

Open edX Analytics

Victor Shnayder

Open edX Conference, October 13, 2015



Hi.

I'm Victor, the product manager for analytics at edX.



The team does all the work:

Gabe Mulley

Brian Wilson

Dennis Jen

Daniel Friedman

Hassan Javeed

Olga Stroilova

and others previously

Learning Objectives

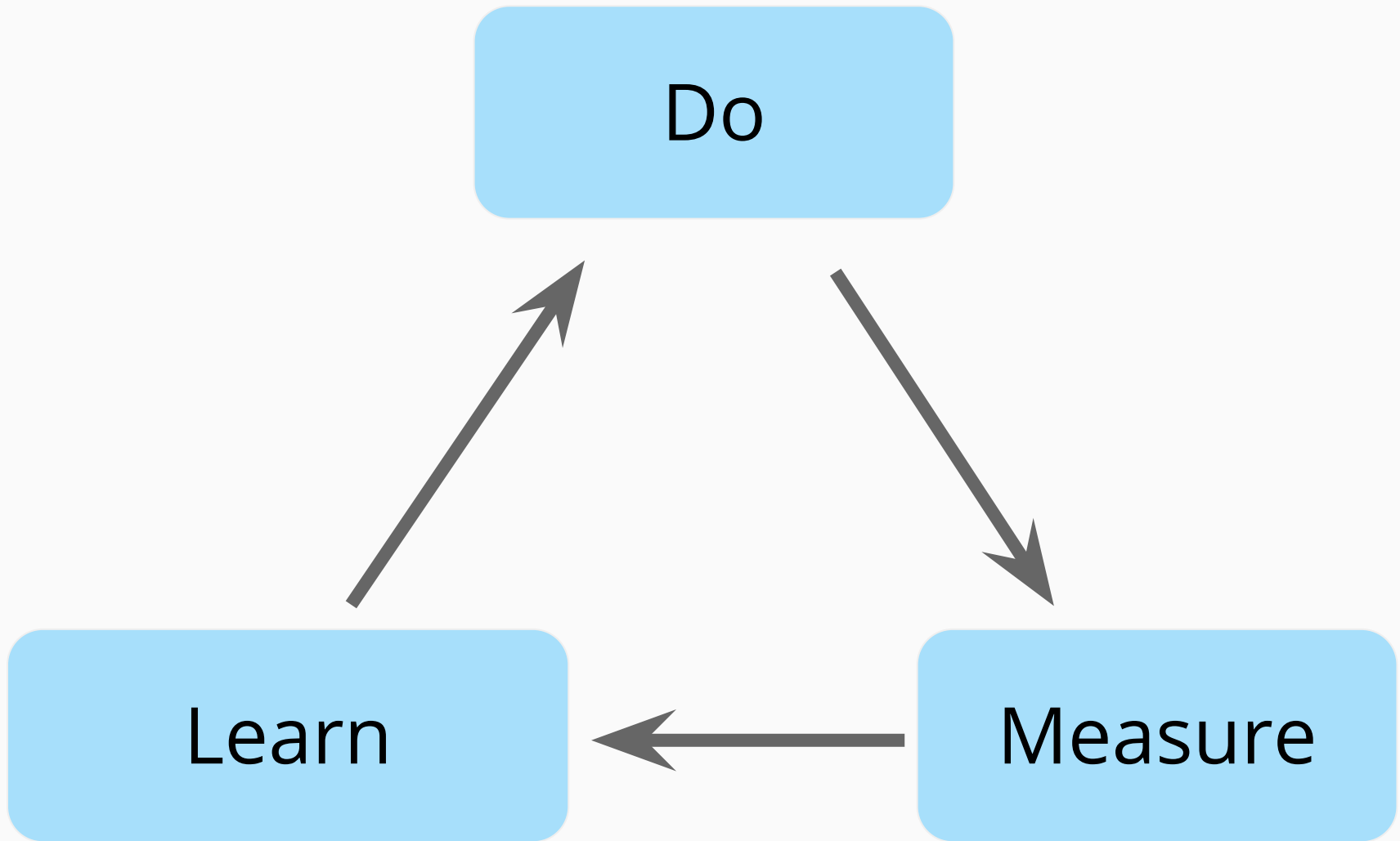
What do we do?

