



Work in Progress: A Comparative Long-Term Study of Fallback Authentication

Philipp Markert, Maximilian Golla, Elizabeth Stobert, and Markus Dürmuth

Email

Password

[Forgot your password?](#)



Sign In



Security Question

What is the last name of your favorite elementary school teacher?

What is the name of the street where you grew up?

What is the name of your high school?

What is your city of birth?

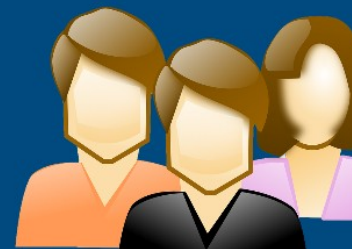
What is your favorite sports team?

What is your mother's maiden name?

Who was your favorite film star or character in school?



Social





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Social



Ask Your Trusted Contacts for Help

1. Call your trusted contacts or talk to them in person.

[Reveal My Trusted Contacts](#)

2. Ask them to visit:

<https://www.facebook.com/recover>

3. Each friend will give you a code. Enter them below:

Continue

Cancel

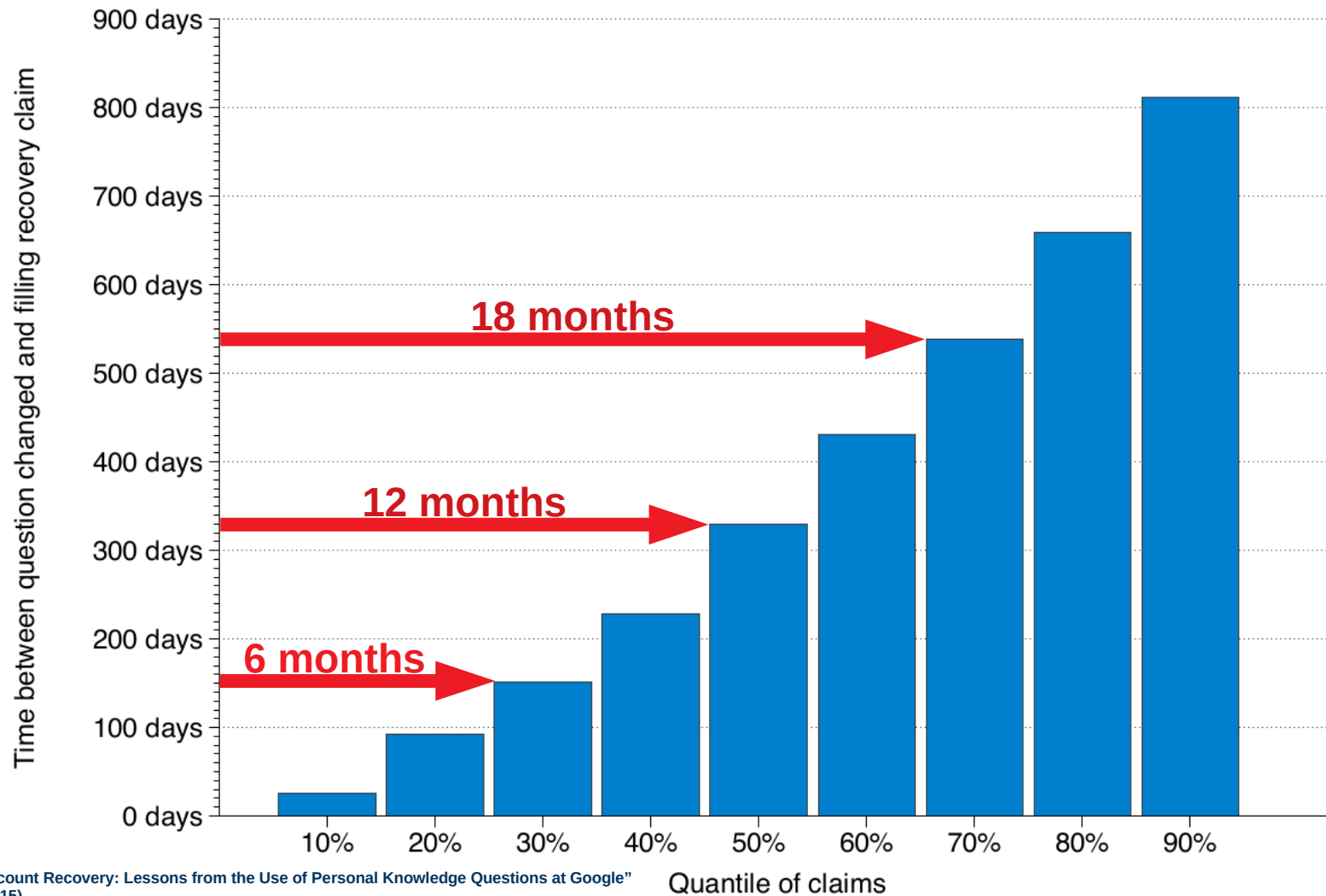
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[1] "Secrets, Lies, and Account Recovery: Lessons from the Use of Personal Knowledge Questions at Google"
Bonneau et al. (WWW '15)

