

BDD in the Key of Design

Integrating DDD and UXD

Participant Workbook



virtualgenius
leading by design

Opener

Interview someone from a different table group. Write down their answers to the following two questions:

- How does practicing BDD provide increased customer value for a team?
- What is the key skill a team needs to learn to apply BDD well?

Return to your table group and share what you learned in your interviews. What common themes do you notice?

Exercise 1 – UXD using low-fidelity UI mockups to explore a domain

The screenshot shows the 'MY ACCOUNT' section of the Denver Public Library website. It displays user information for Paul A. Rayner, including his library card number, username, and registration details. A summary indicates \$1.45 owed on the account. The 'Fines & Fees' section contains a table of overdue items with columns for Transaction Date, Type, Reason, Title, Amount, and Balance. The table lists four items, each with a \$0.40 or \$0.25 charge. A summary at the bottom shows Charges of \$1.45, Deposits of \$0.00, and Credits of \$0.00.

Transaction Date	Type	Reason	Title	Amount	Balance
1/24/2015	Charge	Overdue Item	The study of counterpoint from Johann Joseph Fux's Gradus ad parnassum	\$0.40	\$0.40
1/24/2015	Charge	Overdue Item	Collective genius : the art and practice of leading innovation	\$0.40	\$0.40
1/24/2015	Charge	Overdue Item	Creativity, Inc. : overcoming the unseen forces that stand in the way of true inspiration	\$0.40	\$0.40
10/19/2013	Charge	Overdue Item	[DELETED] A wizard of earthsea	\$0.25	\$0.25

Charges: \$1.45 Deposits: \$0.00 Credits: \$0.00

The library wants its patrons to be able pay their library fees online via credit card. The current screen is shown above.

Using the draft mockup for Bob below as a starting example, hand-sketch rough UI mockups for the most important steps of the fee payment process. **Use pink sticky notes to capture any assumptions/questions.**

Name: WILLIAMS, BOB
Library Card Number: *****1234

Your account has been deactivated due to unpaid fines. Pay fines below to unblock your card. You cannot check out or renew materials if you have fines or fees totaling \$5 or more, your library account is in "collections" or you have an incorrect address and/or telephone number on your library record.

Info	Transaction Date	Type	Reason	Title	Amount	Balance
i	1/24/2015	Charge	Overdue Item	The study of counterpoint from Johann Joseph Fux's Gradus ad parnassum	\$4.40	\$4.40
i	1/24/2015	Charge	Overdue Item	Collective genius : the art and practice of leading innovation	\$2.40	\$2.40
i	1/24/2015	Charge	Overdue Item	Creativity Inc. : overcoming the unseen forces that stand in the way of true inspiration	\$2.40	\$2.40
i	10/28/2014	Charge	Overdue Item	The Cucumber Book: Behaviour-Driven Development for Testers and Developers	\$0.40	\$0.40
i	11/2/2014	Charge	Overdue Item	Lean UX: Applying Lean Principles to Improve User Experience	\$0.40	\$0.40
i	9/8/2014	Charge	Overdue Item	Domain-driven Design: Tackling Complexity in the Heart of Software	\$0.80	\$0.80
i	10/19/2013	Charge	Overdue Item	[DELETED] A wizard of earthsea	\$2.25	\$2.25

Charges: \$13.05 Deposits: \$0.00 Credits: \$0.00

Pay All Fines & Fees

New button for online fine payment.

How did creating the mockups together then comparing with others support having a *shared understanding of the problem* you are trying to solve?

Collaborative low-fidelity visual design helps uncover assumptions and knowledge gaps. In what ways did you see this?

Exercise 2 – Growing a Ubiquitous Language

One of the developers on your team came up with the following initial Cucumber scenario:

Feature: Process fee payment using FP service

Scenario: Submit to FP credit card payment service

When I send a payment request to FP

Then I should see a successful response

And I should see an empty list of fines and fees

And I should see "Charges: \$0.00 Deposits: \$0.00 Credits: \$0.00"

And I should not see "Library card blocked"

Your team then reviewed it together and came up with the following revised Cucumber scenario:

Feature: Library patron account deactivation and reinstatement following full fee payment

Rules:

- Library card accounts are considered “deactivated” and “reinstated”
- Library patron cards are considered “blocked” because they cannot check out or renew materials.
- The Bob persona applies here because Bob travels a lot and likes to use the library website as much as possible.

Uses 3rd party service (FP), covered elsewhere by integration tests

Scenario: Reinstate deactivated account

Given Bob owes \$13.05 in unpaid fees and fines on his library account

When Bob pays the full amount

Then he should have no fines or fees

And Bob’s library card should be unblocked

And Bob’s account should be reinstated

Compare the two sample scenarios. Which one is easier to understand? What makes it easier to understand?

Underline any business domain terminology in the second sample. How does the presence of this shared language help clarify the intent?

Exercise 3 – Exploring the Domain with Event Storming

Write the following on three yellow sticky notes and arrange them in chronological order, earliest event on the left:

- Library card unblocked
- Full amount paid
- \$13.05 owed in unpaid fees and fines

Working backwards, use sticky notes to tell a story of each significant event that happened in the past that led to this amount being owed. You are building up a shared model of a flow of events through the system. ***Write any assumptions/questions you have on pink sticky notes and add them to your model.***

If you have extra time, try mapping out alternate paths using sticky notes.