What are we planning?

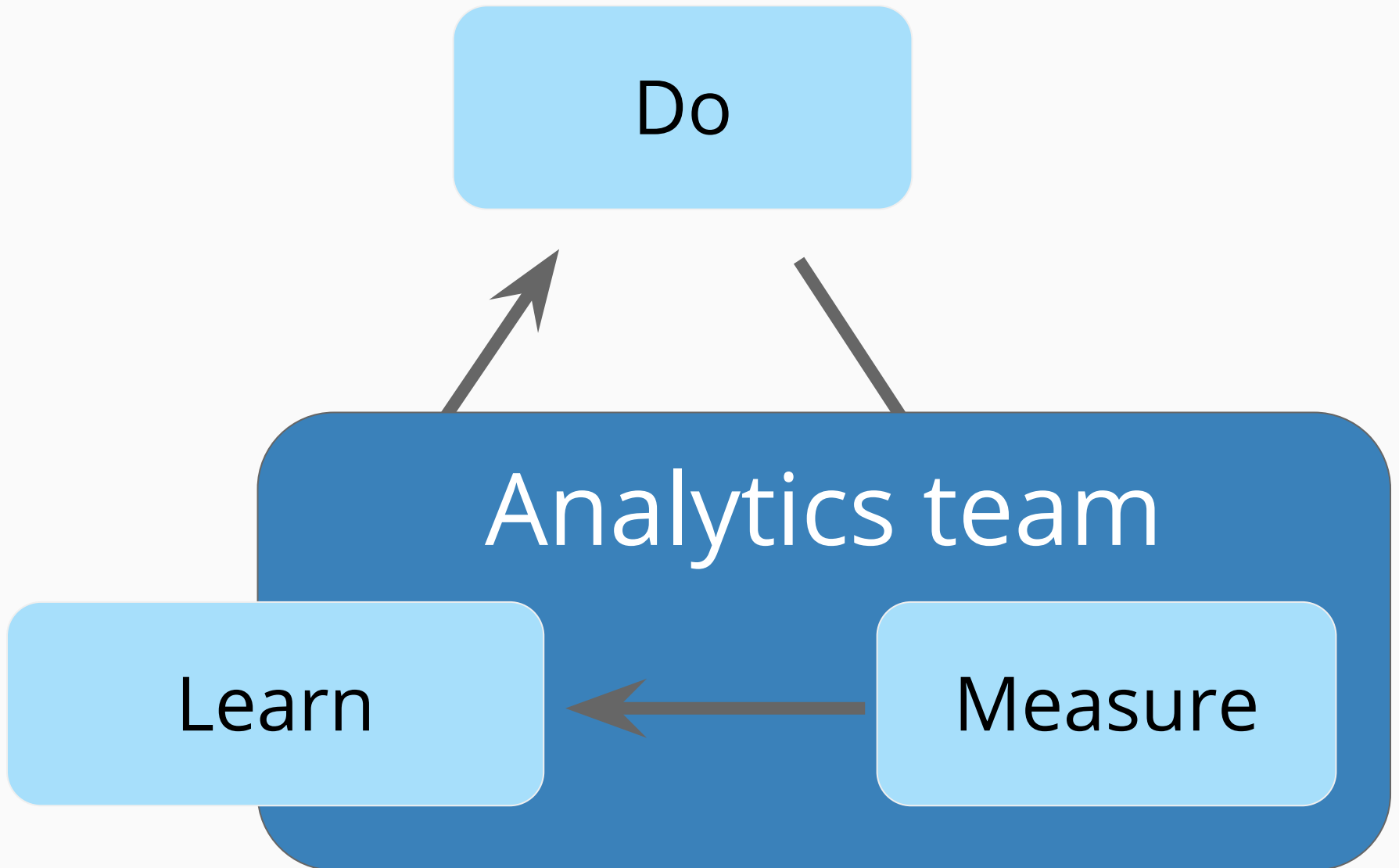
How can you get involved?

