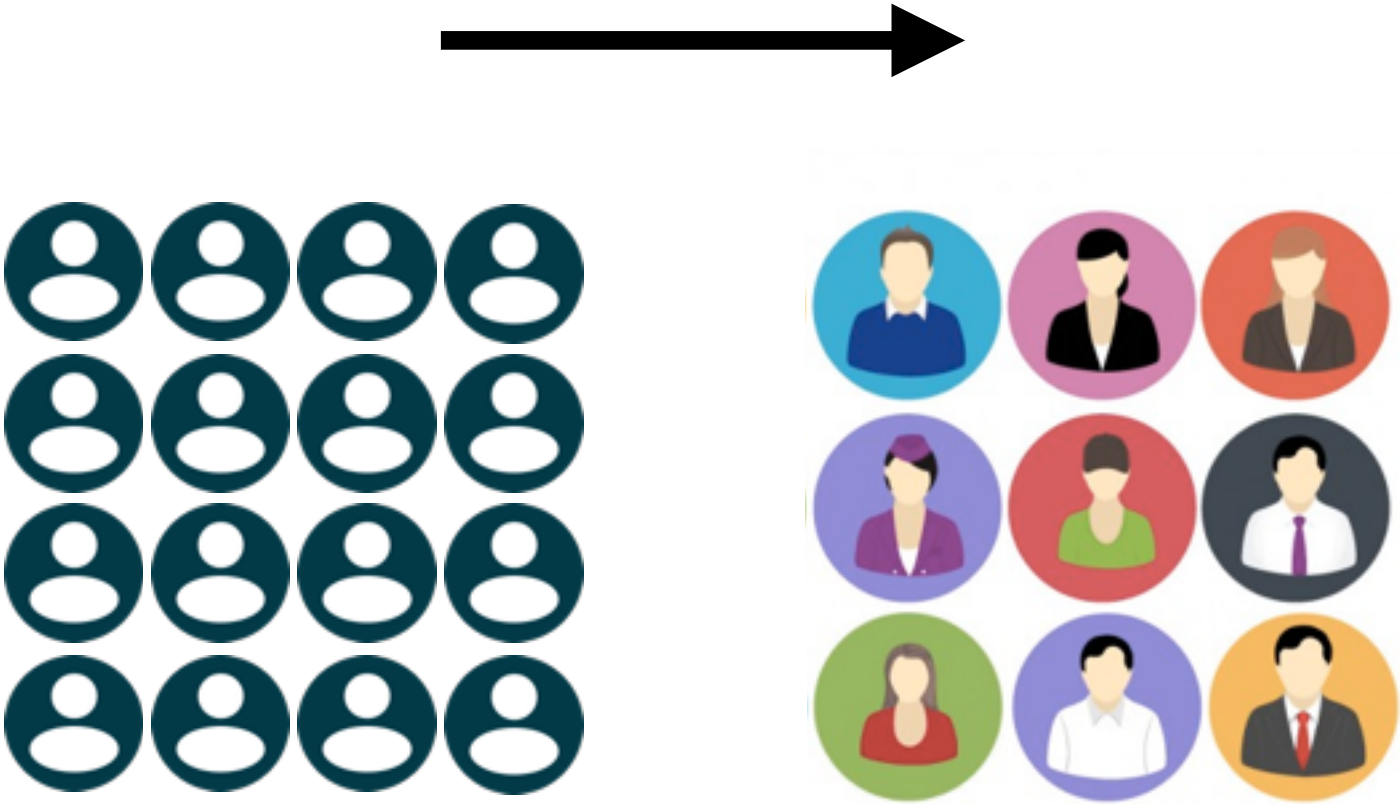
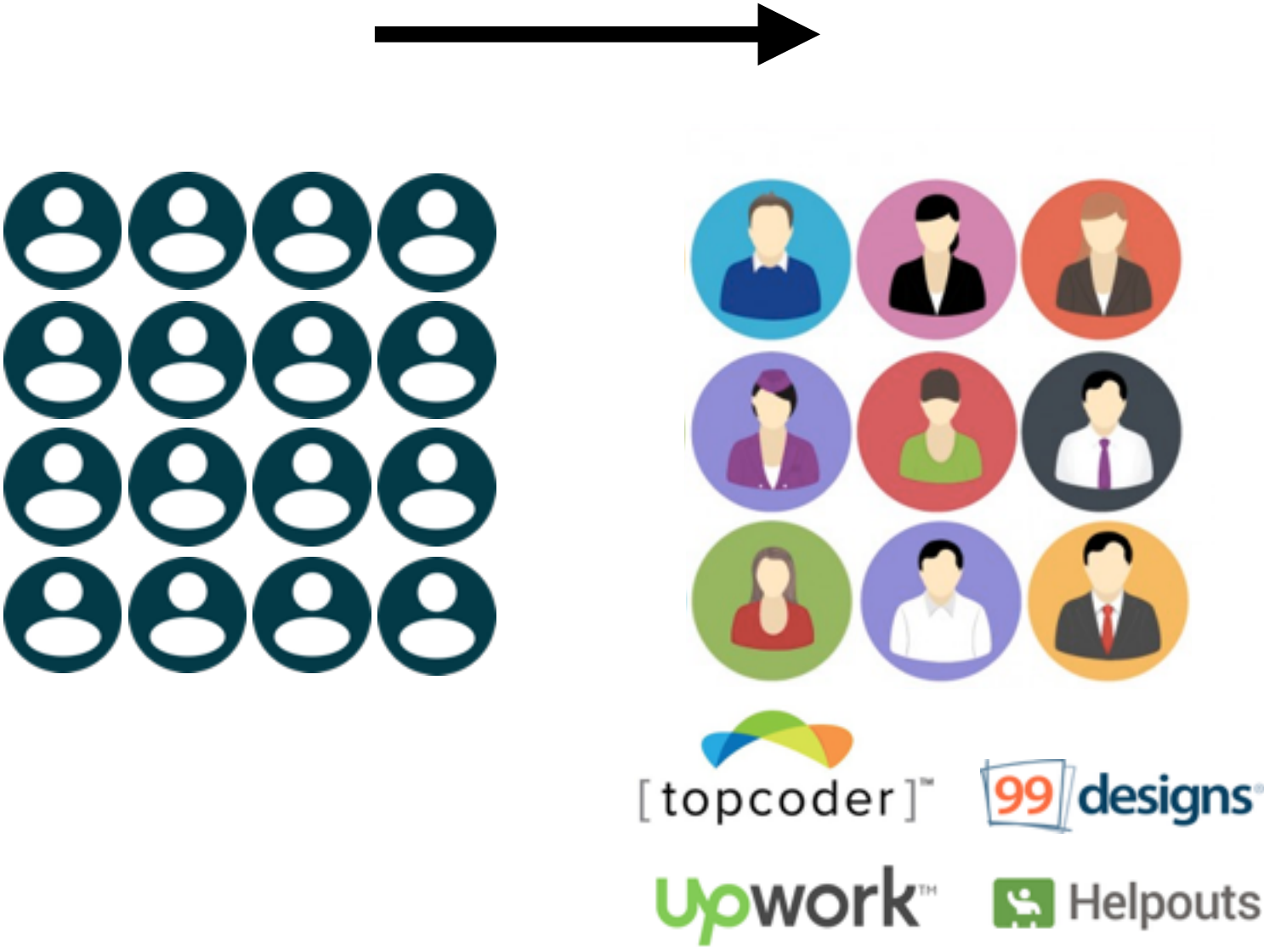
Atelier: repurposing expert crowdsourcing tasks as micro-internships

Ryo Suzuki [1, 2], Niloufar Salehi [2], Michelle S. Lam [2],
Juan C. Marroquin [2], Michael S. Bernstein [2]

[1] University of Colorado Boulder
[2] Stanford HCI Group





[Retelny et al. 2014]

Crowd experts must be able to grow their skills.

[Kittur et al. 2013]

Buy
Sale

Time spent learning is time spent not working.

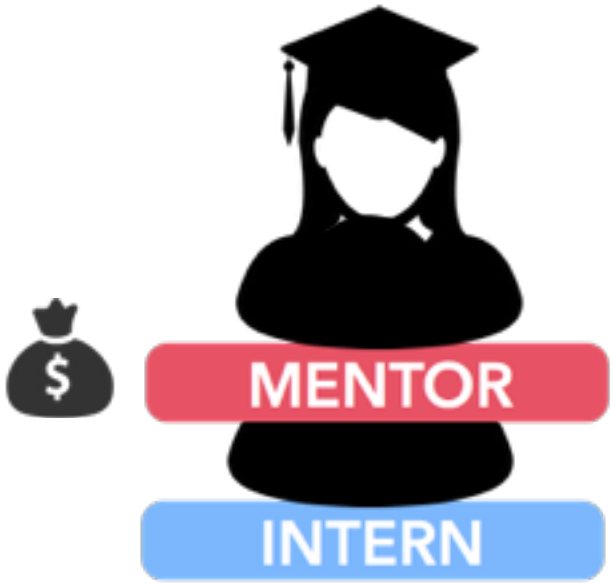
It is difficult to get hired for new skills.

micro-internships:

paid, mentored, real-world work experiences

Worker

Create a website
for a dentist.