*How do the schemes perform
when compared directly?*

*Which usability issues arise after
6/12/18 months?*

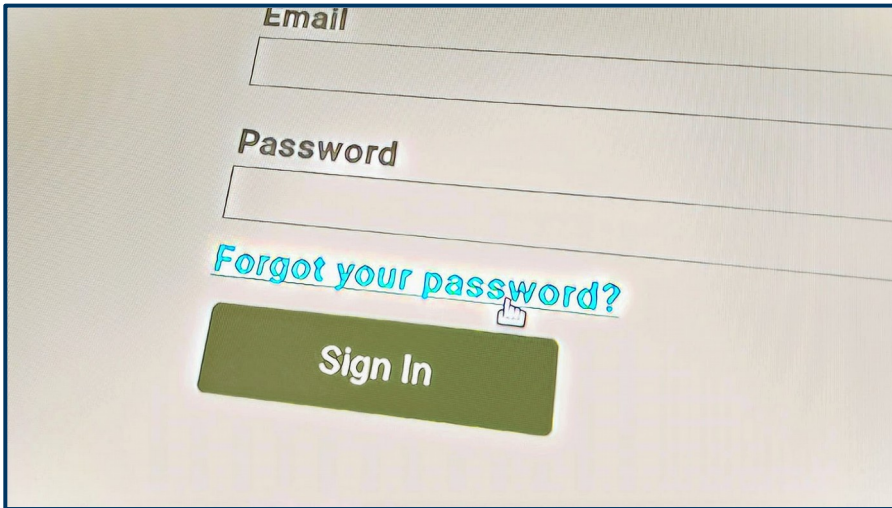
Research Questions

**Which scheme performs best
given realistic recall times?**

What Is Important?

What Is Important?

(1) Recall Rate



What Is Important? The Recall Rate!

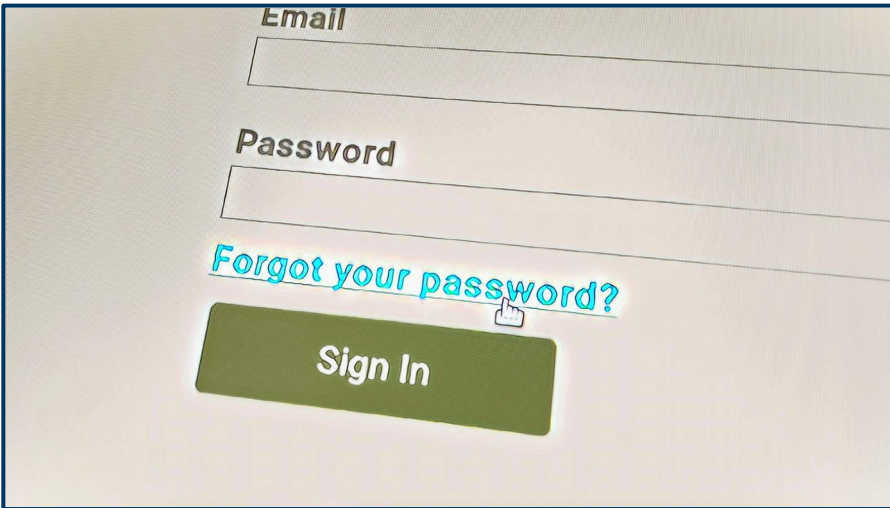
What was your favorite character in school?



(1

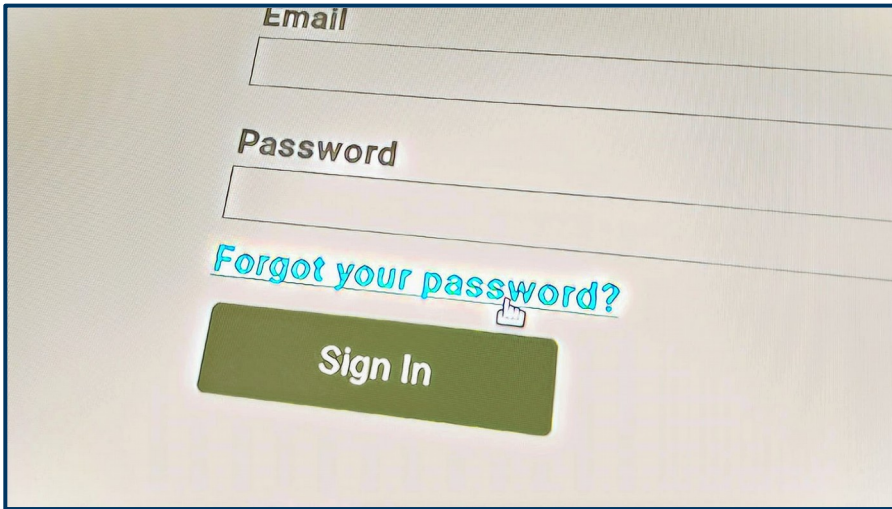


What Is Important?



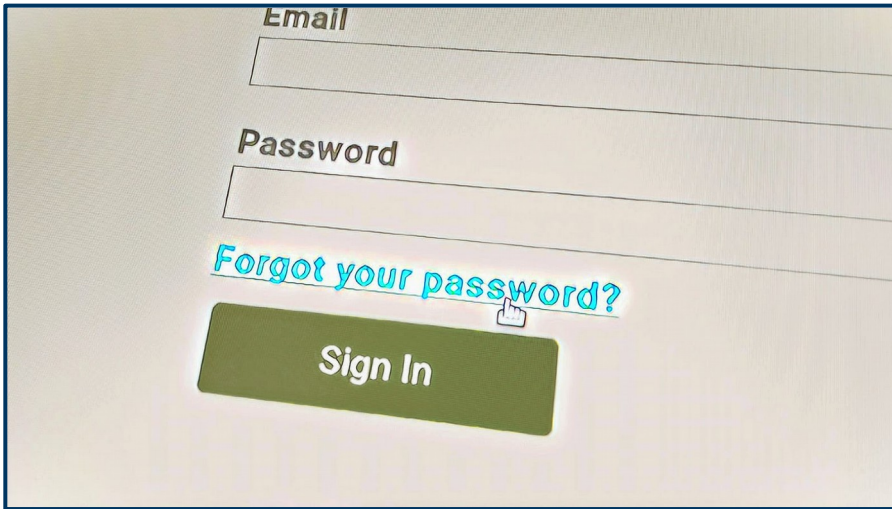
- (1) Recall Rate
- (2) Convenience

What Is Important? The Convenience!



