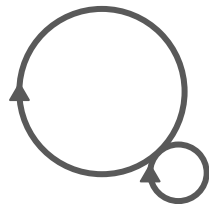


Behaviour-driven development

without tools



Marko Bjelac

softwaresauna 

Introduction to BDD

Dan North & Associates Limited

Introducing BDD

20 Sep 2006

“Behaviour” is a more useful word than “test”

JBehave emphasizes behaviour over testing

tool 🤔



<https://dannorth.net/introducing-bdd/>

Introduction to BDD

Title: Customer withdraws cash**

As a customer,
I want to withdraw cash from an ATM,
so that I don't have to wait in line at the bank.

Scenario: Account is in credit

Given the account is in credit
And the card is valid
And the dispenser contains cash
When the customer requests cash
Then ensure the account is debited
And ensure cash is dispensed
And ensure the card is returned



The BDD process

Discovery

Formulation

Automation

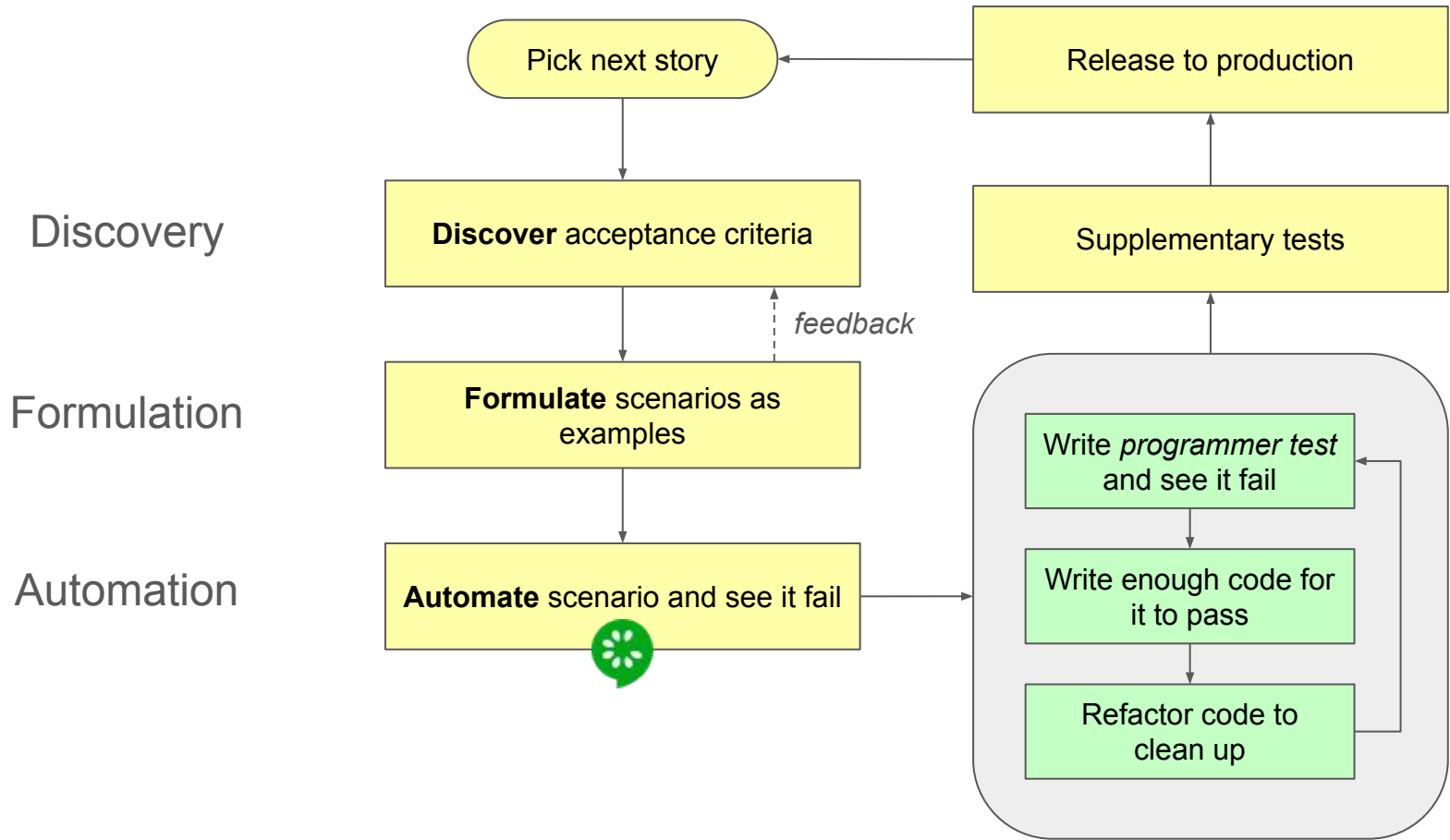


The BDD Books

Seb Rose

Gáspár Nagy

The BDD process



Meanwhile, in the real world...