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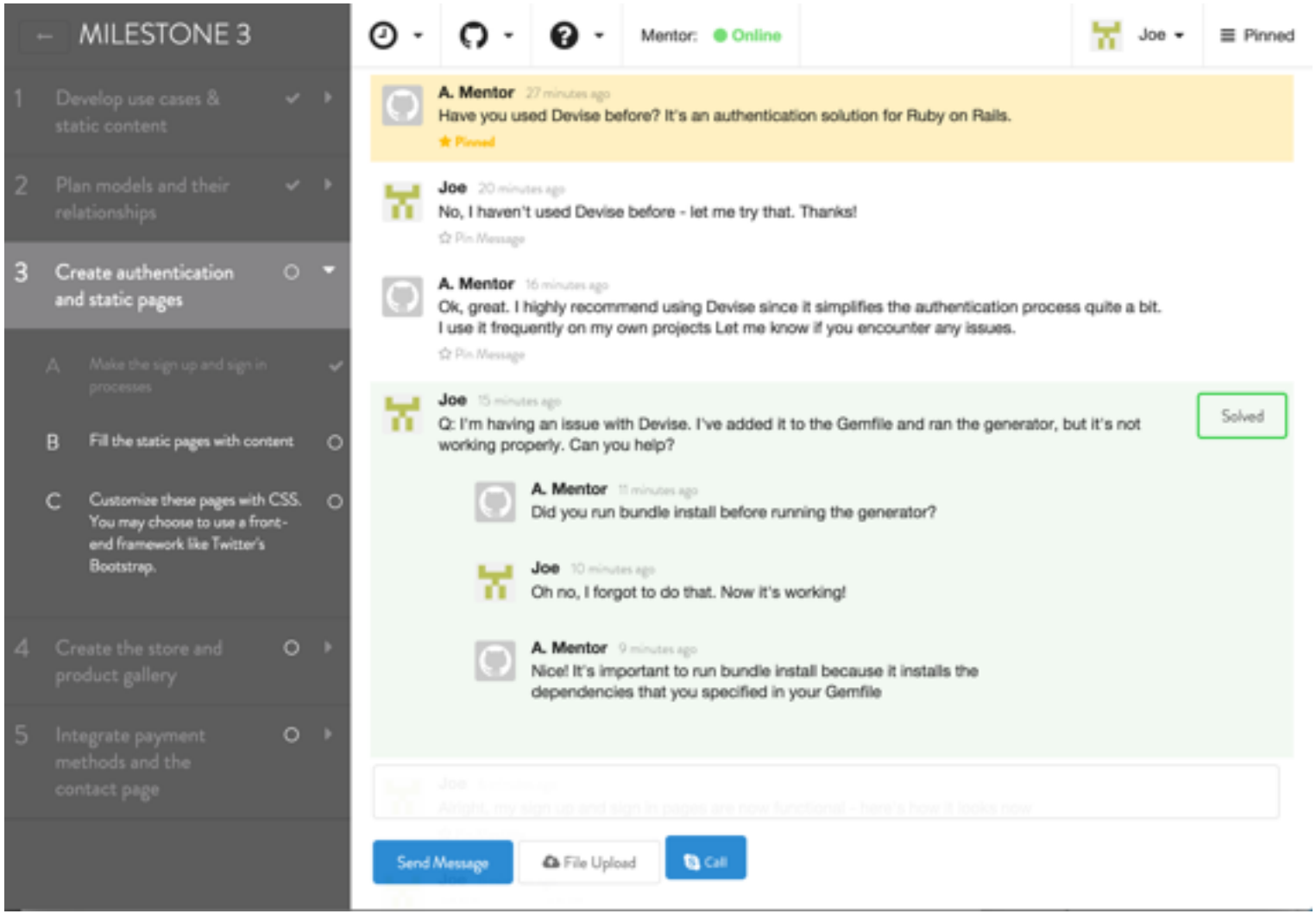
Atelier


MILESTONE 3
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2 Plan models and their relationships
3 Create authentication and static pages
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B Fill the static pages with content
C Customize these pages with CSS. You may choose to use a front-end framework like Twitter's Bootstrap.
4 Create the store and product gallery
5 Integrate payment methods and the contact page
Mentor: Online
Joe
Pinned
A. Mentor
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Pinned
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Send Message
File Upload
Call

1. mentors helped interns **get unstuck**

2. mentors introduced **helpful resources**

3. mentors shared **best practice**

1. get unstuck

2. helpful resources

3. best practice

heavier use of Atelier

higher quality outcomes

- micro-internships
- atelier
- evaluation
- conclusion

- micro-internships
- atelier
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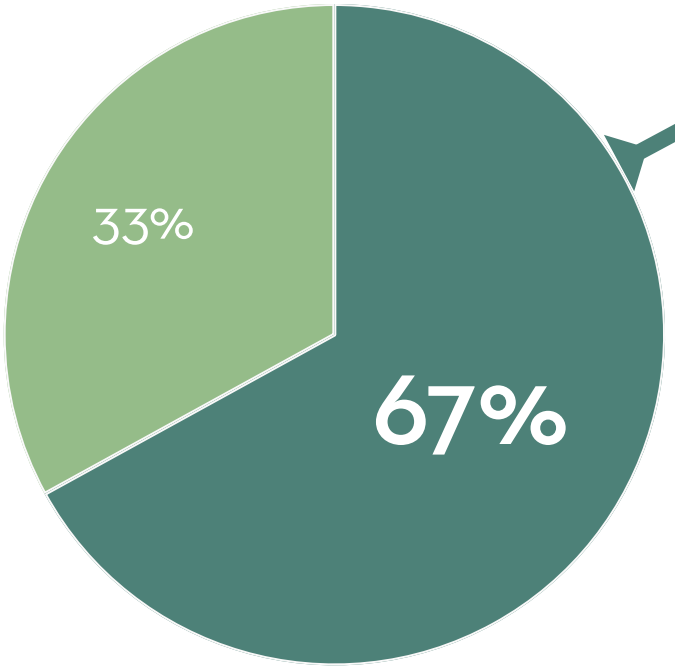
Upwork survey

96 responses

male: 71, female: 25

age: 18–66



Workers wish to stay on Upwork **for the rest of their career**

39%
61%
Workers **could not learn a new skill** within the next 6 months

Workers don’t have time or financial resources to learn new skills.

> “I need more money to support my family, I take all the time I have for work."

online courses
one on one training and mentorship
real world jobs

online courses

one on one training and mentorship

real world jobs

cognitive apprenticeship:
apprentice learners take on authentic domain tasks and learn by observing and practicing with an expert mentor

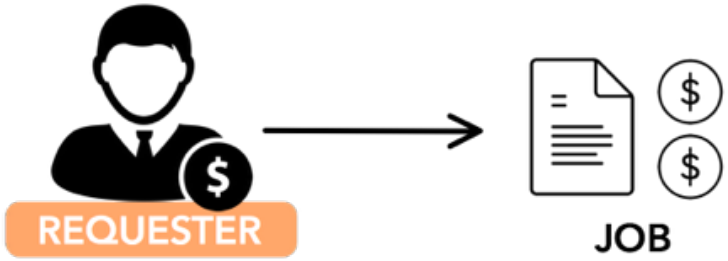
[Brown et al. 1989, Collins et al. 1989]

micro-internships:

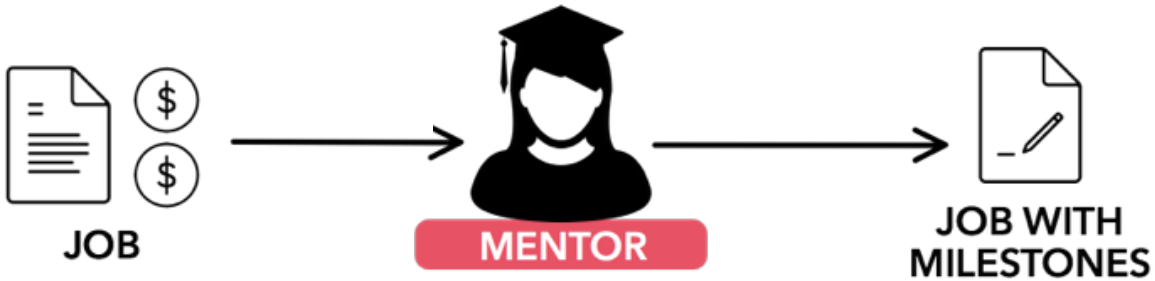
paid, mentored, real-world work experiences

- micro-internships
- atelier
- evaluation
- conclusion

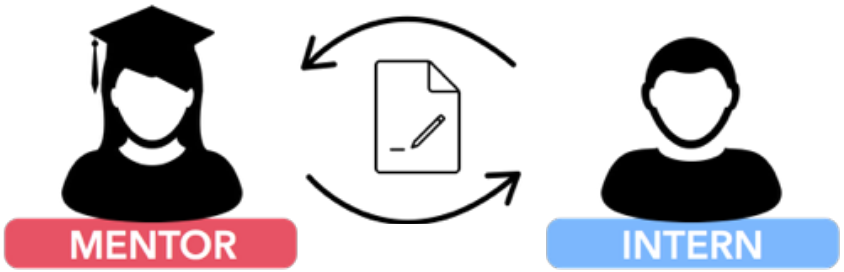
1


REQUESTER
JOB

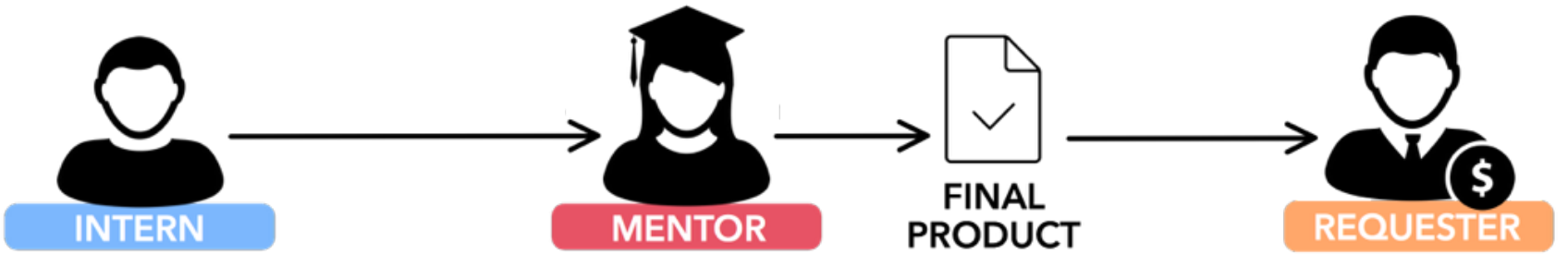
2


JOB
MENTOR
JOB WITH
MILESTONES

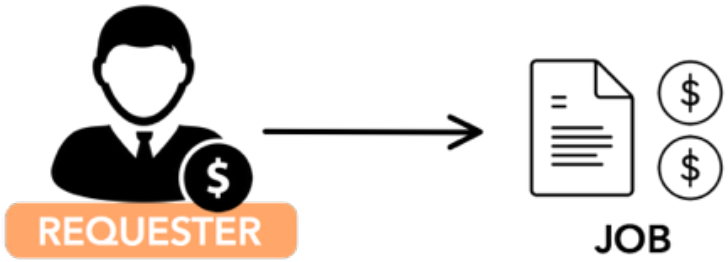
3


MENTOR
INTERN

4


INTERN
MENTOR
FINAL
PRODUCT
REQUESTER

1


REQUESTER
JOB

2

JOB
MENTOR
JOB WITH MILESTONES

3

MENTOR
INTERN

4

INTERN
MENTOR
reviews
FINAL PRODUCT
REQUESTER

REQUESTER

- Save some money
- Assurances by expert

MENTOR

- Earn extra income
- Less time commitment
- Intrinsic motivations

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REQUESTER

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REQUESTER

JOB

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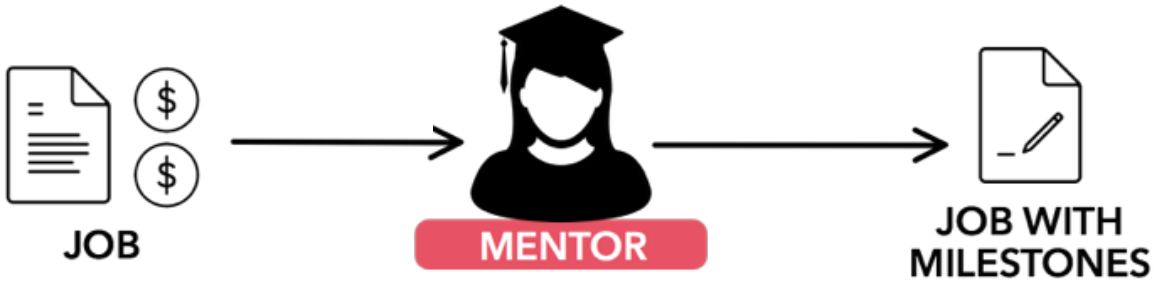