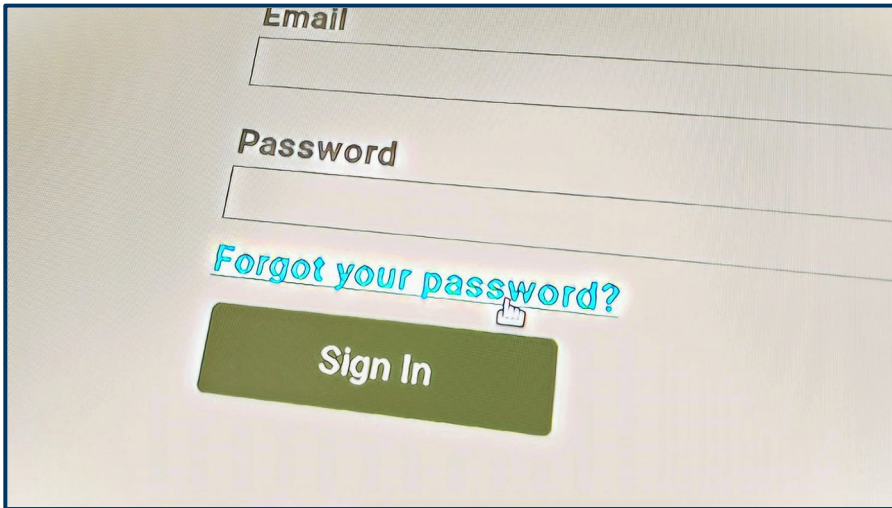
$$1 + 1 = 2$$

What Is Important?



- (1) Recall Rate
- (2) Convenience
- (3) Recall Time

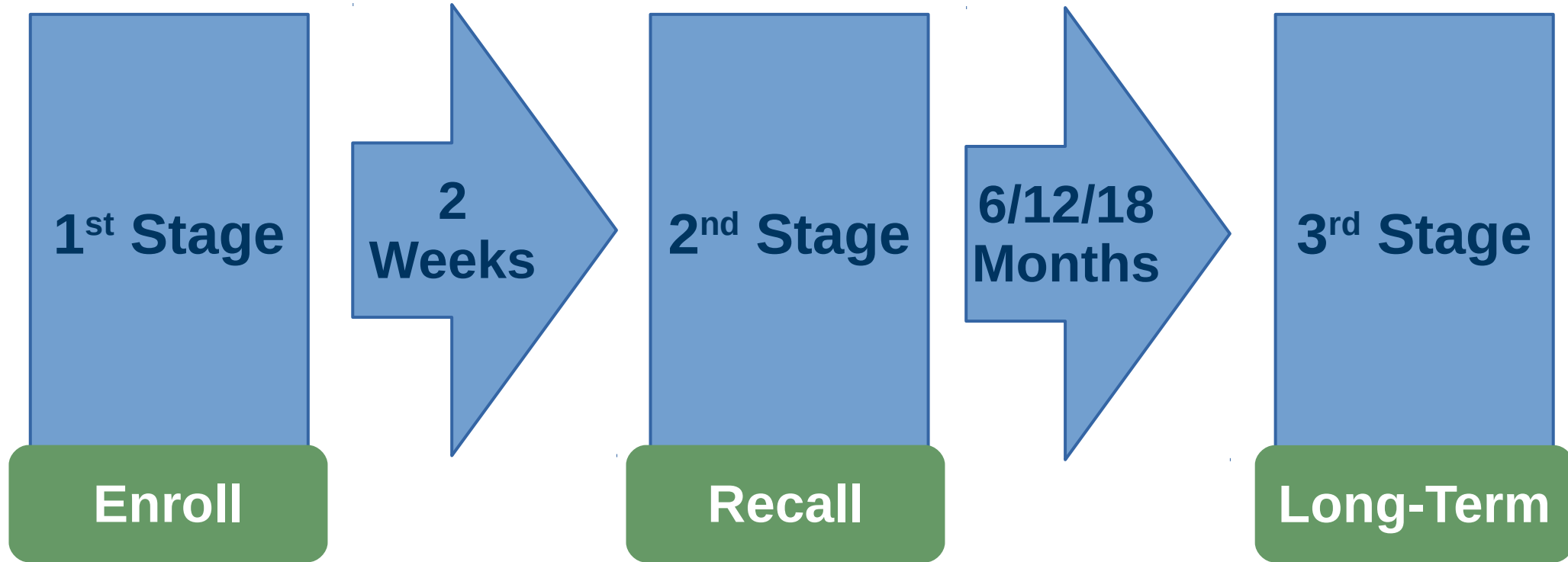
What Is Important? The Recall Time!