Project type: **Web app (FE, BE, DB, etc.)**

Project age: **5 yr**

Features: **≈500**

Active TDD: **5 yr**

Active BDD: **≈1 yr**

Test count: **6K+**

Test coverage (%): **90+**

Lines test/prod: **≈3**

Team size: **3**

Collaboration type: **Mob programming**

Formulation

Feature #402

*Notify nurse(s) when
report has been delivered*



bdd-402.txt

#1 no notification emails sent when no sending enabled in hospital settings
when measurement completed
then no emails sent

#2 notification emails sent to initiating nurse when enabled in hospital settings
given data officer enables sending notification to initiating nurse
when measurement completed
then email sent to initiating nurse

#3 notification emails sent to all hospital nurses when enabled in hospital settings
given data officer enables sending notification to hospital
when measurement completed
then email sent to all hospital nurses

#4 delivery does not fail when sending notification fails
given data officer enables sending notification to hospital
given sending fails
when measurement completed
then measurement completed successfully

no tools



... just



bdd-402.txt

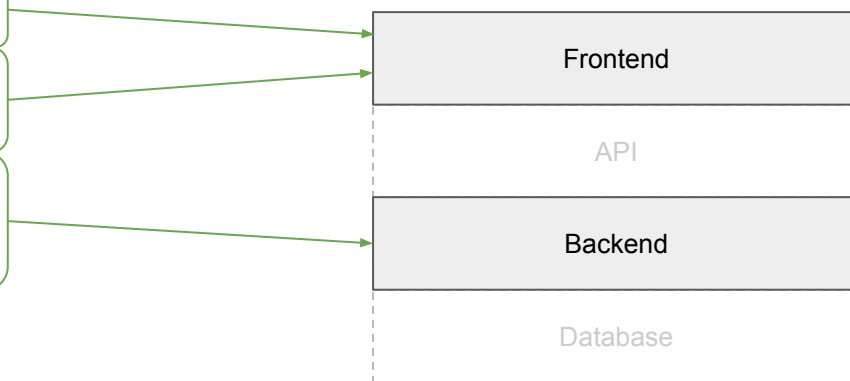
#2 notification emails sent to initiating nurse when enabled in hospital settings

given data officer enables sending notification to initiating nurse

when measurement completed

then email sent to initiating nurse

- storybook
 - hospital nurse settings
- testbed
 - initialize existing settings
 - modify & submit settings
- acceptance
 - update hospital details
 - chain doctor finishes analysis
 - DO closes analysis



Automation 2/2: Test-drive ...also use GWT steps for readability

- acceptance
 - D0 closes analysis

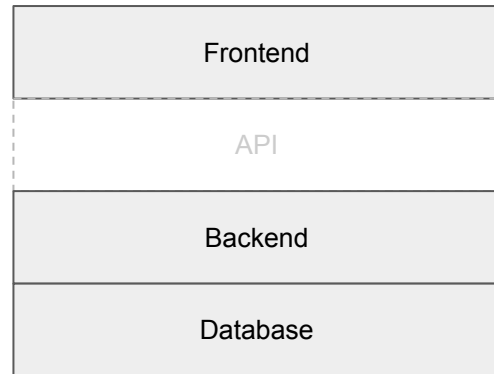
@Test

```
fun `notification sent when initiating nurse enabled in hospital settings #402-2`() {  
    steps.apply {  
        givenDataOfficerEnablesNotificationToInitiatingNurse()  
        givenMeasurementReadyForPostAnalysis()  
        whenCloseAnalysis()  
        thenNotificationSent()  
    }  
}
```

- testbed
 - initialize existing settings

```
it("nurse report delivery notification settings are initialized #402-2", () => {  
    steps  
        .givenDataOfficerLoggedIn()  
        .givenHospital()  
        .givenNurseSettings()  
        .givenNavigateToHospitalList()  
        .whenNavigateToEditHospital()  
        .thenNurseReportDeliveryNotificationSettingsDisplayed();  
});
```

