

# Behaviour-Driven Development

*– it's not about the tools*

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# What do I do?

*Delivering software*

*Build automation*

*Test automation*

*Deployment automation*

*Implementing software*

*Test-Driven Development, TDD*

*Behaviour-Driven Development, BDD*

*Clean and maintainable code*

*Mentoring and teaching*

*DevOps*

*Developers*

*What ever is needed*

*Testers*

*Behaviour-Driven Development*

*Test automation*

Definition of done

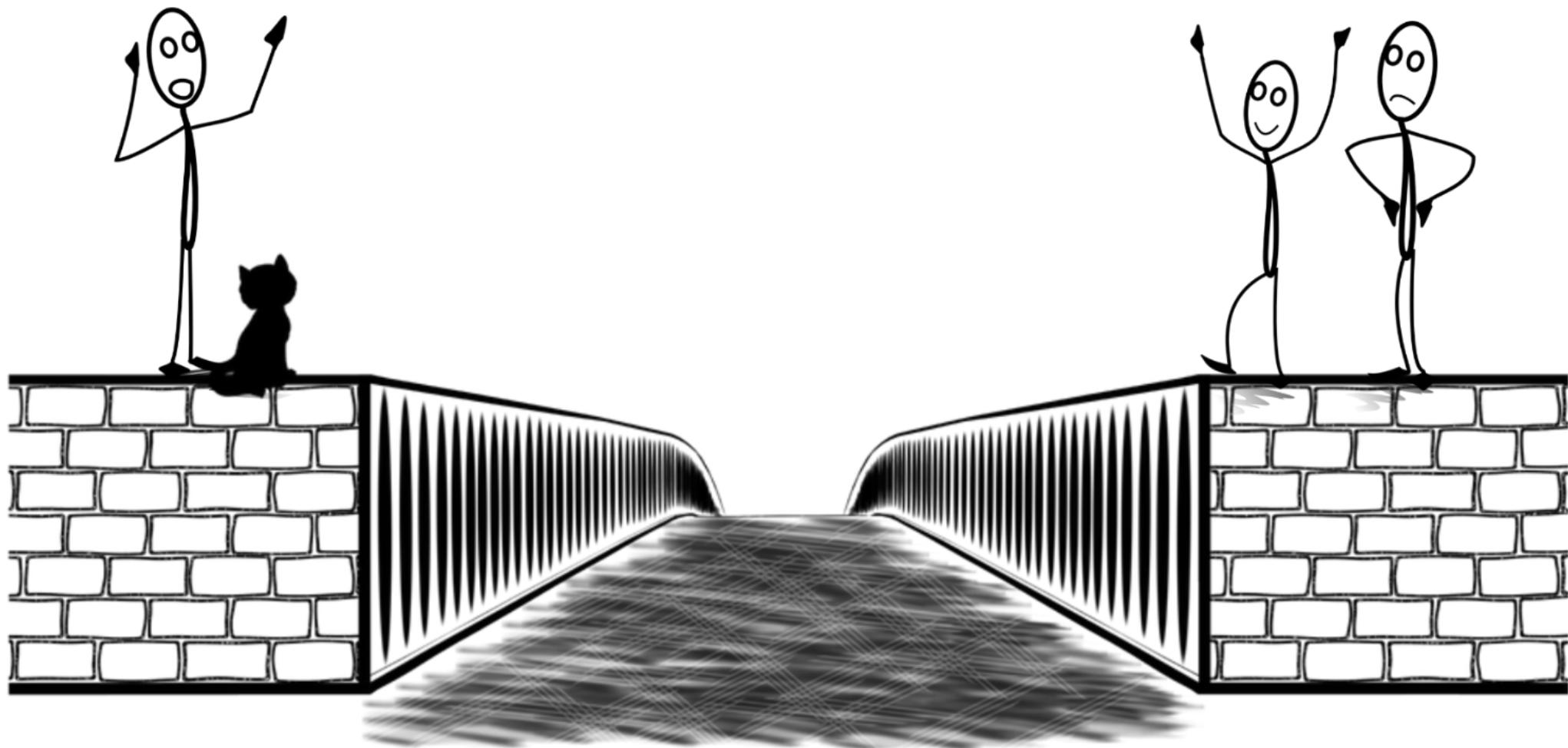
**Working software, in production.**

*Used by real users.*



As an industry

**We have a problem!**



# We don't understand each other!

*Or we can't hear each other*

*Or we don't care...*