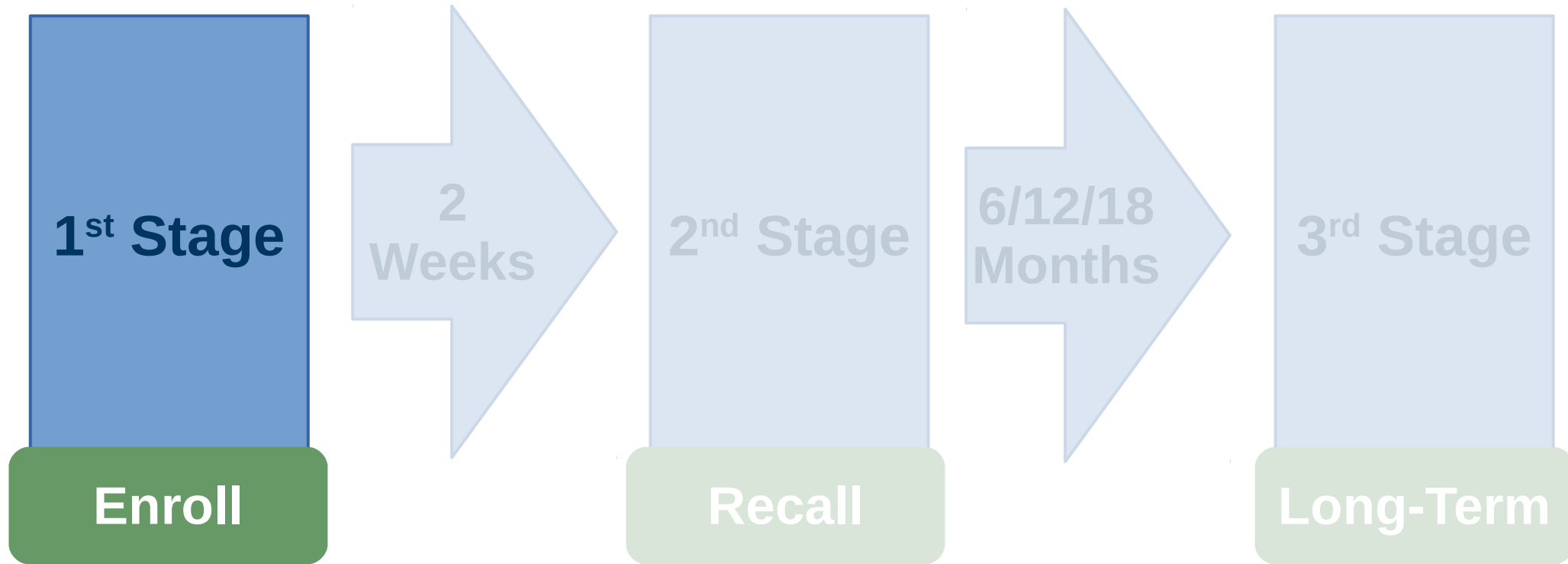
[1] <https://www.standard.co.uk/news/world/black-friday-2018-chaotic-scenes-at-stores-worldwide-as-shoppers-dash-to-snap-up-deals-a3997806.html>

How Do We Want To Do It?

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How Do We Want To Do it?



1st Stage



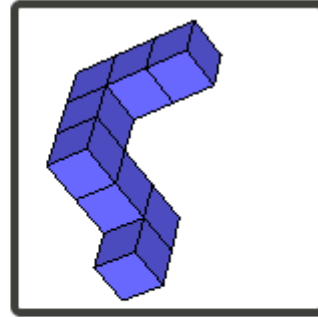
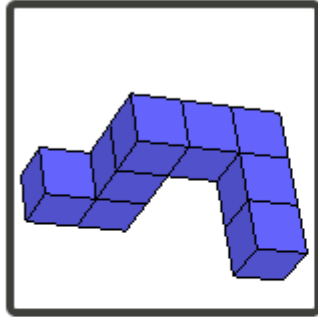
Enroll