3

MENTOR

INTERN

4

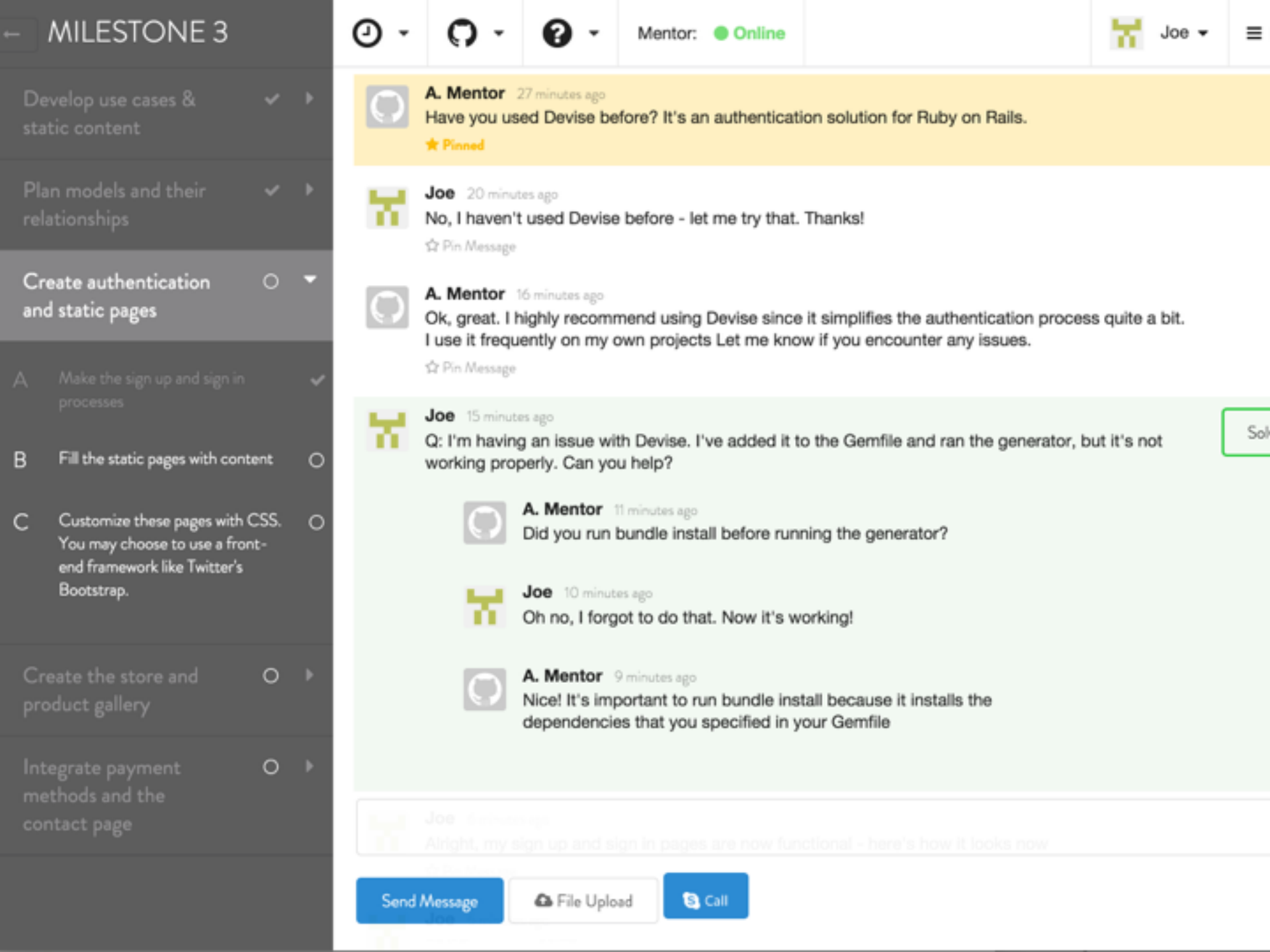
INTERN

MENTOR

reviews

FINAL PRODUCT

REQUESTER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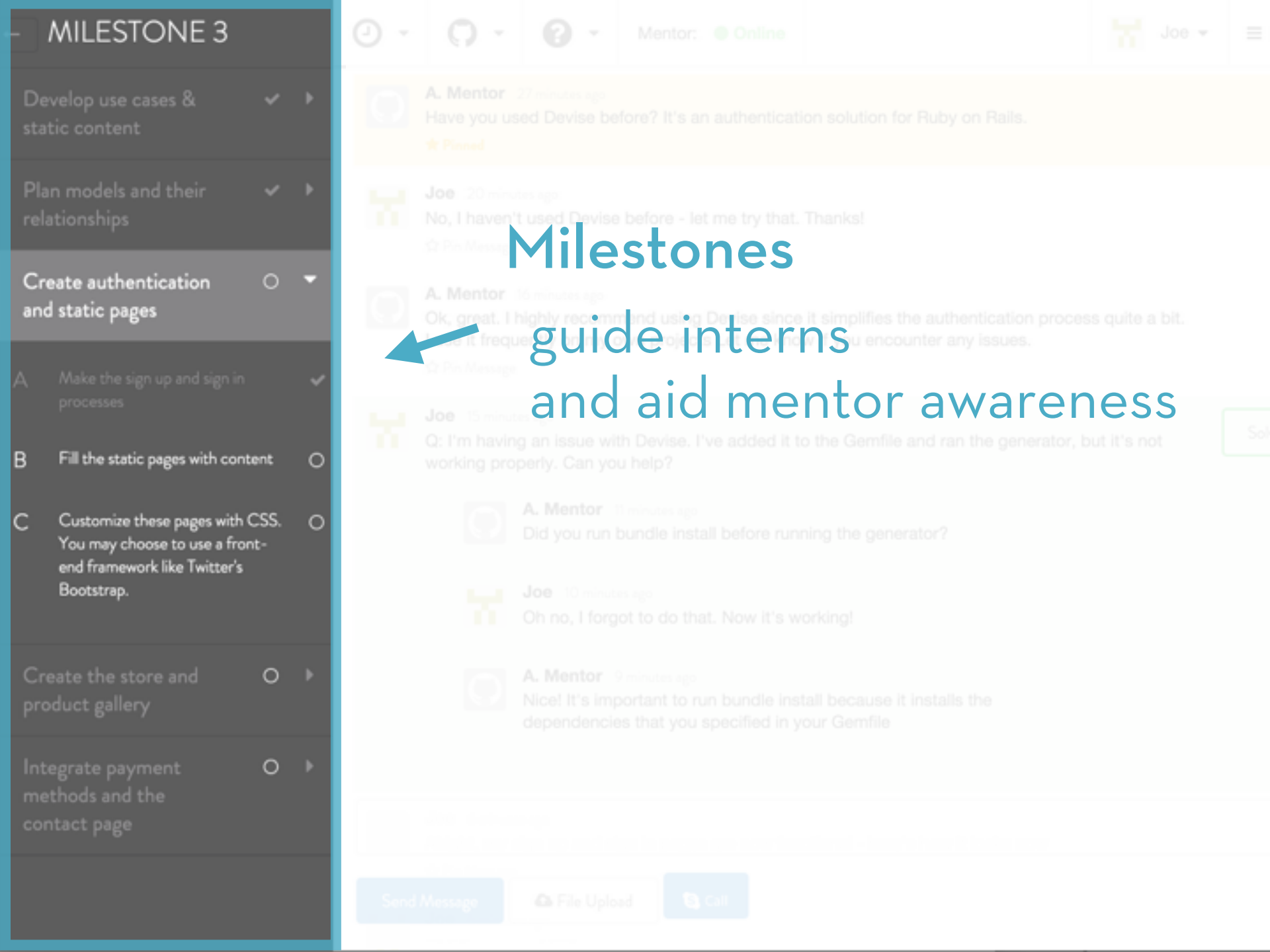
File Upload
Call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Milestones
guide interns
and aid mentor awareness