# Goal

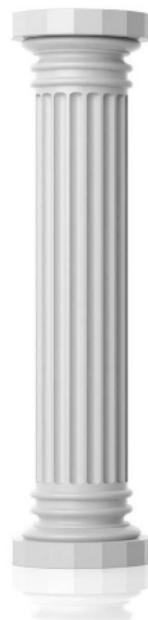
Understand what to build

Implement it with confidence

Make it available to our users

# Behaviour-Driven Development, BDD

Conversations



Concrete  
examples

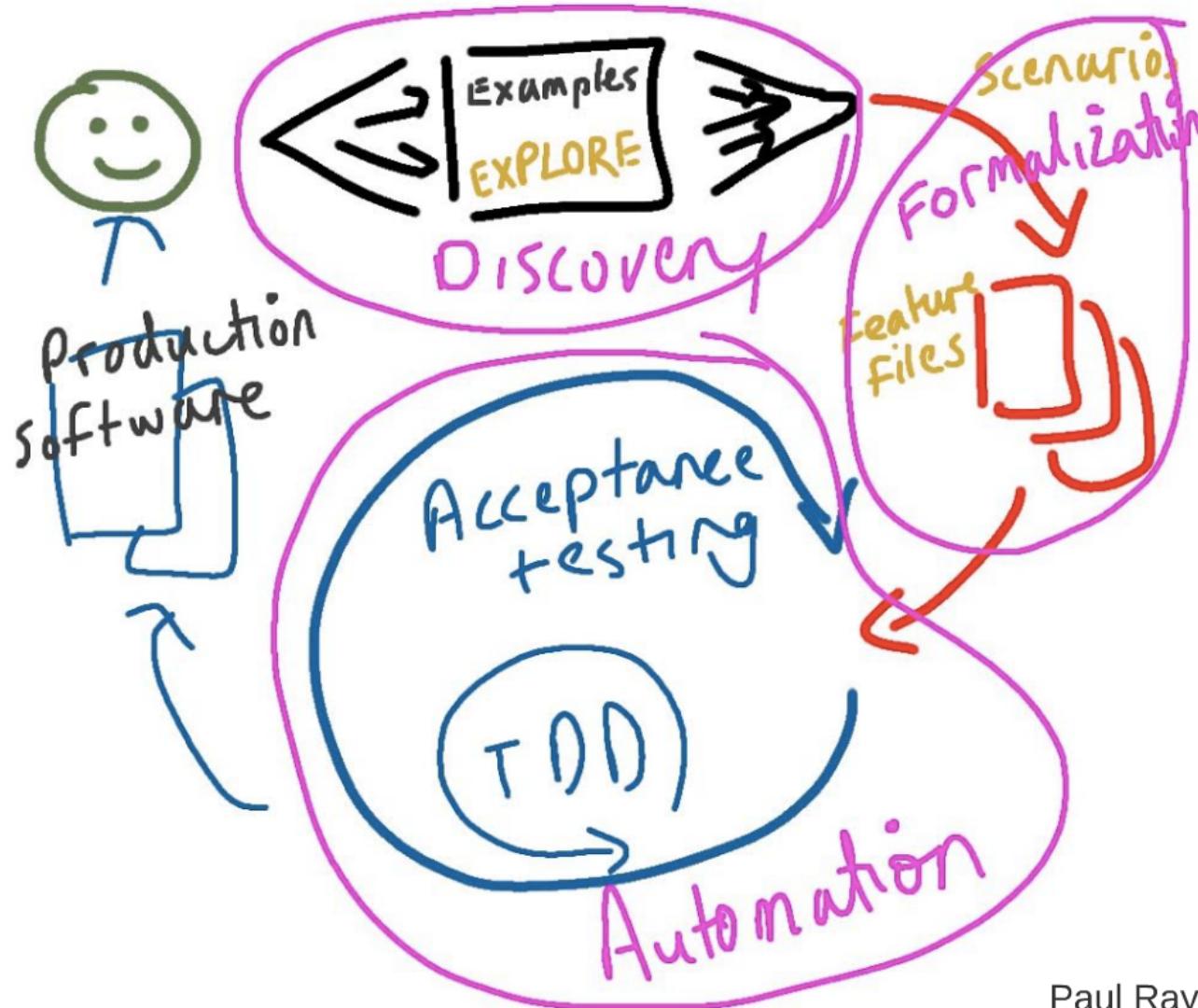


Automated  
acceptance  
tests

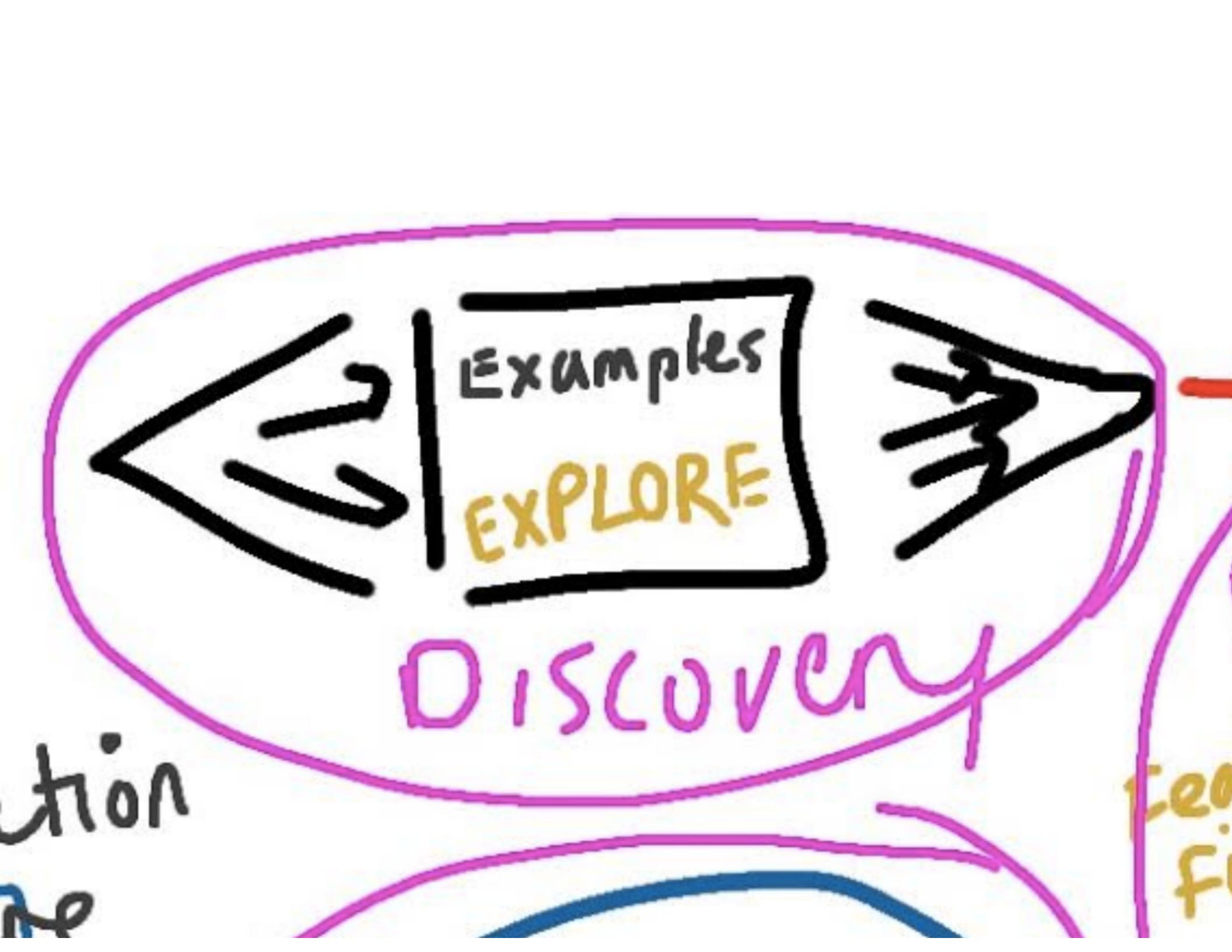


Code





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Examples

EXPLORE

Discovery

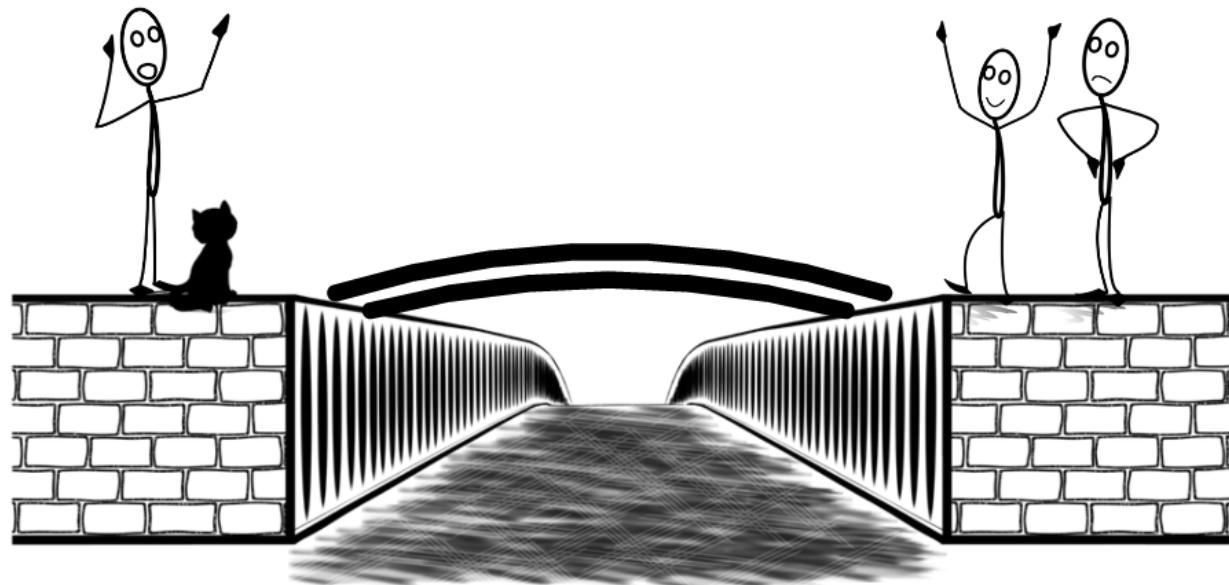
# Discovery

Collaboration

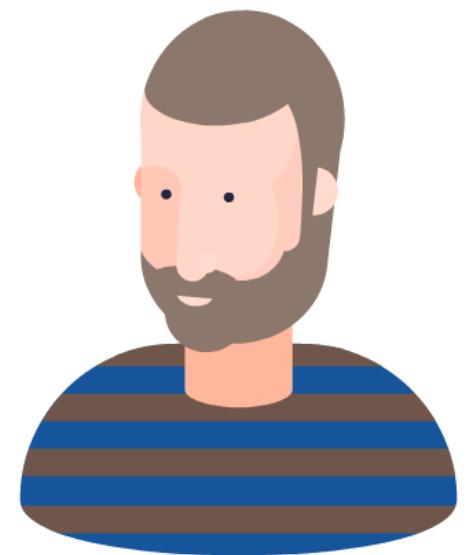
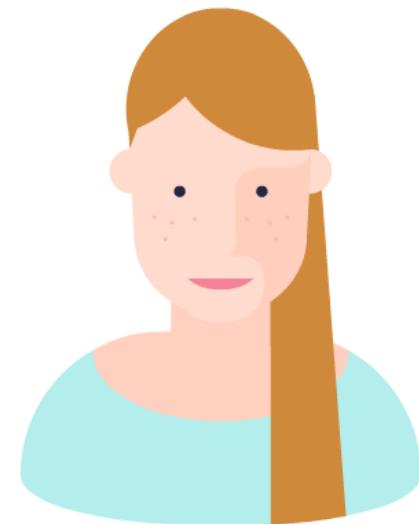
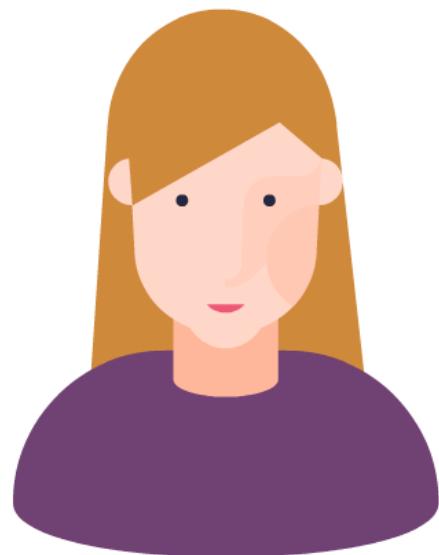
Structured conversations

Shared understanding

# Shared understanding



# Three amigos



Term coined by George Dinwiddie