1st Stage



Enroll

1st Stage

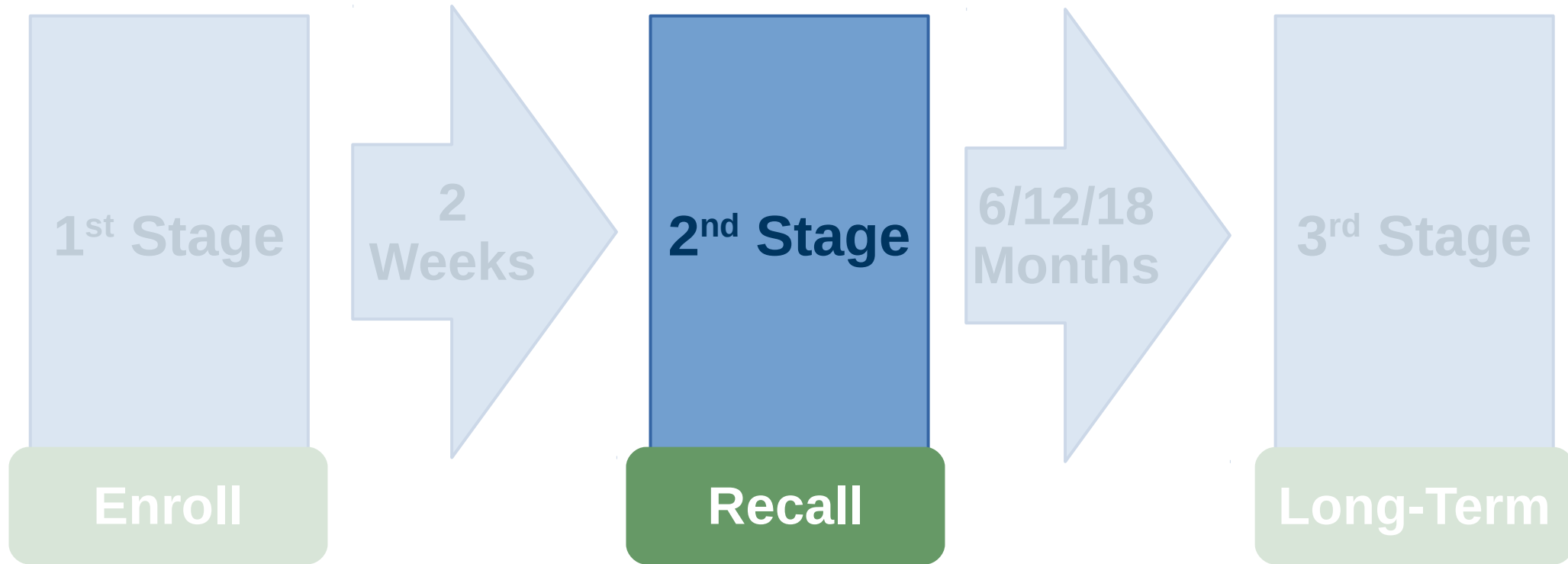


Same

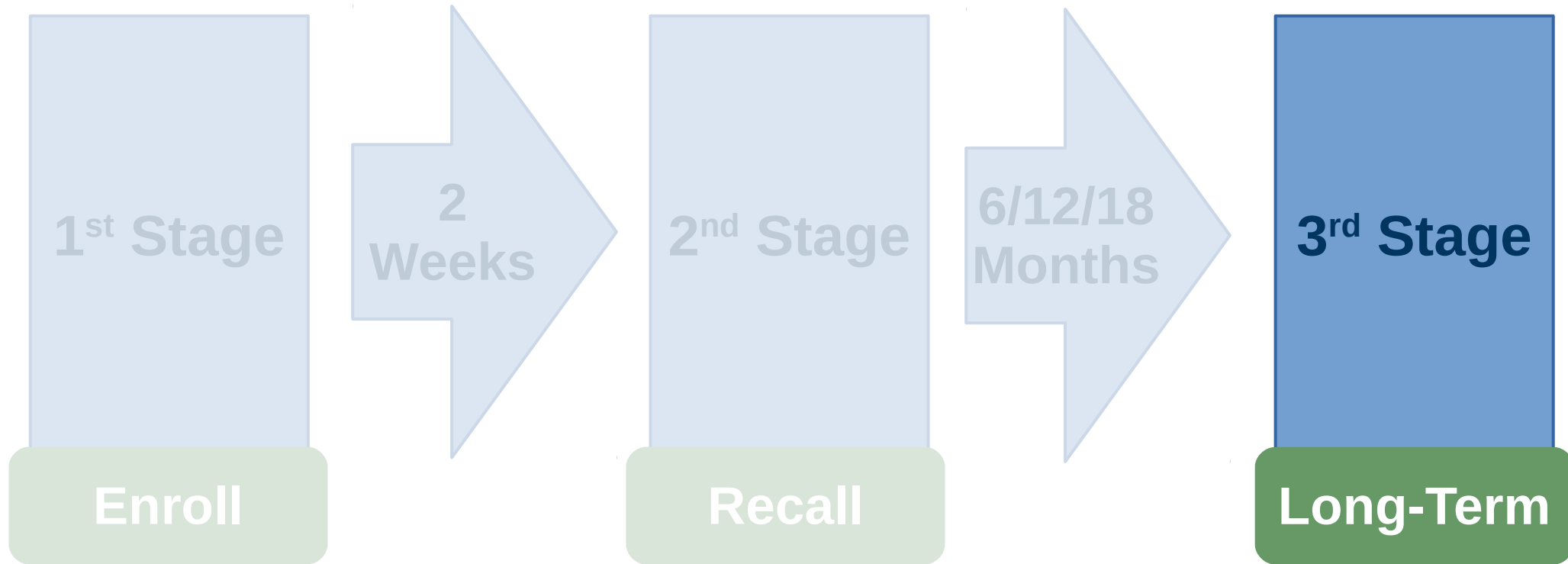
Different

Enroll

How Do We Want To Do it?

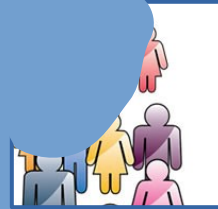


How Do We Want To Do it?