MILESTONE 3

1 Develop use cases & static content

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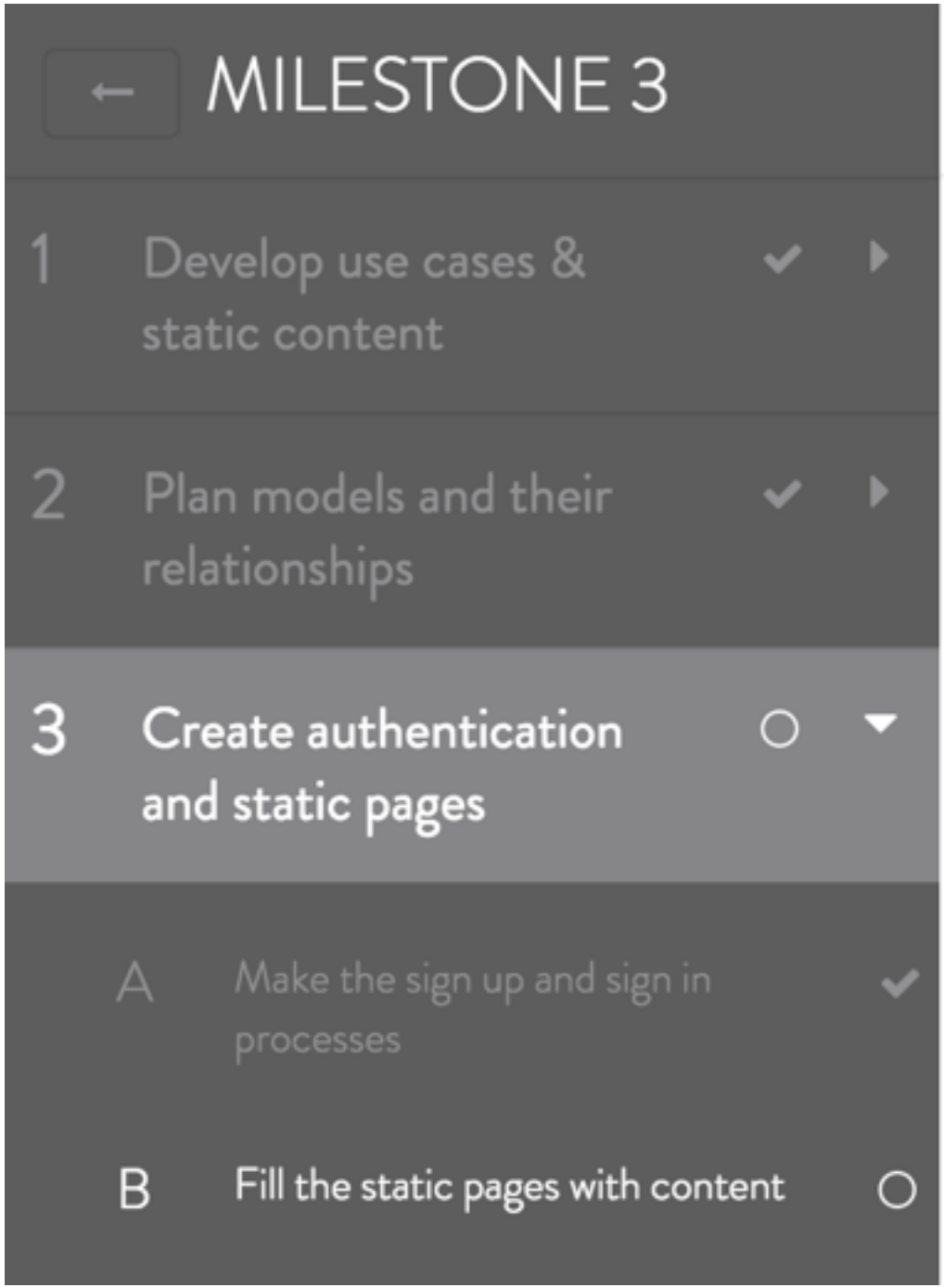
A Make the sign up and sign in processes

B Fill the static pages with content

Why Milestone?

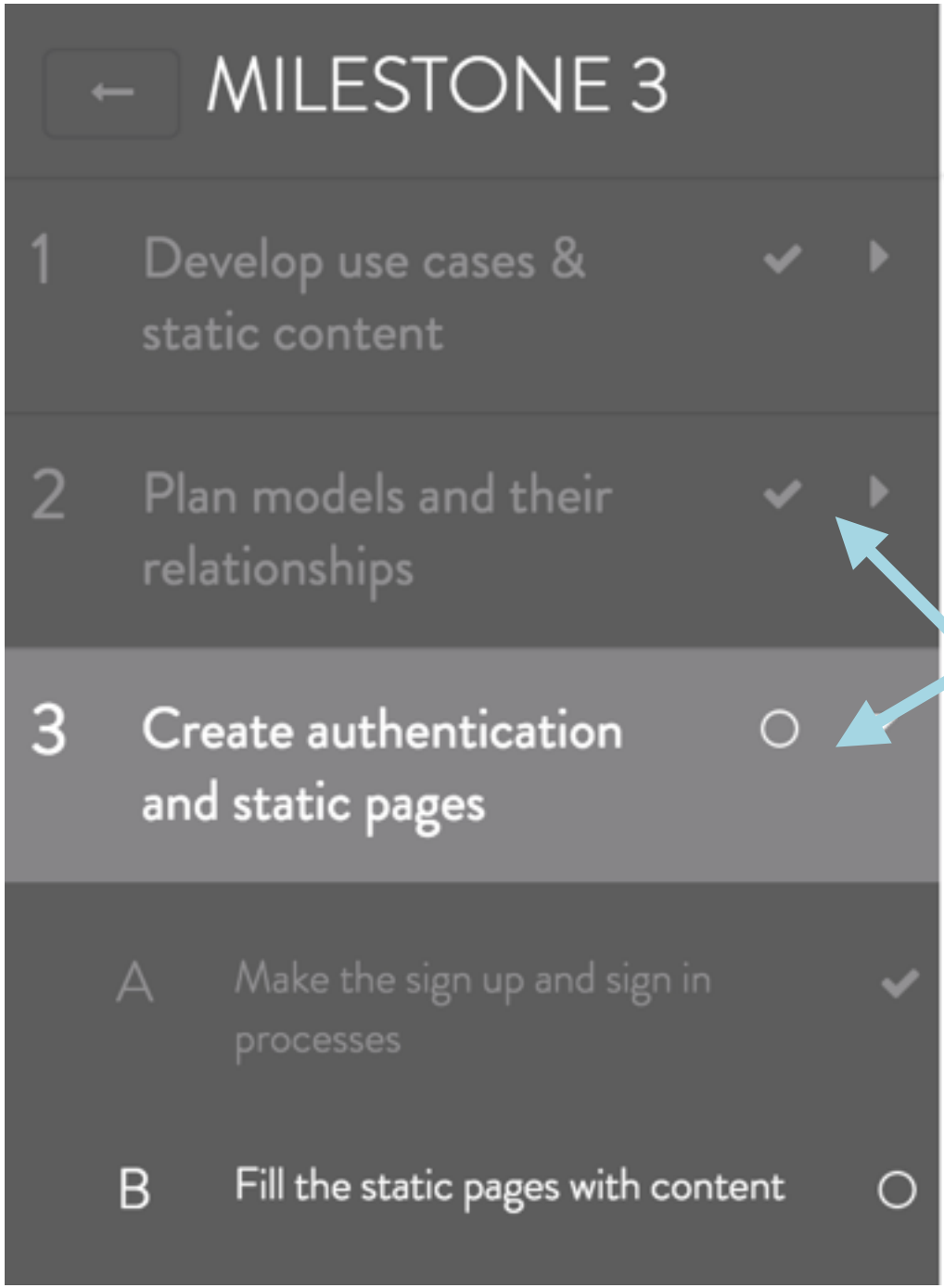
- Novice workers got stack and lost what to do without any guidances.



Milestone

- Guide interns with concrete and achievable goals

e.g.) Ruby on Rails web application



Milestone

- Guide interns with concrete and achievable goals
- Help mentors to keep track of intern's progress