List of tests for a single example



Occurrences of '#402-2' x

Targets

Occurrences of '#402-2' in Project Files

Found occurrences in Project Files 13 results

m3sys.test 10 results

CloseAnalysisFastAcceptanceTest.kt 1 result

```
19 fun `notification sent when initiating nurse enabled in hospital settings #402-2`() {
```

EditHospitalFastAcceptanceTest.kt 1 result

```
16 fun `store nurse settings #324 #402-2`() {
```

FinishAnalysisFastAcceptanceTest.kt 4 results

```
131 fun `finishing chain measurement sends notification to initiating nurse #402-2`() {
```

```
142 fun `finishing non-chain measurement does not send notification #402-2`() {
```

```
153 fun `skipping chain report sends notification to initiating nurse #402-2`() {
```

```
164 fun `skipping non-chain report does not sends notification #402-2`() {
```

ReportDeliveryNotificationSenderDaoJpaTest.kt 3 results

```
27 fun `get report delivery notification setting #402-2`() {
```

```
38 fun `get initiating nurse email #402-2`() {
```

```
49 fun `get measurement code #402-2`() {
```

ReportDeliveryNotificationSenderTest.kt 1 result

```
97 fun `send only to initiating nurse #402-2`() {
```

ui 3 results

manage-hospitals.spec.ts 2 results

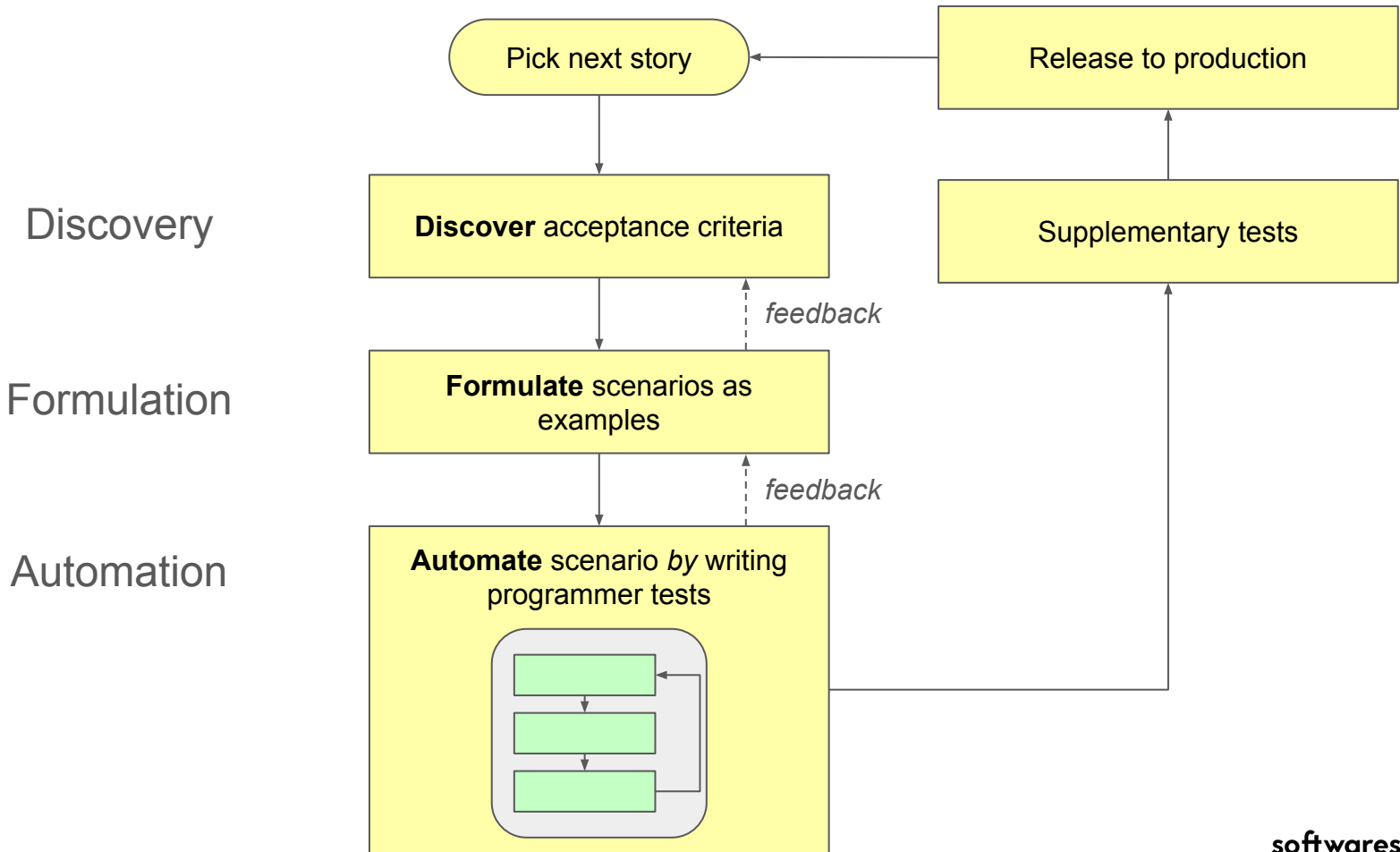
```
268 it("clicking save button updates nurse settings #93 #324 #402-2", discardingFakeAsync() => {
```

```
279 it("nurse report delivery notification settings are initialized #402-2", discardingFakeAsync() => {
```