$$1 + 1 = 2$$

3rd Stage

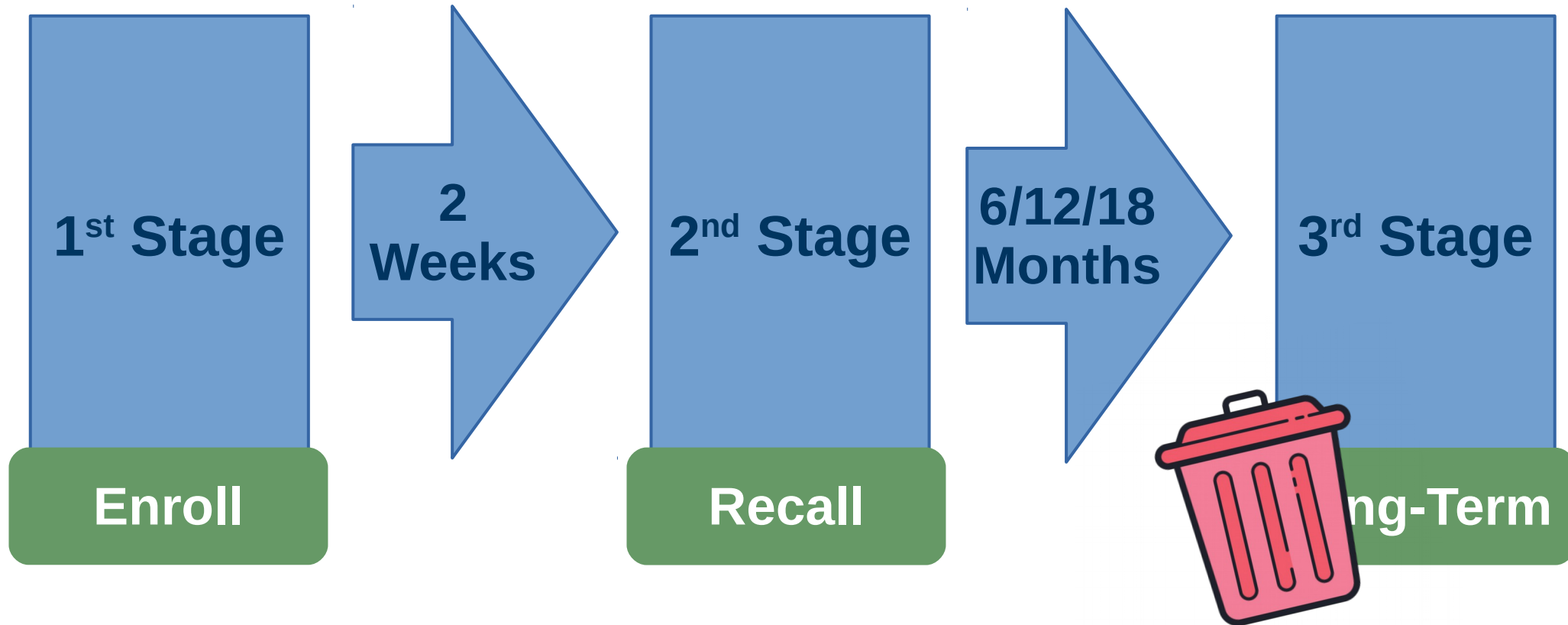


Long-Term

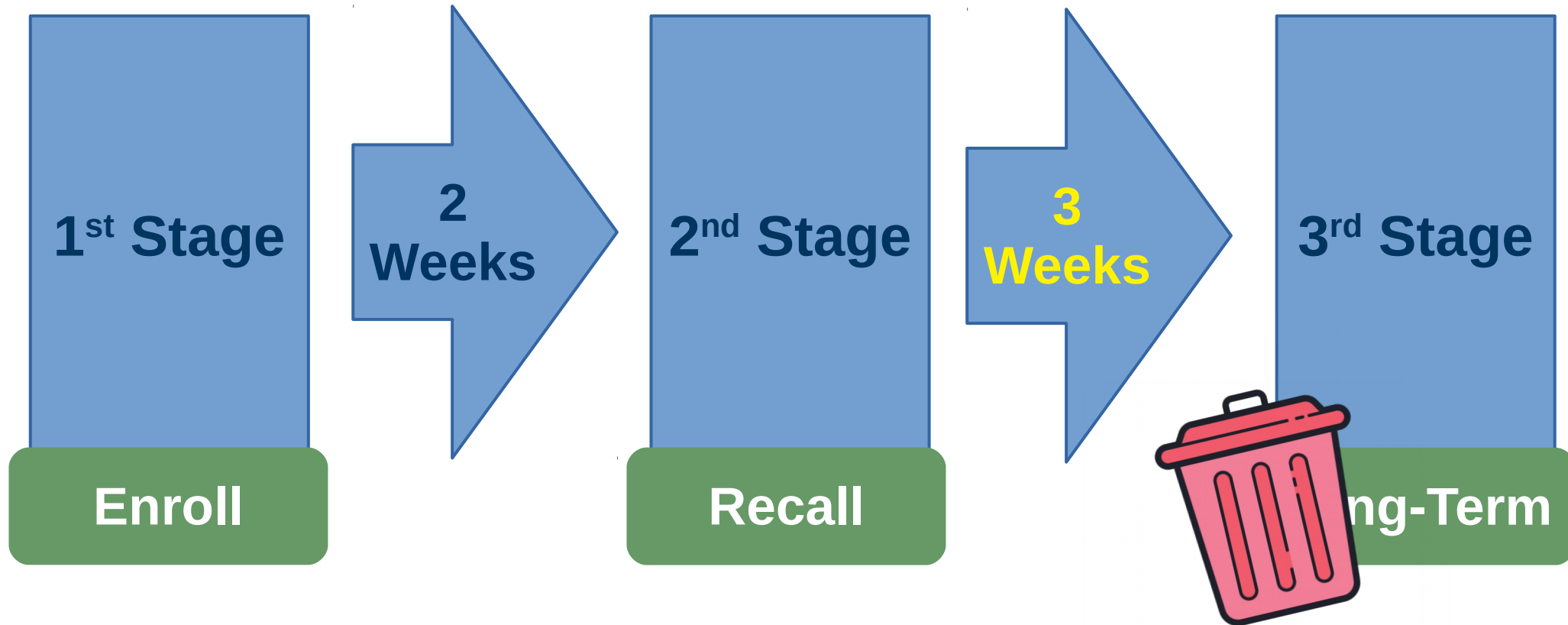


Did You Conduct A Pilot Study?

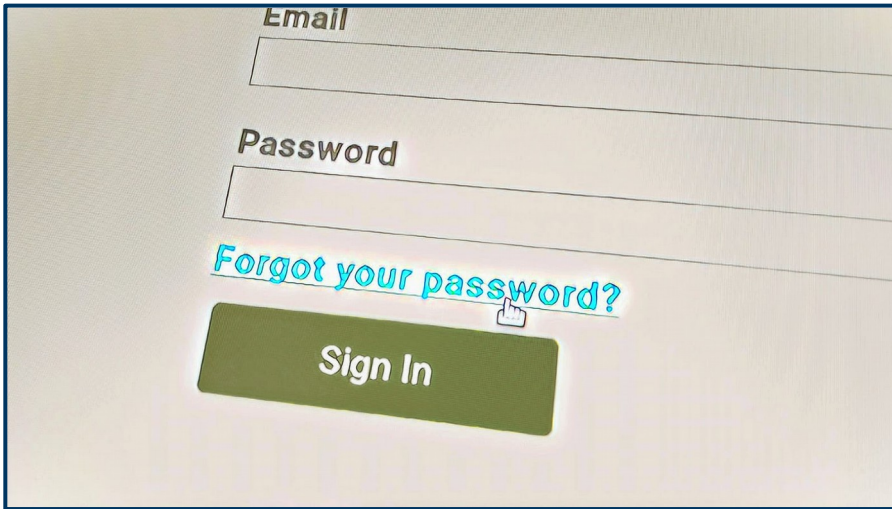
Did You Conduct a Pilot Study? Yes!