Finished

Not Finished

e.g.) Ruby on Rails web application

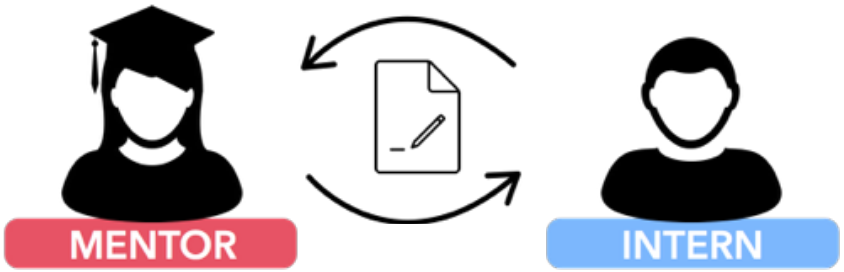
1

REQUESTER
JOB

2

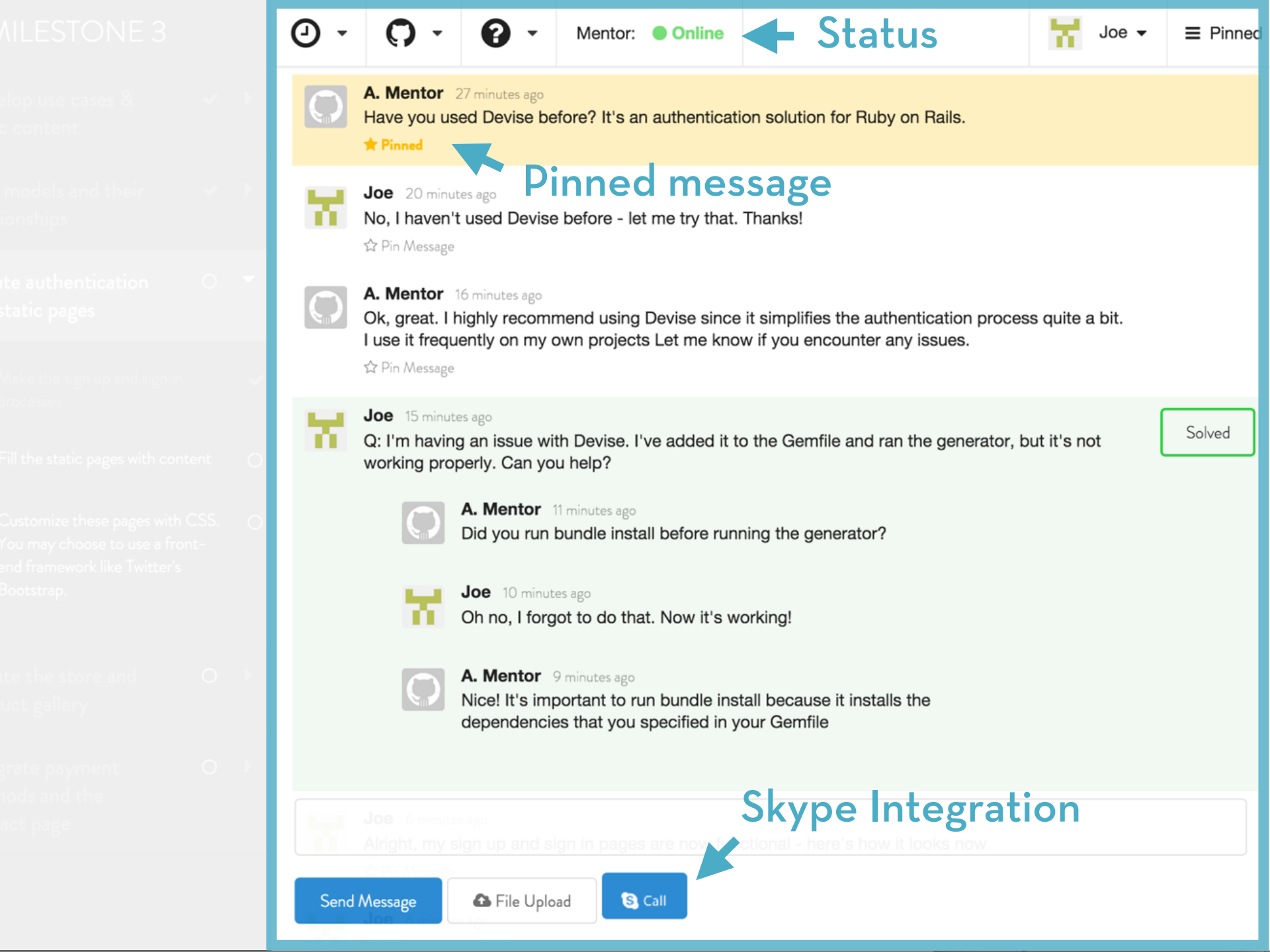
JOB
MENTOR
JOB WITH
MILESTONES

3


MENTOR
INTERN

4

INTERN
MENTOR
reviews
FINAL
PRODUCT
REQUESTER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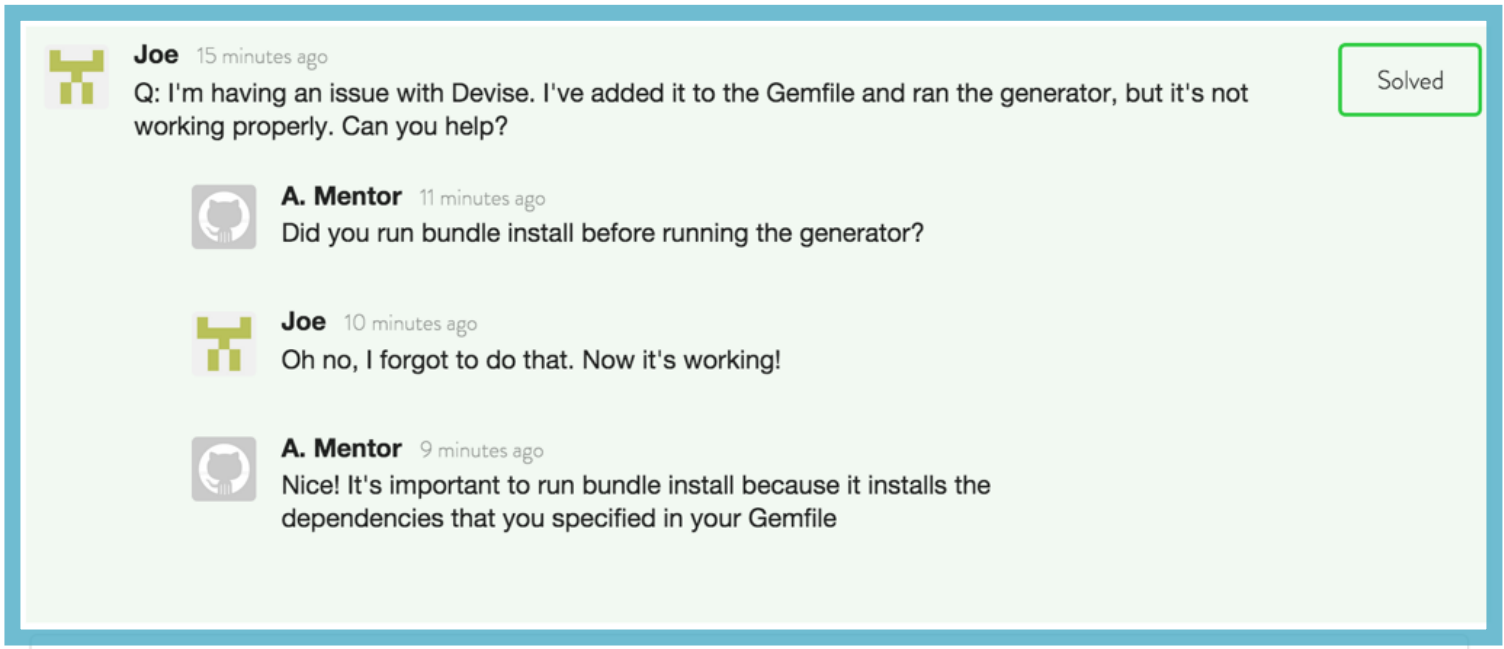
Skype Integration
Send Message
File Upload
Call

Q&A Highlighting

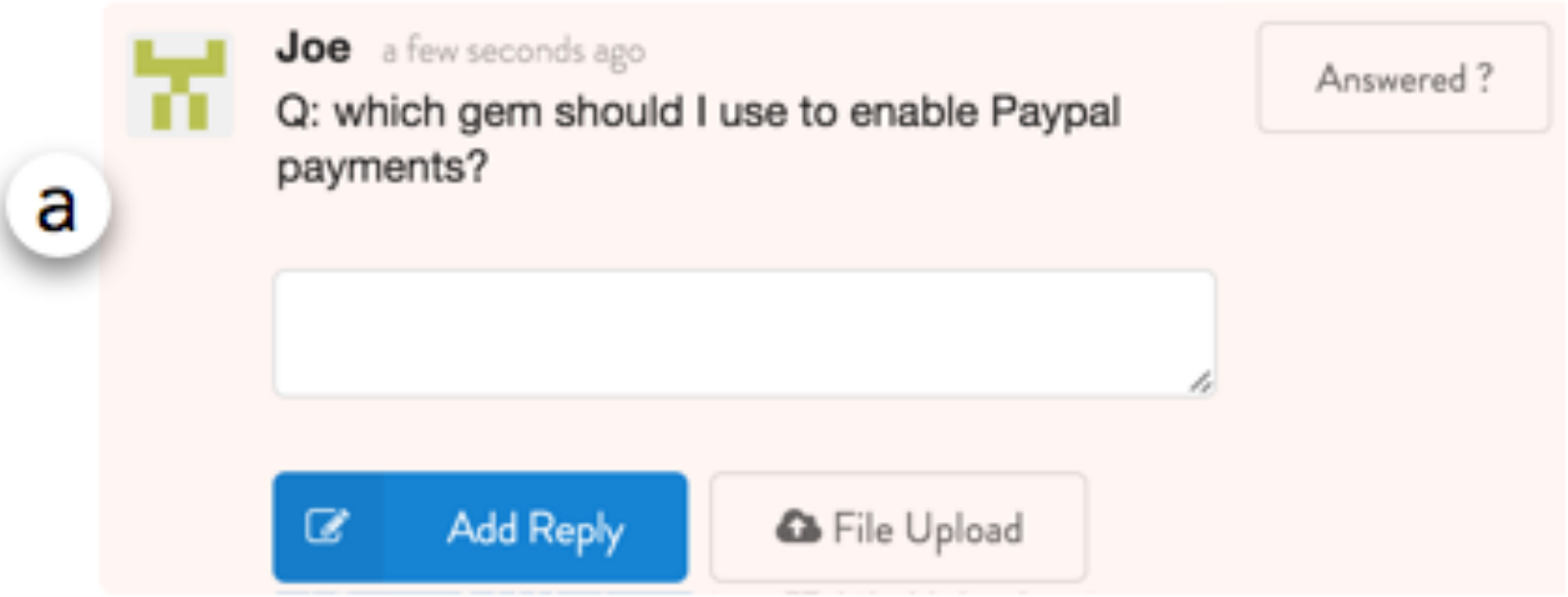
help interns get unstuck



Why Q&A Highlighting?

- Many interns found it **difficult to clearly explain their issues** due to a vocabulary mismatch.

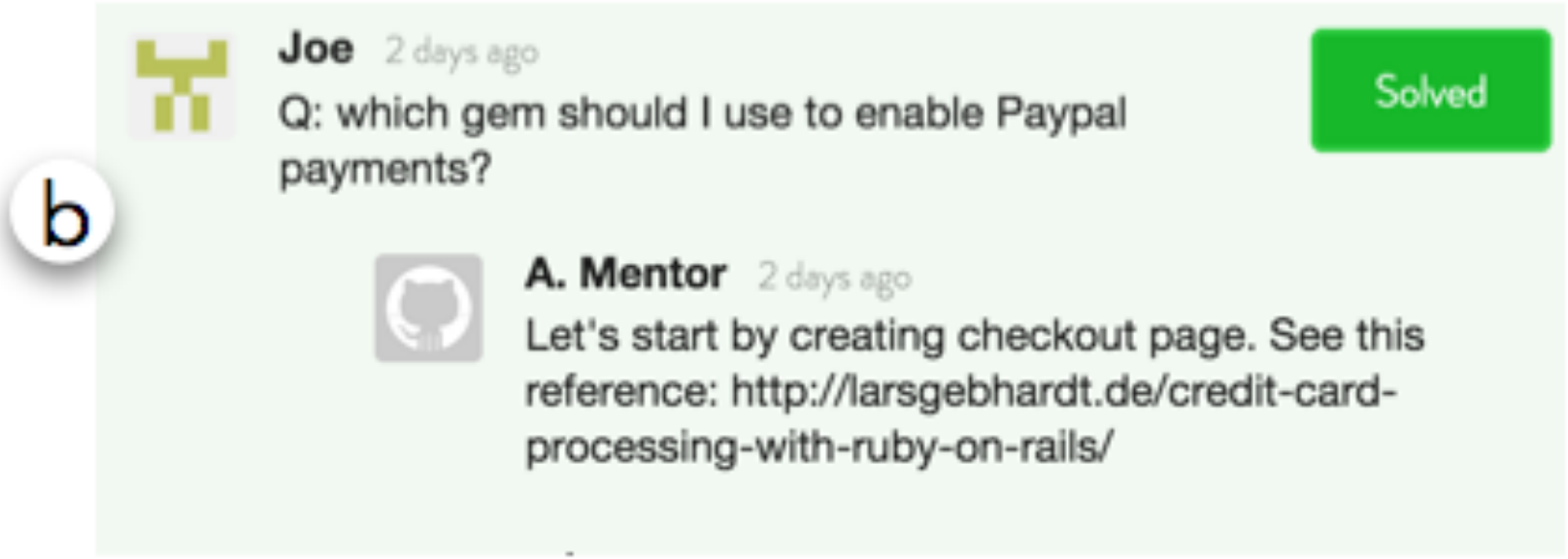
- Questions can easily become **lost and overlooked.**