Review

How does mapping out events in this way help a team develop a shared understanding of their business domain and systems?

Exercise 4 – Expanding to Commands, UI Mockups and more Examples

The library feels that too many library patrons end up paying fines, and wants to find ways to help patrons return materials on time and avoid fines. On your event storming area, write on a blue sticky note “Notify library patron about unpaid fines” and on another blue sticky note “Notify library patron about blocked card.” Figure out what events on your flipchart might result in these commands and place the blue sticky notes accordingly.

Here is the current user account preferences form for notifications:

Preferences:

My preference for receiving library notices.

Email Address

Phone number for TXT messages

(None)

Language preference

English

Carrier

<Select a carrier>

☐ Maintain reading list

See [privacy information](#).

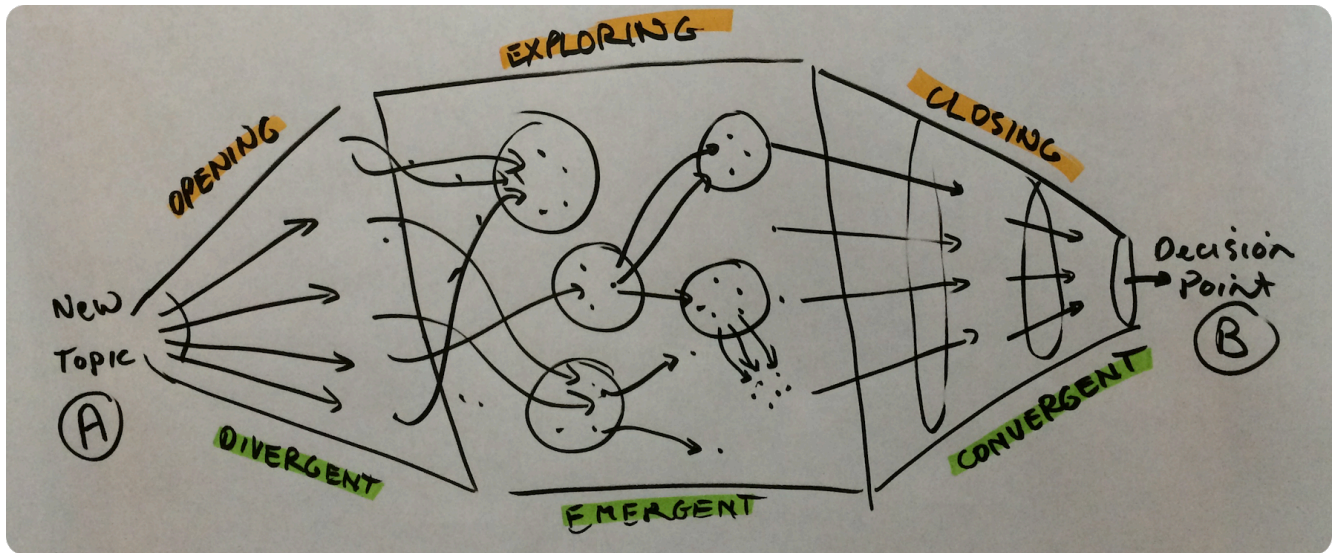
Send email notices in:

☐ Basic, plain text format

☒ Full, HTML format

Create UI mockups and brainstorm example scenarios for the library patron to be able to choose when to be notified about fees and fines. **Make sure you are talking about realistic, specific examples.**

Summary



Capture the higher-level diagram of the BDD flow below:

In BDD with Cucumber there tends to be a cycle of discovery and exploration, then formalization. This cycle may happen at the feature, scenario or step level.

With discovery and exploration:

- **Focus first on learning and understanding.** Use whatever combination of techniques help create shared learning and understanding: UXD techniques such as personas, mockups, prototypes; DDD techniques such as Event Storming; and BDD techniques such as Example Mapping.
- This is brainstorming, so *build on each others' ideas*. Cycle between working independently, and then coming together to share/critique ideas.
- *Make sure the right people are in the room, to capture diverse perspectives* from various team members.
- Sketch on a flipchart sheets, whiteboard and/or sticky notes where possible to keep the conversation moving quickly and promote learning. *Capture questions/assumptions on sticky notes to check* later rather than bog-down the meeting now.
- *Conversations and examples are primary at this point*, so don't be bound to the Gherkin syntax or formatting.

With formalization:

- Conform the text of the feature file to the Gherkin syntax.
- Often better to have one or two people do the bulk of the formalization as a (separate) refinement exercise.
- A team will likely learn new things in the process of implementing the first few scenarios that feed back into more conversations.

Circle what you think are the three most important statements for your development team above.

My Key Takeaways

Write down below your “aha’s” from today’s workshop. Include such things as:

- things you learned,
- new insights you want to remember,
- cool things you heard other people say, and
- things you want to experiment with based on what you experienced today.

About Virtual Genius LLC

Virtual Genius LLC helps software teams succeed with agile development, with customer-focused design at the center of everything the team does. This involves a holistic design approach that incorporates principles and practices from design thinking, domain-driven design (DDD), agile engineering practices such as TDD, user-experience design (UXD) and behavior-driven development (BDD).

We provide world-class training and coaching (both onsite and remote) in BDD and DDD. Contact us if you want to take your team's skills to the next level.



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