Can you give me  
an example?

Can you give me  
an example?

**Developer or Tester**

known

unknown

known

unknown

known

known

unknown

known

known

unknown

unknown

unknown

*Traditional / Specifications*

**Business analyst**

EXAMPLE  
MAPPING



Story

Rule

Example

The one where...

Rule

Example

The one where...

Rule

Example

The one where...

Example

The one where...

Question

Question

Question

# The anatomy of an example map

Story

As VIP customer  
I should get free shipping  
when I order five books

Goal

Rules

Free shipping only  
applies for books

Scope

Examples

VIP customer orders six  
books  
get free shipping

Understanding

VIP order 4 books  
==> no free shipping

Questions

Customer order 5 books  
and a magazine.  
Is it free shipping?

New knowledge



5 or more books have to be ordered

The client has to be VIP.

Free shipping only by Poczta Polska.

4 books ordered by VIP  $\Rightarrow$   
no free shipping.

5 books ordered by NO VIP  
no free shipping

5 other items than books in the basket ordered by VIP  
 $\rightarrow$  no free shipping

5 books ordered by VIP  $\rightarrow$   
free shipping allowed

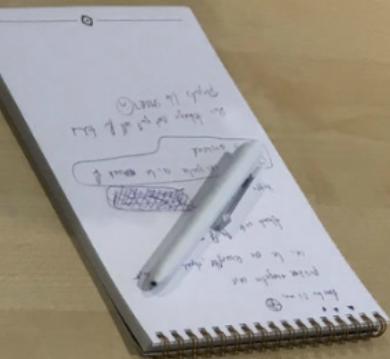
Free shipping books for VIPs.

What if there is something else in the basket?

5 books ordered by VIP  
other shipping method selected (than PP)  
 $\rightarrow$  no free shipping

What about shipping abroad?

Are discounted books included?