[Furnas et al. 1987, Schwartz et al. 1998]

Q&A Highlighting

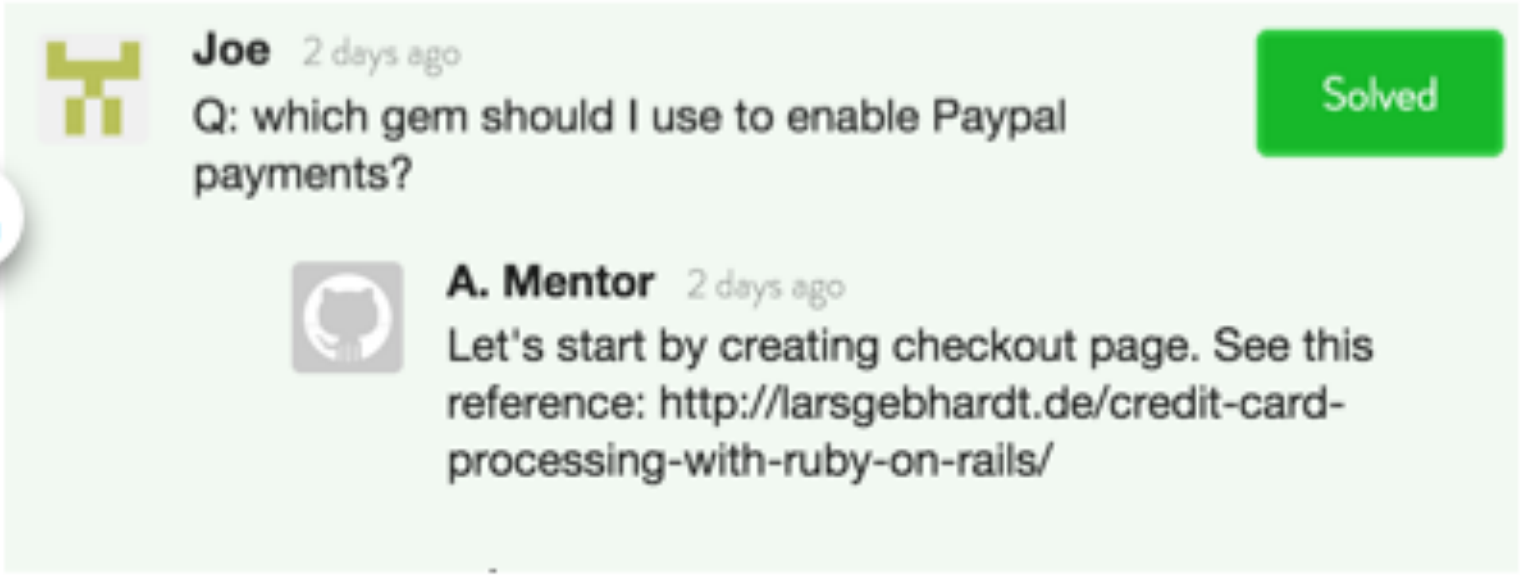
- If questions remain unsolved, Atelier **highlights** them to notify mentors to answer.

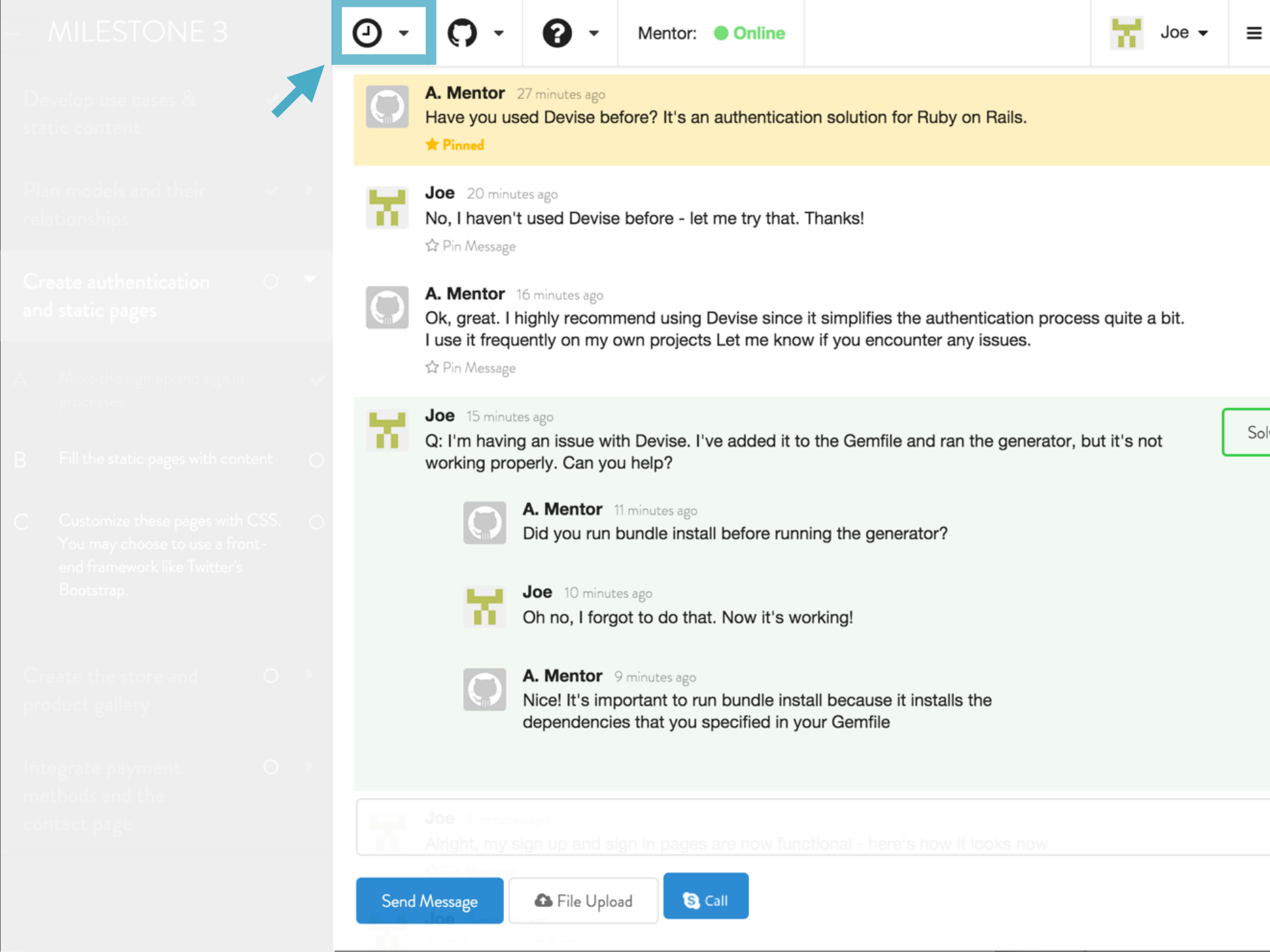


Q&A Highlighting

- If questions remain unsolved, Atelier **highlights** them to notify mentors to answer.

- Mentors can provide **conceptual guides** or exemplify industry **best practices** through answering questions.