What do we do?

It's all about the feedback loop.



It's all about the feedback loop.



Course
team

Researcher

Student

Institution

edX

Open edX
Community

Course
team

Researcher

Student

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edX

Open edX
Community

Who are my students?

What are they doing?

How well are they learning?

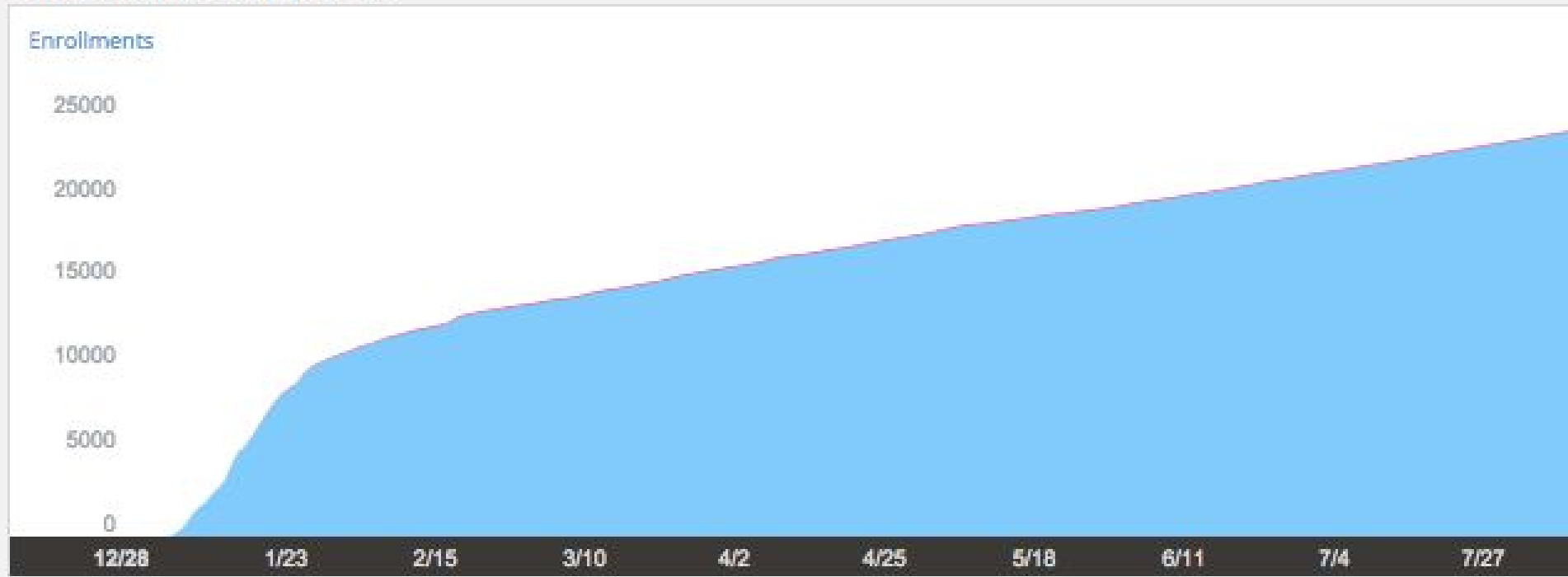
edX INSIGHTS

Who are my students?

What are they doing?

How well are they learning?