nurse-settings-section.component.stories.ts 1 result

```
65 export const NotifyReportDeliveryToInitiatingNurse = Template.bind({}); // #402-2
```

Our BDD process



More examples added during implementation

Git Local Changes Shelf Stash Log: HEAD Console x History: bdd-402.txt x + v

Branch: HEAD x ↺ ↻ ↶ ↷ 🔍

mbjelac 06.02.2025., 12:17 ● Fix tests #402 ✓

mbjelac 06.02.2025., 11:24 ● Implement #402

mbjelac 06.02.2025., 09:38 ● Add test #402

mbjelac 05.02.2025., 16:11 ● Implement #402

mbjelac 05.02.2025., 15:38 ● Implement #402

mbjelac 05.02.2025., 15:33 ● Update spec #402

ivana 05.02.2025., 14:38 ● Update spec #402

ivana 05.02.2025., 14:37 ● Implement #402

mbjelac 05.02.2025., 14:12 ● Update spec #402

ivana 05.02.2025., 11:32 ● Update spec #402

ivana 04.02.2025., 15:59 ● Implement #402

ivana 04.02.2025., 15:26 ● Implement #402

mbjelac 04.02.2025., 11:11 ● Add test #402

ivana 03.02.2025., 16:01 ● Update spec #402

ivana 03.02.2025., 15:18 ● Update spec #402

mbjelac 03.02.2025., 13:07 ● Update spec #402

mbjelac 03.02.2025., 12:25 ● Add test #402

mbjelac 03.02.2025., 12:08 ● Add test #402

mbjelac 03.02.2025., 11:50 ● Add spec #402

ivana 03.02.2025., 10:53 ● Add spec #402

↑ ↓ ↻ Unified viewer Do not ignore Highlight words x ⚙ ?

72420922 bdd/bdd-402.txt

cf3f9d01

8 8 then email sent to initiating nurse

9 9

10 10 - acceptance

11 - chain doctor finishes analysis

12 11 - chain doctor skips report generation

13 12 - D0 closes analysis

14 13

15 14 #3 notification emails sent to all hospital nurses when enabled in hospital settings