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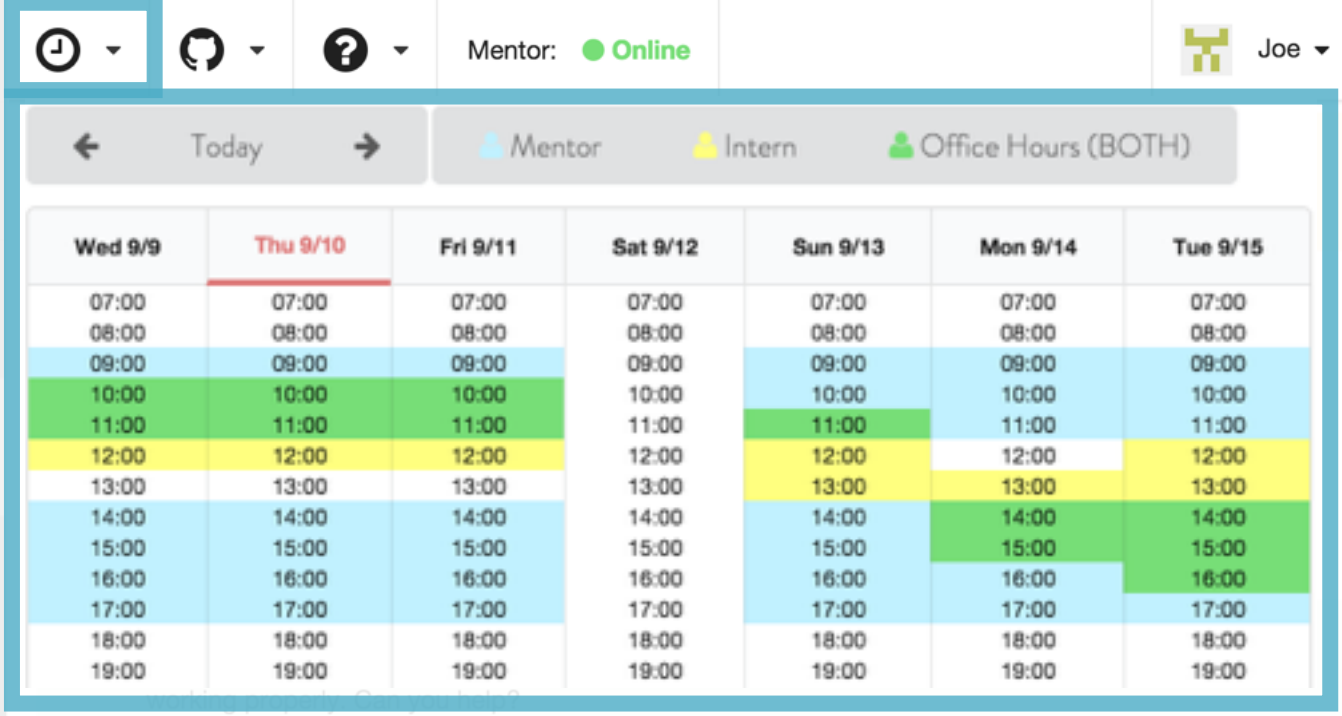
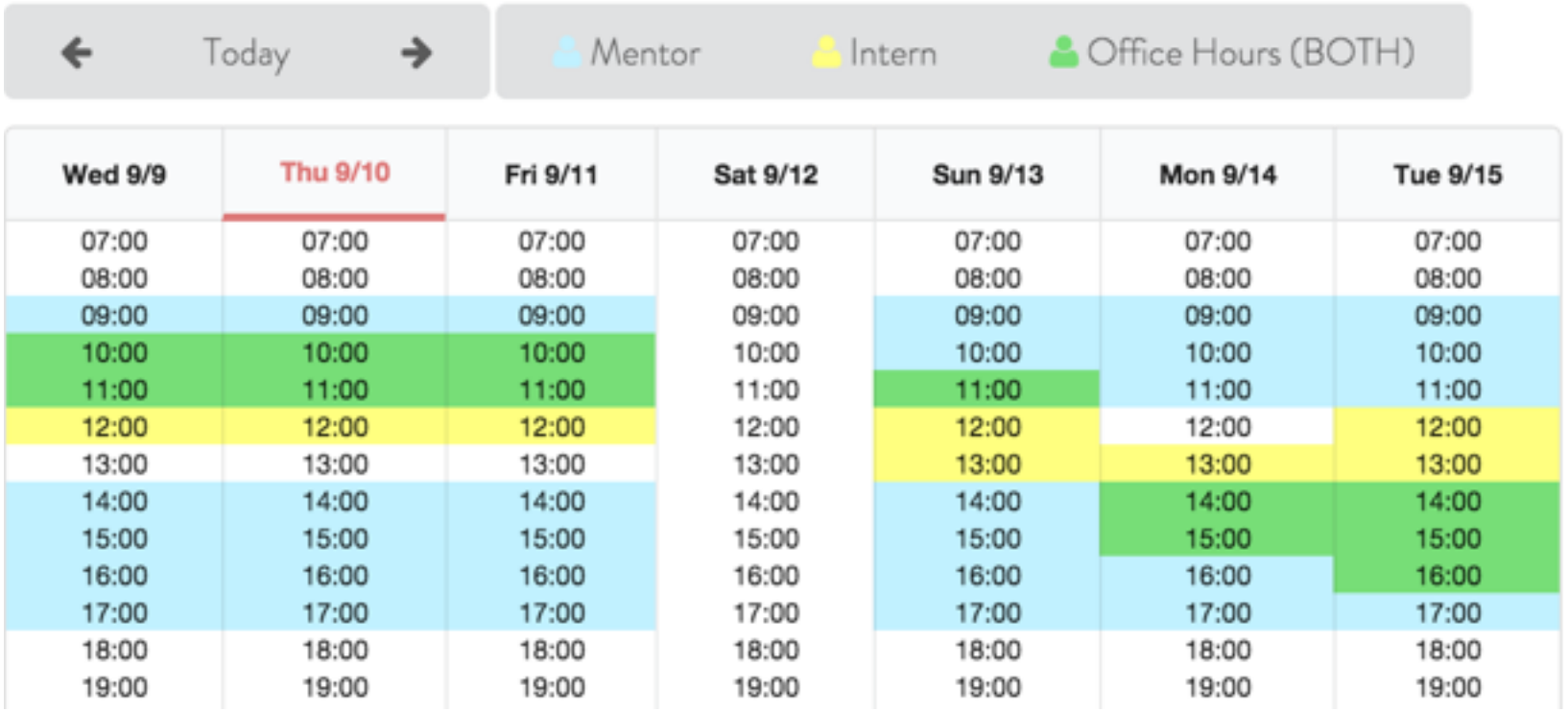


Office Hours

coordinating distributed workers

Why Office Hours?

Online collaboration suffers from **coordination challenge** because workers are distributed all over the world.



Wed 9/9	Thu 9/10	Fri 9/11	Sat 9/12	Sun 9/13	Mon 9/14	Tue 9/15
07:00	07:00	07:00	07:00	07:00	07:00	07:00
08:00	08:00	08:00	08:00	08:00	08:00	08:00
09:00	09:00	09:00	09:00	09:00	09:00	09:00
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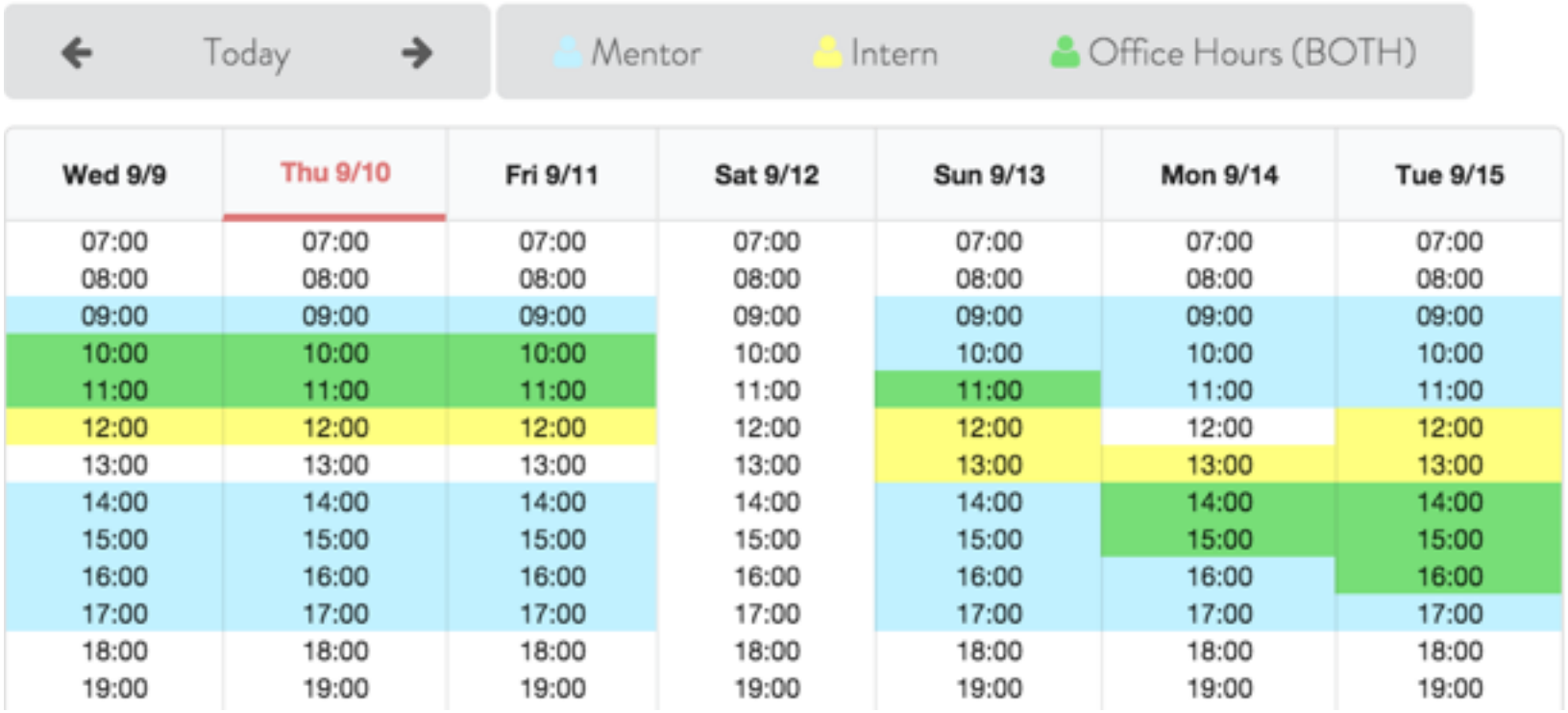
19:00	19:00	19:00	19:00	19:00	19:00	19:00

[Hinds 2002]

Office Hours

Atelier helps users set office hours to alleviate the **time-zone problem.**



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19:00	19:00	19:00	19:00	19:00	19:00	19:00

[Hinds 2002]

1

REQUESTER
JOB

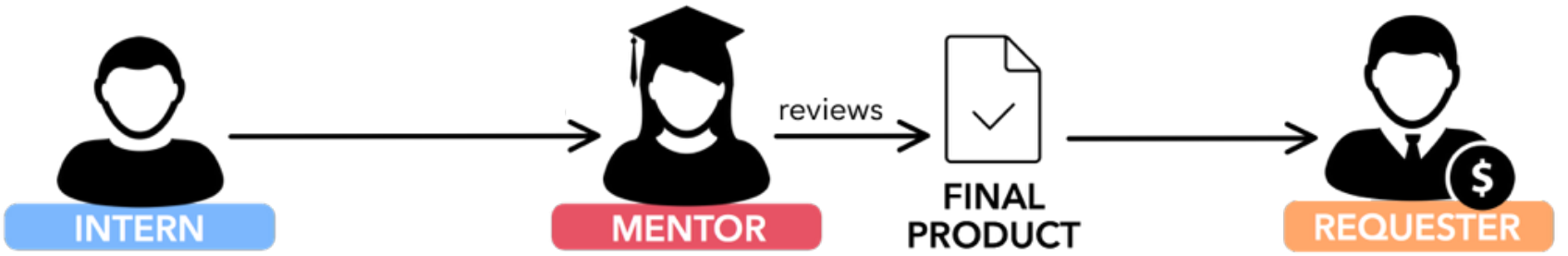
2

JOB
MENTOR
JOB WITH
MILESTONES

3

MENTOR
INTERN

4


INTERN
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REQUESTER

Tutorial: Company logo design with Illustrator

STEP 1

Brainstorm the goals of the company and associated icons/symbols

A Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor

B Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia

SOLVED ?

L Do you have any resources I could use to learn how to complete this step?

M Here's a good resource: LearnLogoDesign.com

Learn Logo Design!

L Ok, thanks!
(question marked as solved)

STEP 2

Create sketches integrating these icons

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B Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia

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L How do you usually approach these initial design sketches?

M I usually create rough designs involving a few of my brainstormed ideas, and then after sketching a few, I refine the ones that seem more promising!