Daily Student Enrollment



Enrollment Metrics

33,454 ⓘ
Total Enrollment

26,615 ⓘ
Current Enrollment

-122 ⓘ
Change in Last Week

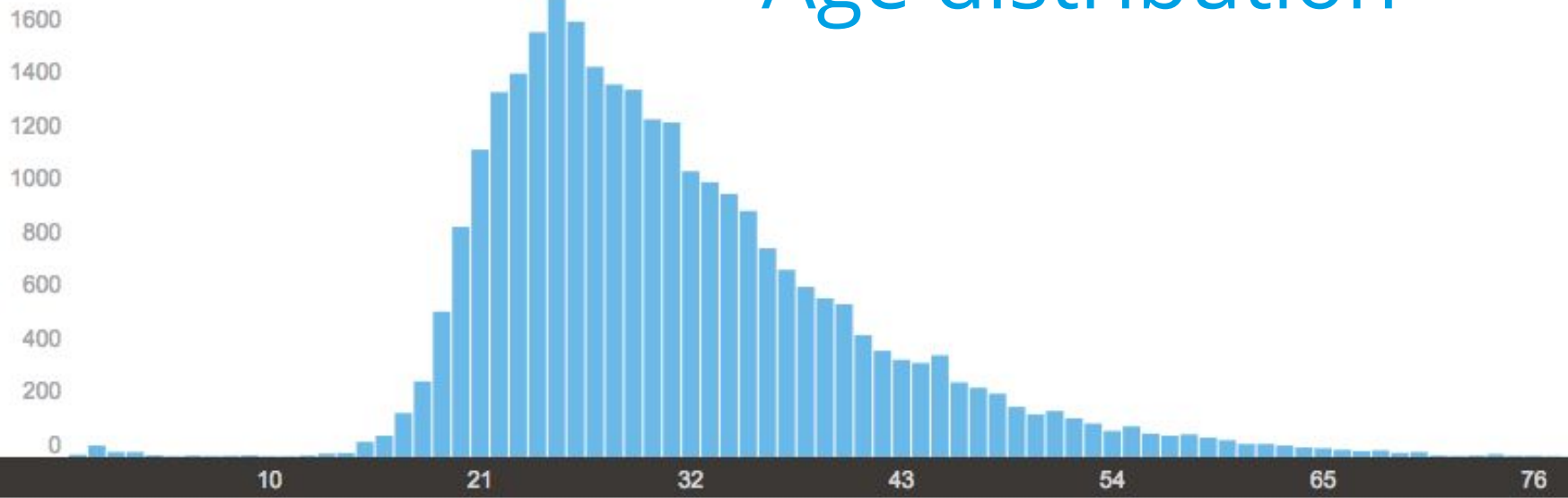
Age

Education

Gender

Students (Self-Reported)

