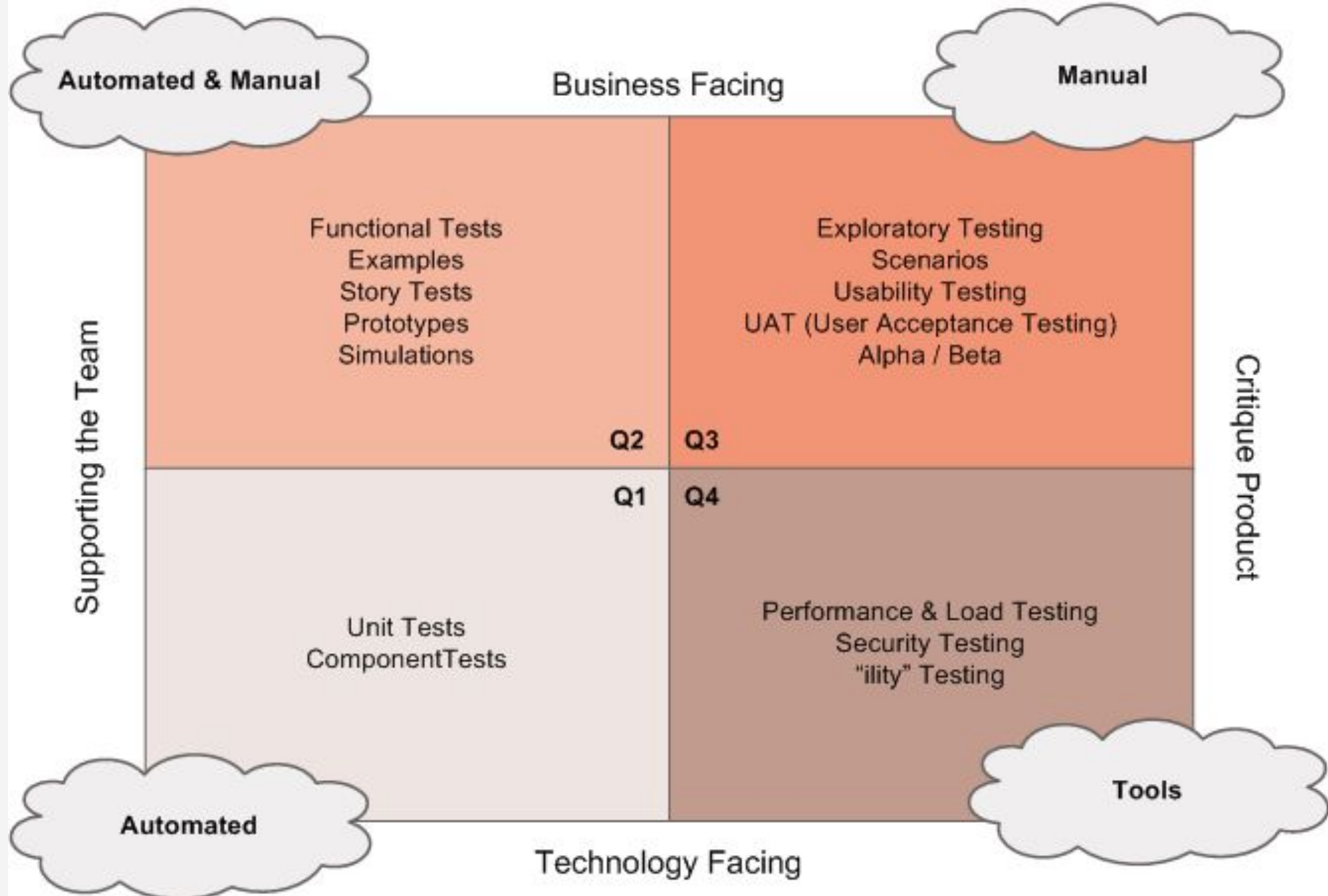
# What is the Value of Testing?