L Hmm.. Let me try that

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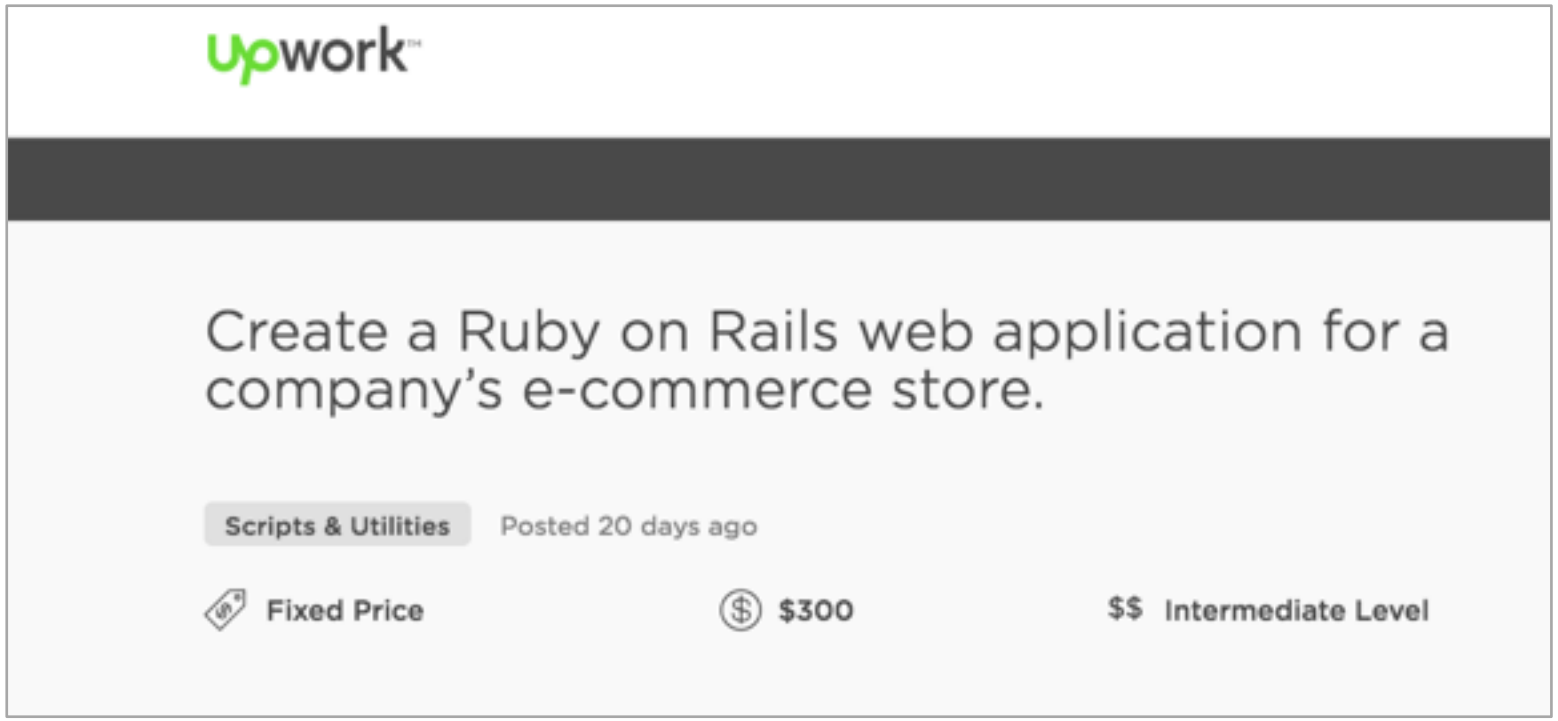
- challenges
- atelier
- evaluation
- conclusion

evaluation


Upwork
Create a Ruby on Rails web application for a company's e-commerce store.
Scripts & Utilities
Posted 20 days ago
Fixed Price
$300
$$ Intermediate Level

method

Control

6 interns

$300

Mentored

5 mentors + 8 interns

$150 + $150

results

Control

intern: 37.4 h (SD=21.4)

Mentored

intern: 40.8 h (SD=21.0)

mentor: 5.3 h (SD=1.8)

results

no significant difference in work quality

Control

score: 5.5/10 (median)
Q1: 5.0 Q3: 6.0

Mentored

score: 6.0/10 (median)
Q1: 5.0 Q3: 6.3

results

1. mentors helped interns **get unstuck** by providing conceptual guidance

"I got great advice on how to think in an OOP way, and I was able to ask someone for advice when I couldn't find any searching the internet."

results

2. mentors suggest **helpful resources** and new technologies

"My mentor introduced me to a lovely templating language – Slim – that I've now used and will keep on using"

results

3. mentors shared **best practice** and industry convention

mentor: “make a seed file as it is more appropriate and according to Rails conventions.”

results

1. get unstuck

2. helpful resources

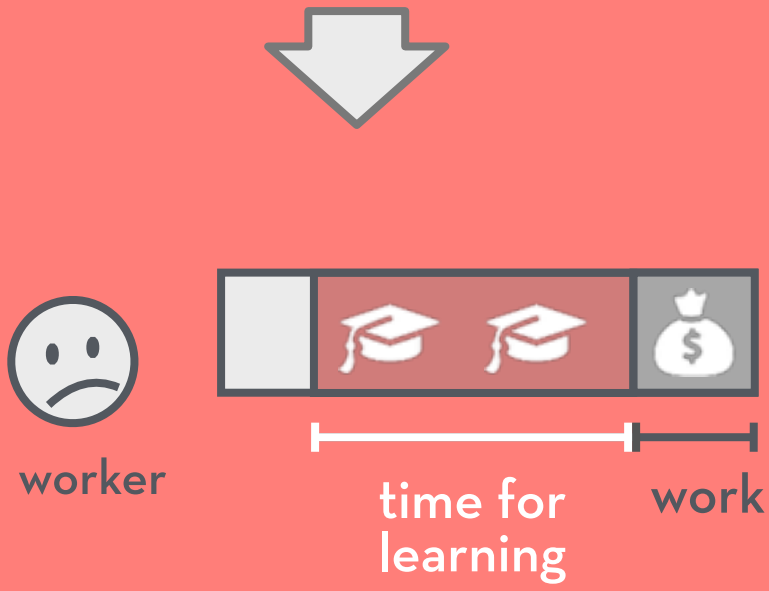
3. best practice

Heavier use of Atelier was associated with **higher quality**

# of questions: corr(x, y)=0.84, t=3.84, p<0.01

# of messages: corr(x, y)=0.89, t=4.68, p<0.01

- challenges
- atelier
- evaluation
- conclusion



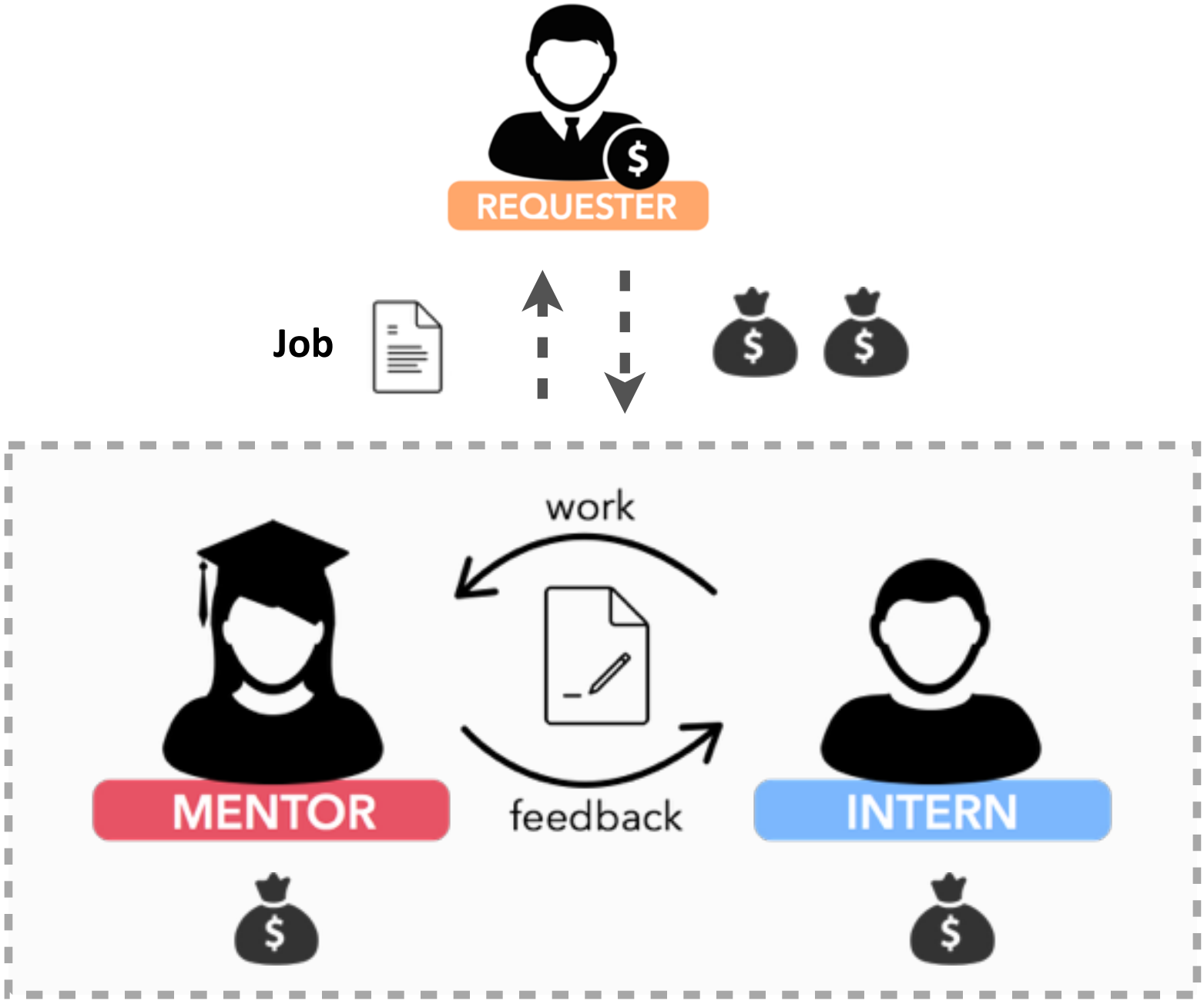
Time spent learning is time spent **not working.**

They need to **sacrifice their earnings** to learn new skills

Why?

Crowd work today is largely a dead-end job, offering few opportunities for career advancement and economic mobility.

The Future of Crowd Work [Kittur et al. 2013]


REQUESTER
Job
work
feedback
MENTOR
INTERN

micro-internships

paid, mentored, real-world work experiences

Ryo Suzuki [1], Niloufar Salehi [2], Michelle S. Lam [2],
Juan C. Marroquin [2], Michael S. Bernstein [2]

[1] University of Colorado Boulder
[2] Stanford HCI Group