# Concrete examples

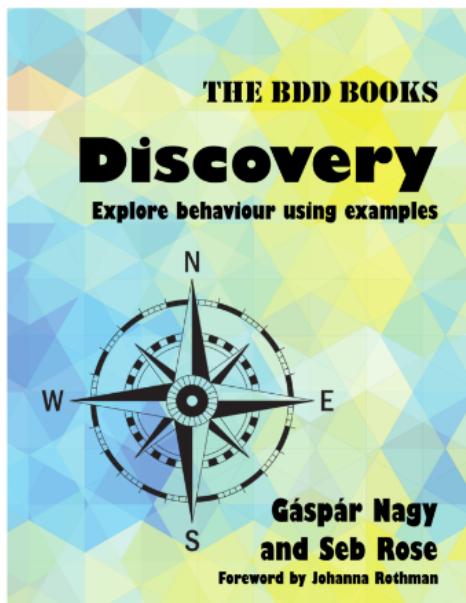
# Concrete examples

The one where Thomas remembers  
to buy food for the cats

# Stakeholders



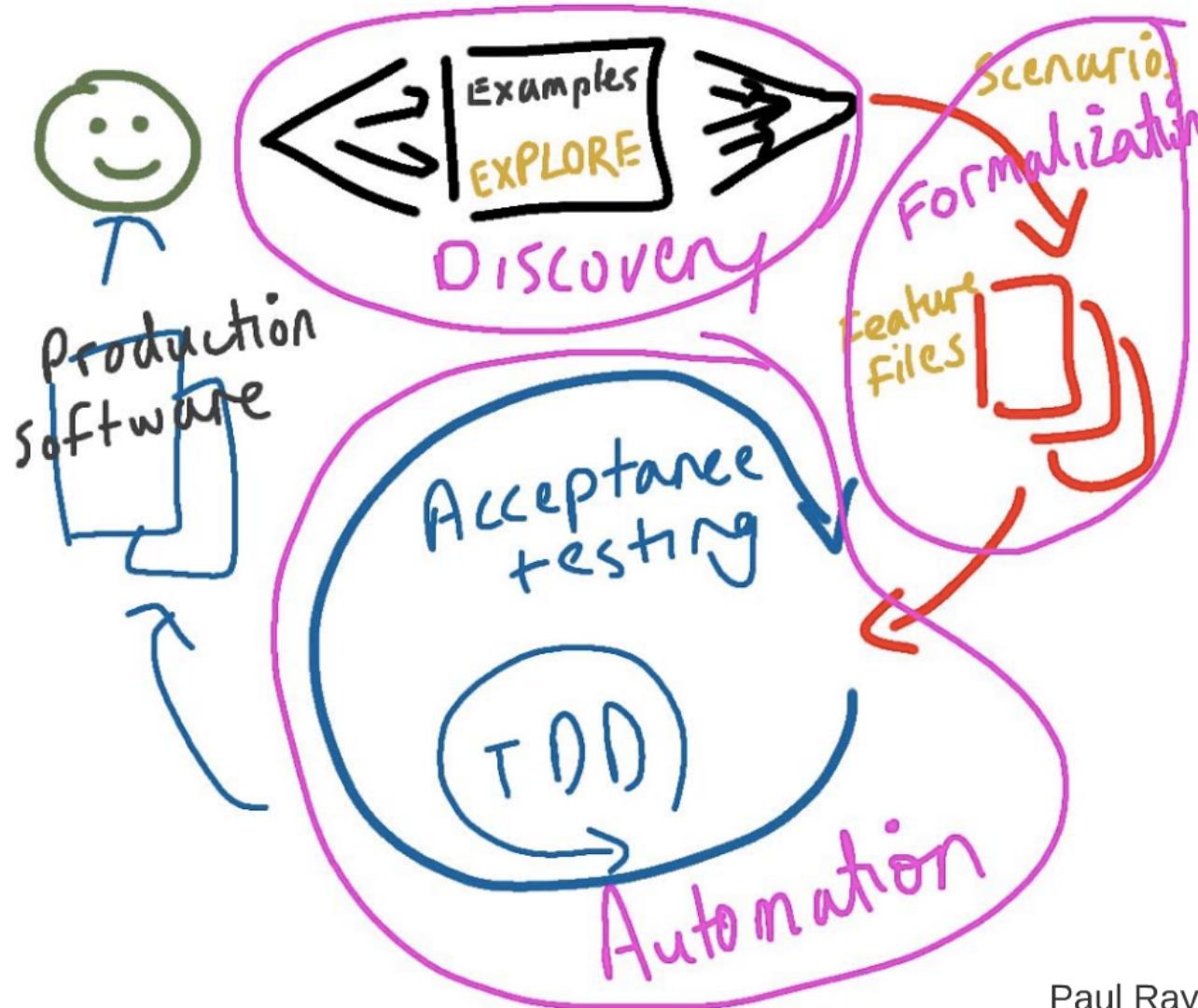
# Resources for Example Mapping



<https://leanpub.com/bddbooks-discovery>



<https://cucumber.io/blog/2015/12/08/example-mapping-introduction>



Paul Rayner (@thepaulrayner)



# Formulation

The one where Thomas remembers to buy food for the cats



**Scenario:** Thomas must remember to buy cat food

**Given** we are out of food for the cats

**When** Thomas writes a note about buying cat food

**Then** should his todo list contain buy cat food

This can be implemented as:

```
void should_remember_to_buy_cat_food() {  
    todoList todoList = new TodoList();  
    todoList.addTask("Thomas", "buy cat food");  
  
    List<String> actualTasks = todoList.getTasks("Thomas");  
  
    assertThat(actualTasks).contains("buy cat food");
```

Can you have a meaningful discussion  
about this in your **entire** team?