Age distribution



Age Metrics

29

Median Student Age

31.9%

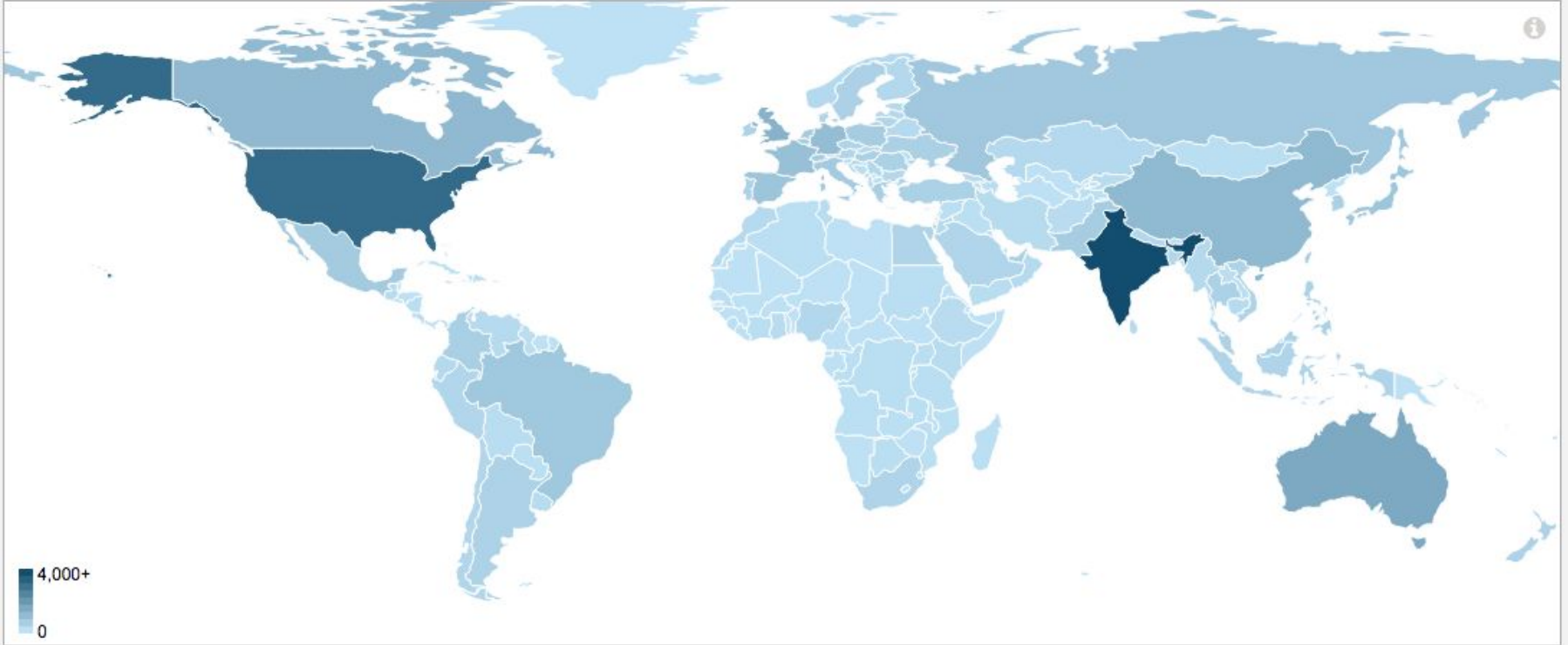
Students 25 and Under

52.9%

Students 26 to 40

Geographic Distribution

Where are my students?



Geography Metrics

151
Total Countries Represented

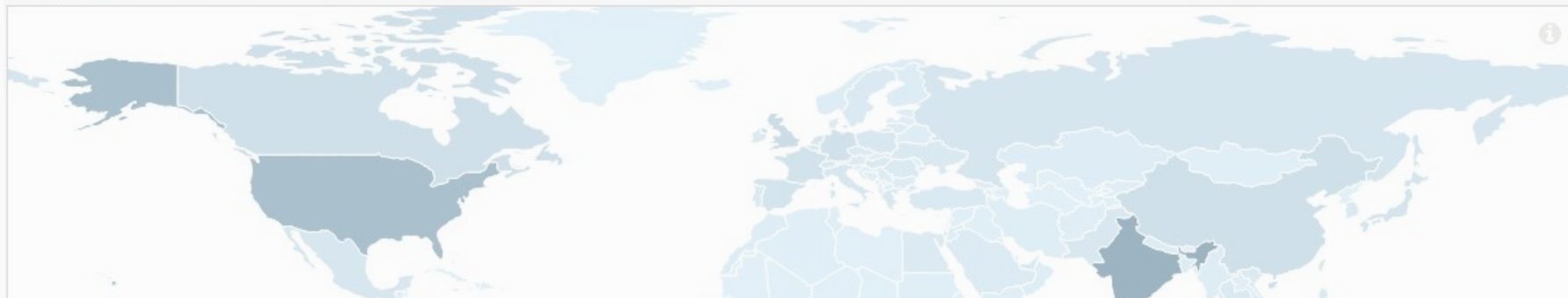
India
Top Country by Enrollment
35% of students

United States
Second Country by Enrollment
22% of students

Australia
Third Country by Enrollment
5% of students

Geographic Distribution

Where are my students?