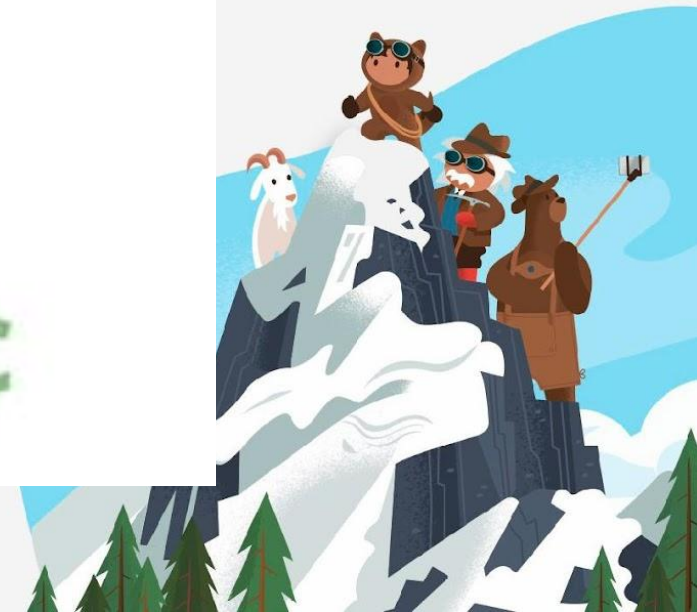
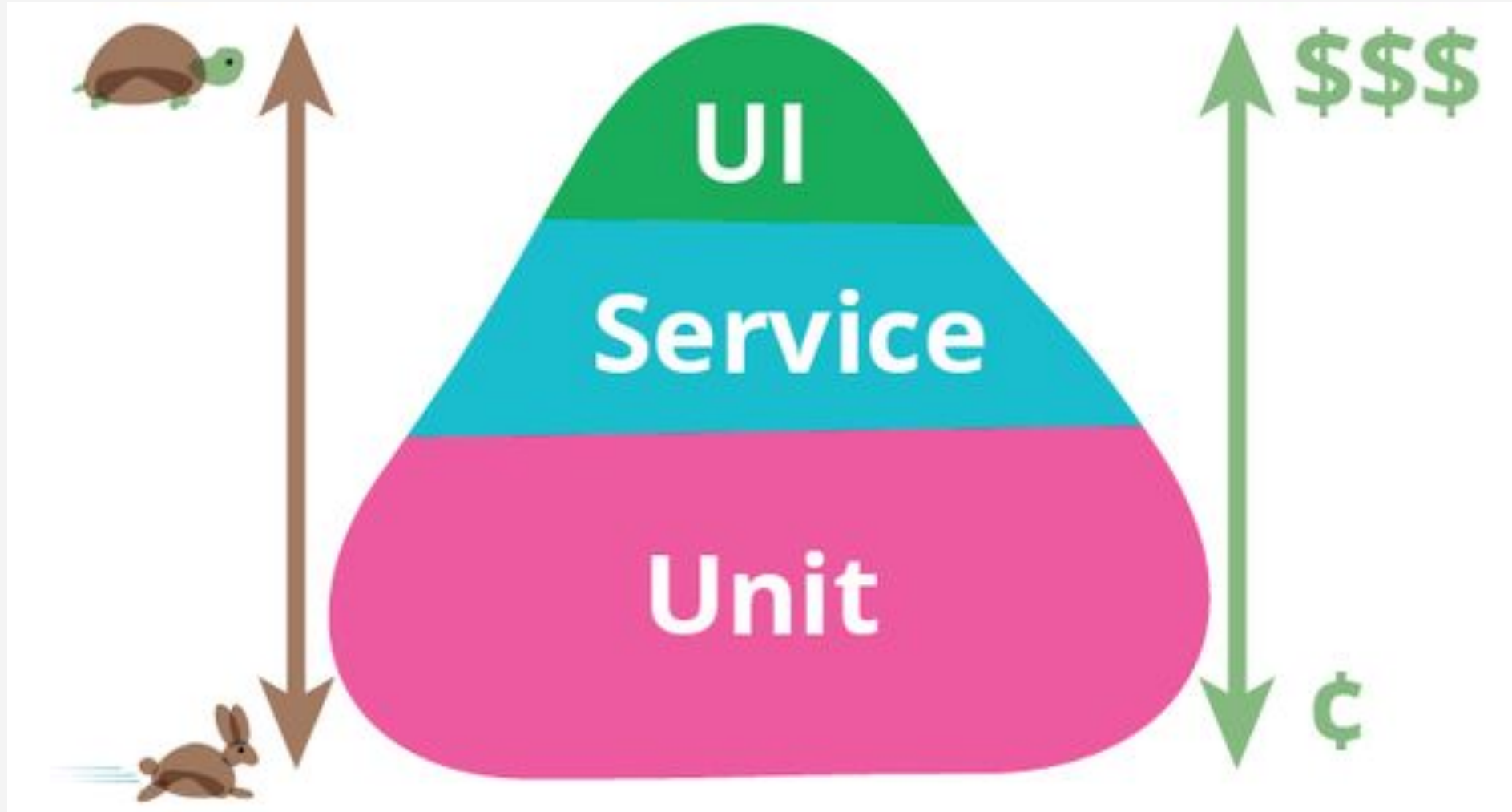
- Verifying Assumptions
  - New functionality does what it should
  - Existing functionality continues to work
- Different people have different assumptions
- Past you and future you have different assumptions
- Codified and Automated
- Experimental and Manual



# Agile Testing Quadrants



# What is the Value of Testing?



# What is the Value of Testing?

- Arrange
  - What set of assumptions do you make going into the test?
- Act
  - Perform the thing being tested
- Assert
  - Did things go according to expectations?