*Including your product owner and tester...?*

# Behaviour-Driven Development, BDD

Conversations

Automated acceptance tests

Concrete examples

Code

Most valuable

Easier



It's the conversations that matters - not the tools  
Lisa Crispin

mples

Code



ole

Easier

It's the conversations that matters - not the tools  
Lisa Crispin

Automated acceptance tests

Code



Easier

conversations that matters - not the tools

# An example would be handy

Feature: Handle notes

Users want to save notes easily

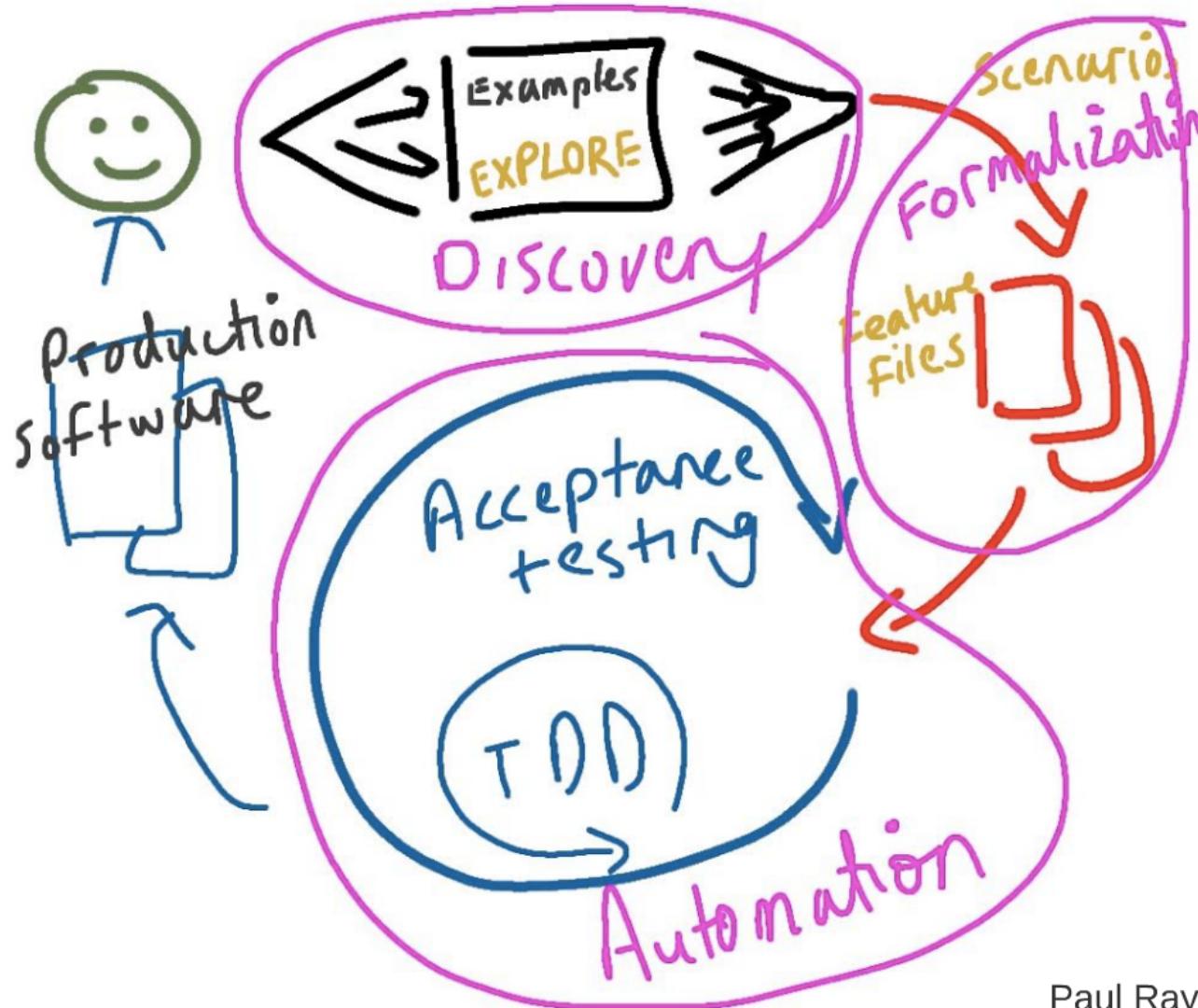
Notes should be saved automatically

Scenario: Thomas must remember to buy cat food

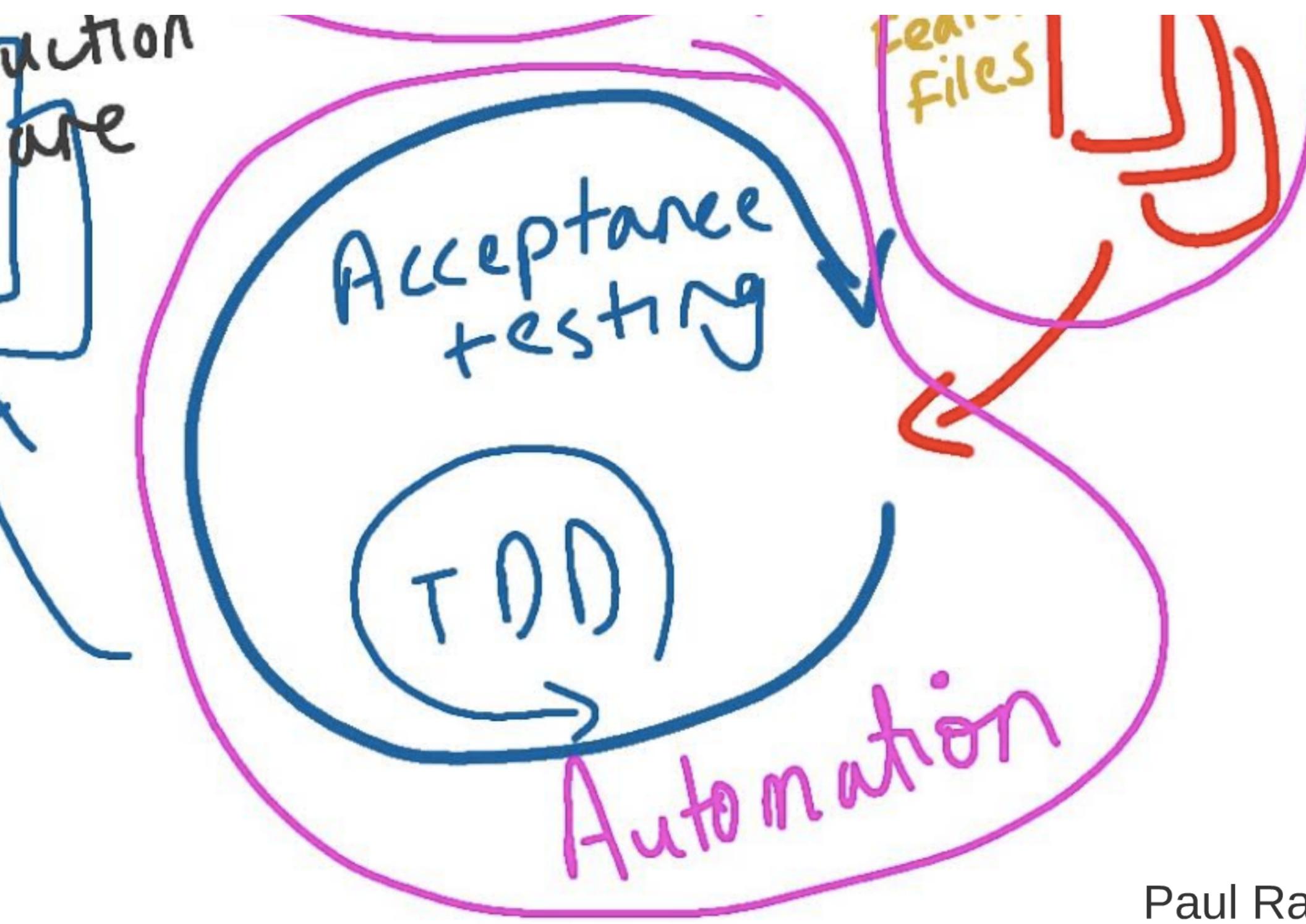
Given we are out of food for the cats

When Thomas writes a note about buying cat food

Then should his todo list contain buy cat food



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Paul Ra

# Demonstration

# Gherkin

Feature: Handle notes

Users want to save notes easily  
Notes should be saved automatically

Scenario: Thomas must remember to buy cat food  
Given we are out of food for the cats  
When Thomas writes a note about buying cat food  
Then should his todo list contain buy cat food



## Steps



```
package se.thinkcode.notes;

import io.cucumber.java.en.Given;
import io.cucumber.java.en.Then;
import io.cucumber.java.en.When;

import java.util.List;

import static org.junit.Assert.assertEquals;
import static org.junit.Assert.assertTrue;

public class NotesStep {
    private Memory memory;

    @Given("we are out of food for the cats")
    public void write_out_of_food_for_the_cats() {
        memory = new Memory();
        memory.saveNote();
    }

    @When("Thomas writes a note about buying cat food")
    public void thomas_writes_a_note_about_buying_cat_food() {
        Note note = new Note("Buy cat food");
        memory.saveNote(note);
    }

    @Then("should his todo list contain buy cat food")
    public void should_his_todo_list_contain_buy_cat_food() {
        Note expected = new Note("Buy cat food");

        List<Note> notes = memory.getNotes();
        assertEquals(notes, expected);
    }
}
```