India

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Geography Metrics

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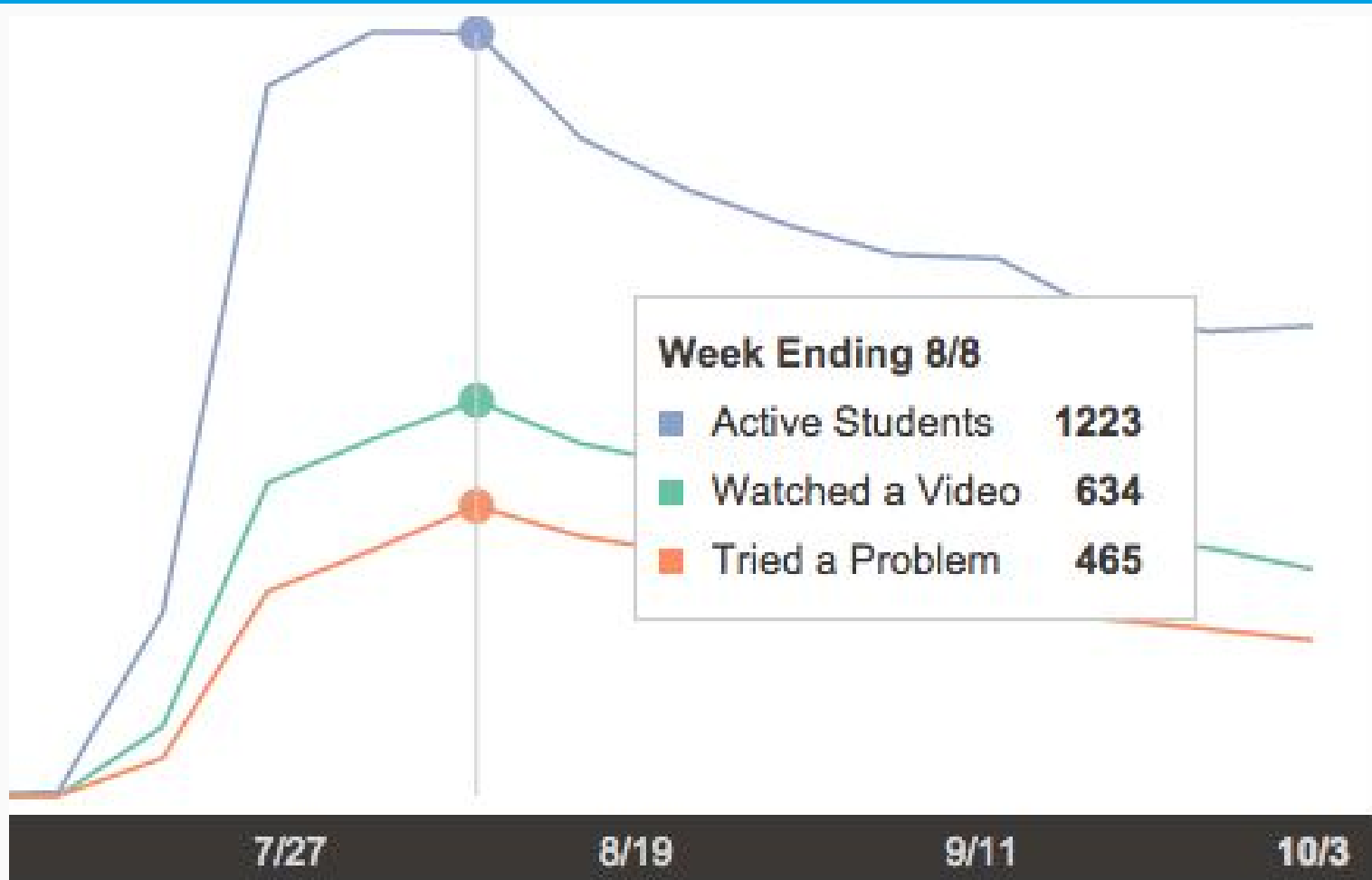
Understanding our global distribution of students and their age range helps us understand if we are attracting the audience we had set out to.



Who are my students?

What are they doing?

How well are they learning?