# What is the Value of Testing? (Unit Testing)



```
@BeforeEach
public void setup() {
    context = createUserContext("Troy");
}

@Test
public void testUsername() {
    ContextManager.establishRequestContext(context);

    assertEquals("Troy", RequestContext.getUsername());
}
```

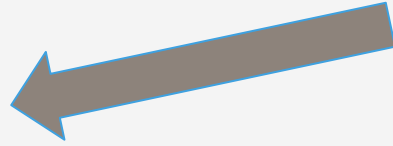




# What is the Value of Testing? (Unit Testing)

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@BeforeEach  
public void setup() {  
    context = createUserContext("Troy");  
}
```

**Arrange**

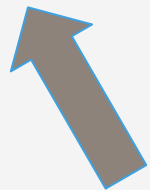


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@Test  
public void testUsername() {  
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**Act**



**Assert**



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**Don't Test Your Mocks!**

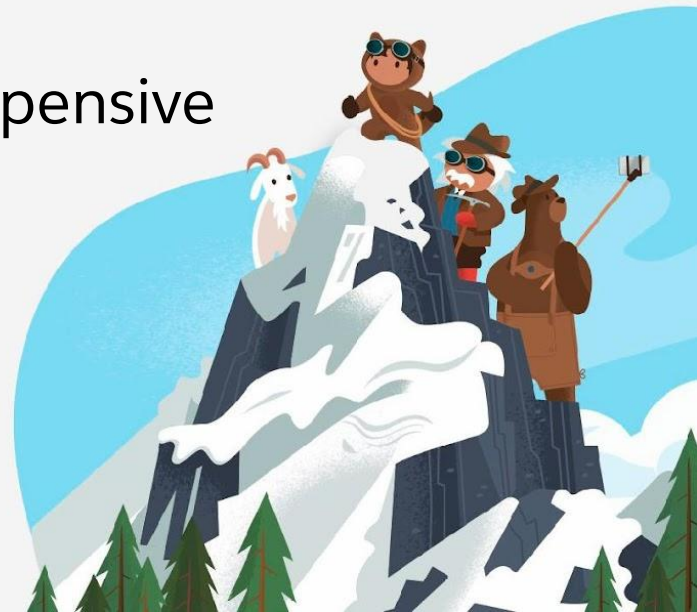


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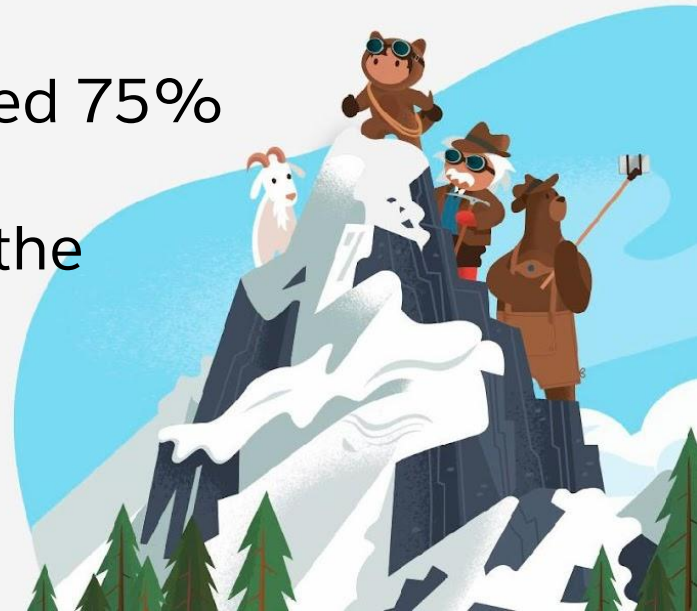
# What is the Value of Testing? (Functional Tests)

- More Comprehensive
- Usually Scoped to a single “Service”
- More Expensive
- What does a Functional Test failing mean?
  - *Something* broke or changed
  - Amount of code covered by the test makes triaging expensive



# What is the Value of Testing? (Functional Tests)

- A Failing test is not necessarily a Broken Product
  - The test asserts *some* assumption is failing
  - Is that assumption still valid?
- Documentation and Code Comments helps figure that out
- 100% of bugs come from Developers
- Twitter (Sorry, Xtwitter) became *stable* after Elon Musk fired 75% of staff
  - It then became unstable after he tried to fire 75% of the running services



# Q3 Testing

- Human Oriented Testing
- True End-to-End Testing
- Scenario
- User Acceptance Criteria
- Exploratory
- Destructive in Nature



# Q3 Testing



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# Q3 Testing (Test Plan)

- Category
- Test Name
- Setup
- Test
- Expected Outcome





# Q3 Testing



Category	Test Name	Setup	Test	Expectations
Login	User can log in	New browser tab (Chrome), logged out of the website	Enter in username "username", enter in password "password", click "log in" button	Brought to the home page for the user
Login	User can view their user profile	User is logged in browser tab (Chrome), for user "username"	Click on user picture in upper right hand corner of screen	Page loads, displays first name as "User" and last name as "Name"



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Thank goodness for our Q3 engineers!



# Other Testing Considerations

- Near Infinite Ways to Test and Validate Software
- Writing testable code is different than writing regular code
  - Sometimes expose internal methods / data
  - Be able to set certain data from the outside
- Minimize testing in production
- Try to avoid adding test-only code to production code



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- Writing testable code is different than writing regular code
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  - Be able to set certain data from the outside
- Minimize testing in production
- Try to avoid adding test-only code to production code
- Don't Be Knight Capital





Thank  
You

BLAZE  
YOUR  
TRAIL

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