## Application



```
package se.thinkcode.notes;

import java.util.ArrayList;
import java.util.List;

public class Memory {
    private List<Note> notes = new ArrayList<>();

    public void save(Note note) {
        notes.add(note);
    }

    public List<Note> getNotes() {
        return notes;
    }
}
```

```
package se.thinkcode.notes;

import java.util.Objects;

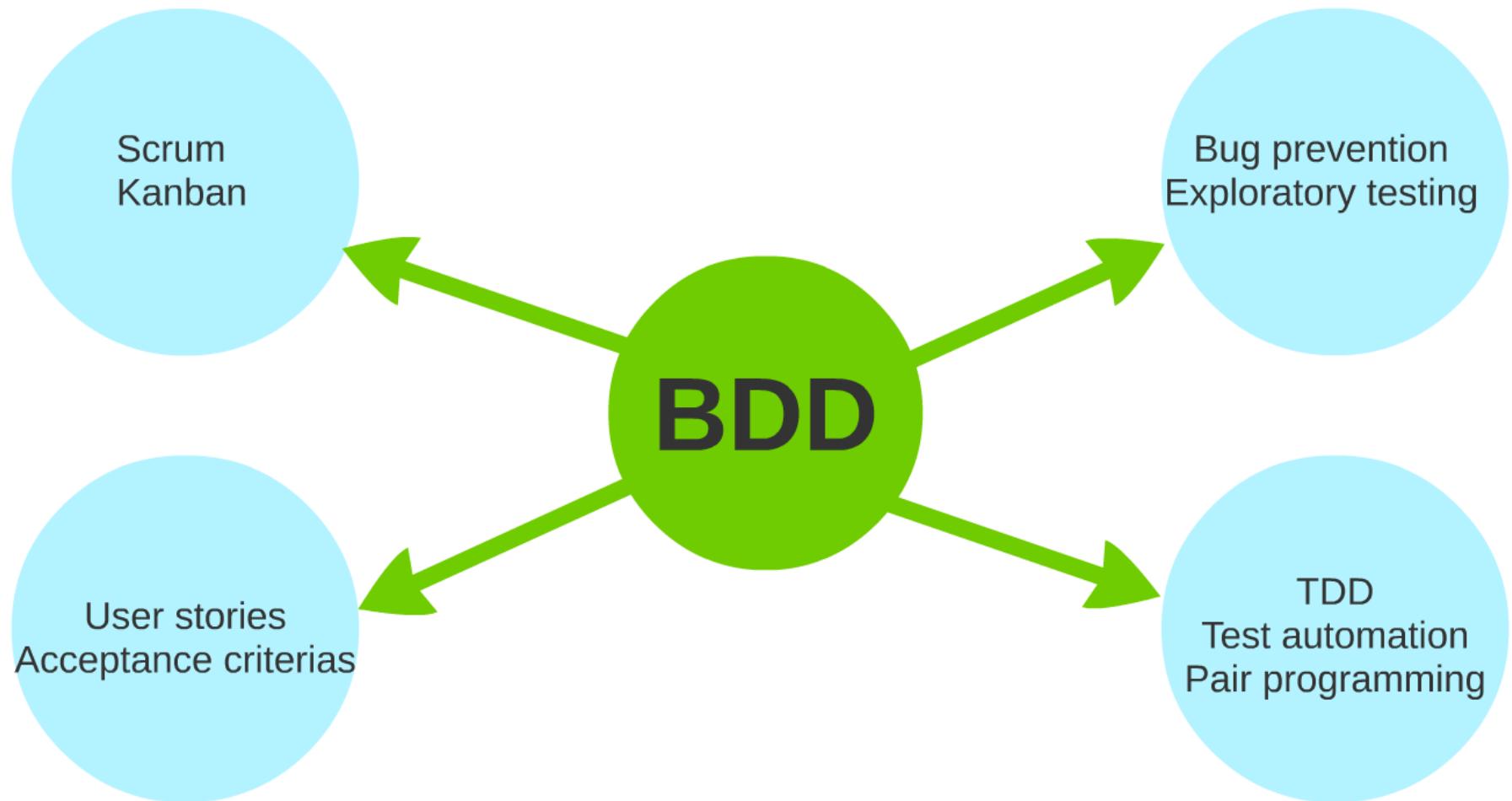
public class Note {
    private String task;

    public Note(String task) {
        this.task = task;
    }

    @Override
    public boolean equals(Object o) {
        if (this == o) return true;
        if (o == null || getClass() != o.getClass()) return false;
        Note note = (Note) o;
        return Objects.equals(task, note.task);
    }

    @Override
    public int hashCode() {
        return Objects.hash(task);
    }
}
```

## BDD supports software development with a hands on approach



# Conclusion

*Behaviour-Driven Development, BDD, is:*

A tool for communication



Test automation



Living documentation

example: <https://github.com/ThinkCodeAB/bdd-its-not-about-the>

# Behaviour-Driven Development

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## Resources:

The example:

<https://github.com/ThinkCodeAB/bdd-its-not-about-the-tools>

# Behaviour-Driven Development

## Interested in a BDD Kickstart?

### Stockholm, November

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