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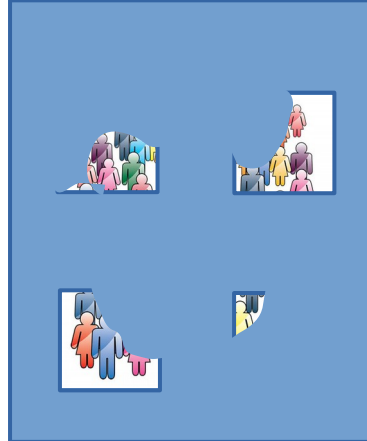
Results?



- (1) Recall Rate
- (2) Convenience
- (3) Recall Time



12/12
100%



11/12
92%



10/11
91%

9/12
75%

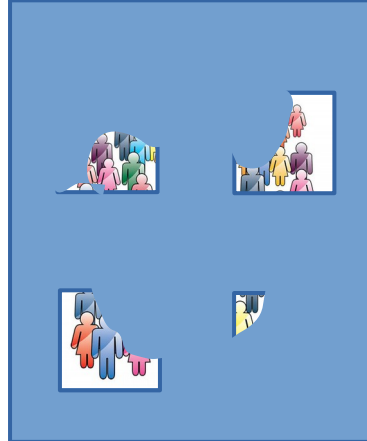
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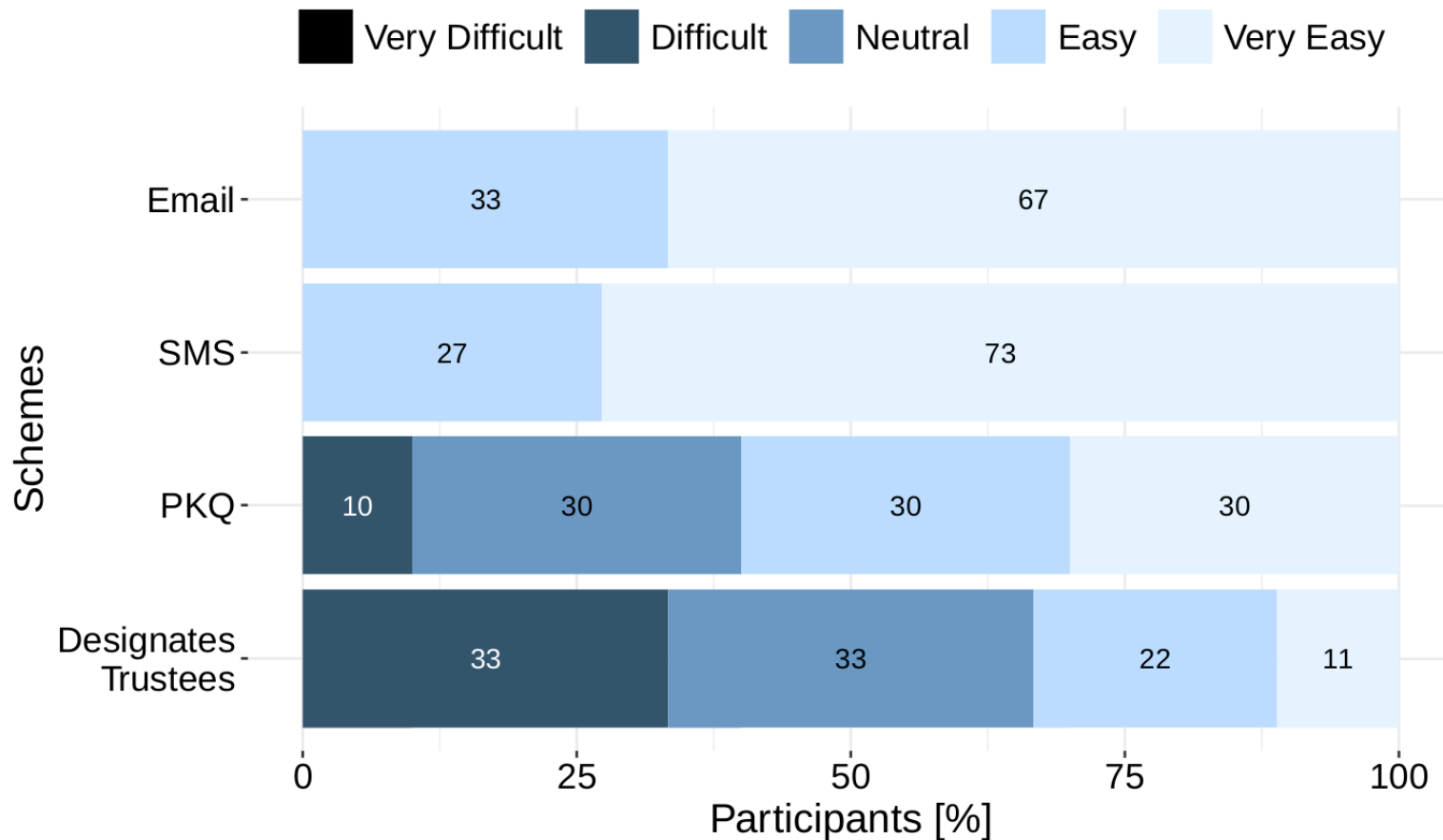
Name three trusted contacts:

trustedContact1@gmail.com

trustedContact2@yahoo.com

trustedContact3@hotmail.co.uk

Resetting my password was:





Ø: 34s

Ø: 98s

Ø: 16min

Ø: 6h

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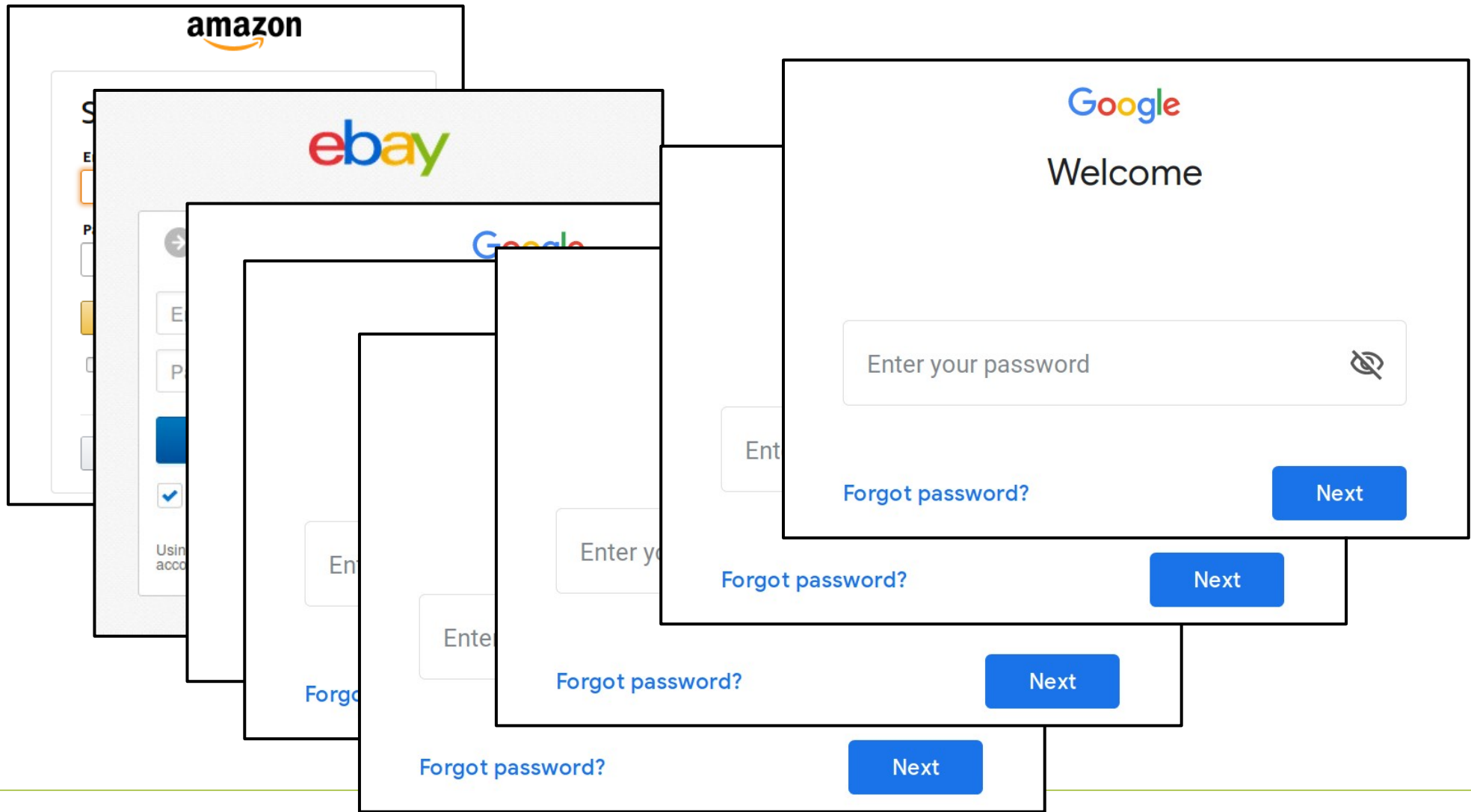
Overall Results

Position	Recovery Rate	Convenience	Recovery Time
1	Email	SMS	Email
2	SMS	Email	SMS
3	PKQ	PKQ	PKQ
4	Trustees	Trustees	Trustees

Overall Results

Position	Efficiency	Convenience	Recovery Rate
1	Email	SMS	Email
2	SMS	Email	SMS
3	PKC	PKC	PKC
4	Trustees	Trustees	Trustees

So, Email It Is!?



Email
[]

Password
[]

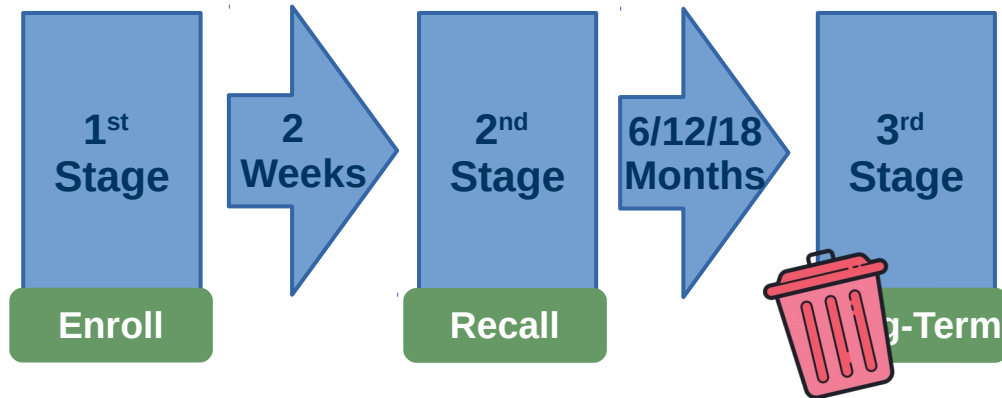
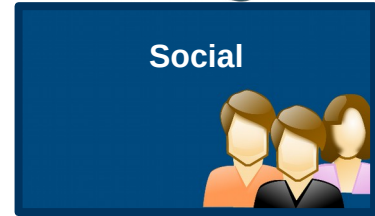
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