16 15 given data officer enables sending notification to hospital

17 16 when measurement completed

18 17 then email sent to all hospital nurses

19 18

20 #4 emails to which sending notification failed are visible in action log

19 #4 delivery does not fail when sending notification fails

20 given data officer enables sending notification to hospital

21 given sending fails

22 when measurement completed

23 then measurement completed successfully

24

25

26 #5 attempt to send notifications to all recipients regardless of failures

27 given data officer enables sending notification to hospital

28 given sending to first recipient fails

29 when measurement completed

30 then email sent to all recipients

31

32

33 #6 emails to which sending notification failed are visible in action log

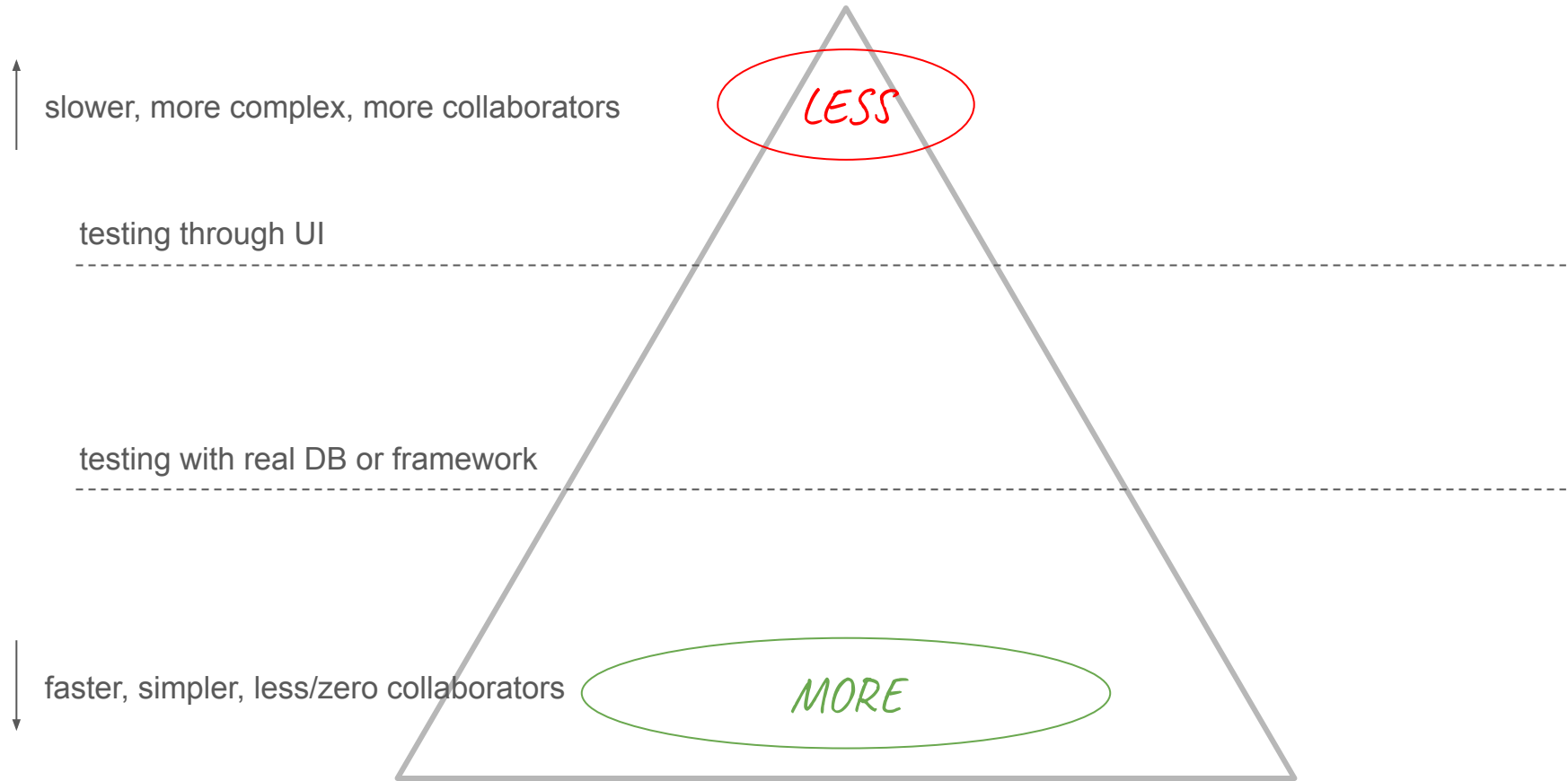
21 34 given data officer enables sending notification to hospital

22 35 given sending fails to some nurse emails

23 36 when measurement completed

24 37 then completion action event contains emails to which sending failed

Test speed



Test speed

Automate scenario and see it fail



Automate scenario by writing programmer tests

testing through UI

automated scenarios

integration

testing with real DB or framework

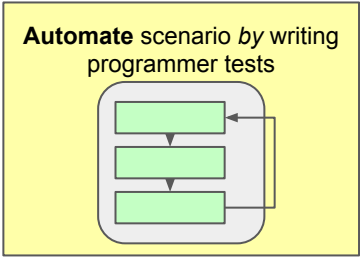
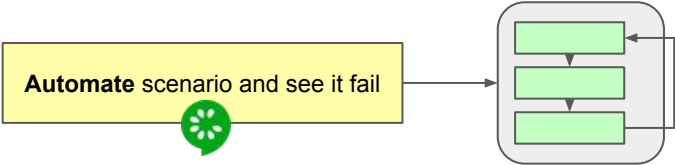
acceptance

programmer tests

"unit"

Test scope:  big  small

Let's compare!



Gherkin (readability, consistency)



High coverage



No new tools (cognitive load)



Fast tests