753
Active Students Last Week

364
Watched a Video Last Week

250
Tried a Problem Last Week

Video Insights

ENGAGEMENT ▾

Content

Videos

Week 1 ▾

Lecture, continued ▾

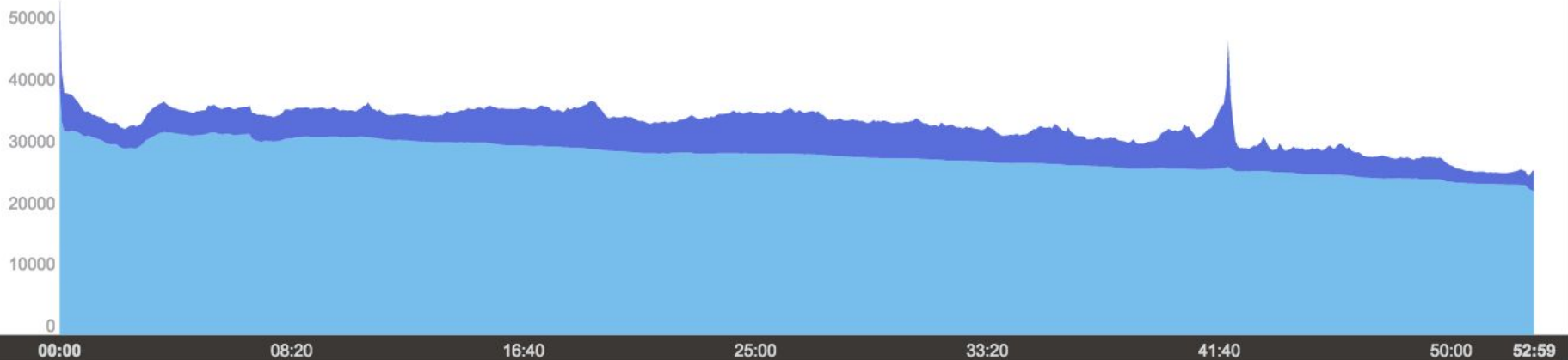
Lecture, continued ▾

What were the viewing patterns for this video?

Expand Preview

View Live

Total Video Views



Previous Video

Next Video

Video Insights

ENGAGEMENT ▾

Content

Videos

Week 1 ▾

Lecture, continued ▾

Lecture, continued ▾

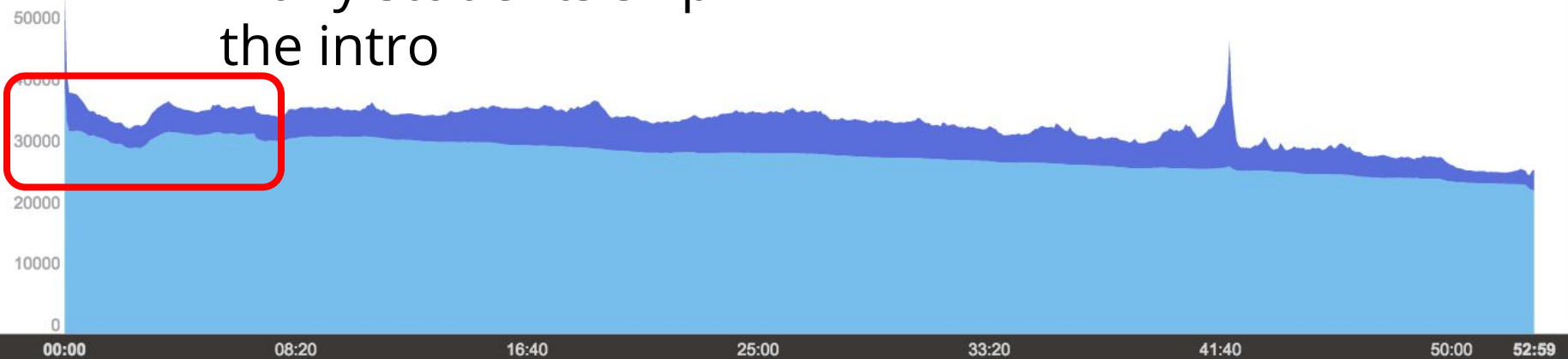
What were the viewing patterns for this video?

Expand Preview

View Live

Total Video Views

Many students skip
the intro



Previous Video

Next Video

Video Insights

ENGAGEMENT ▾

Content

Videos

Week 1 ▾

Lecture, continued ▾

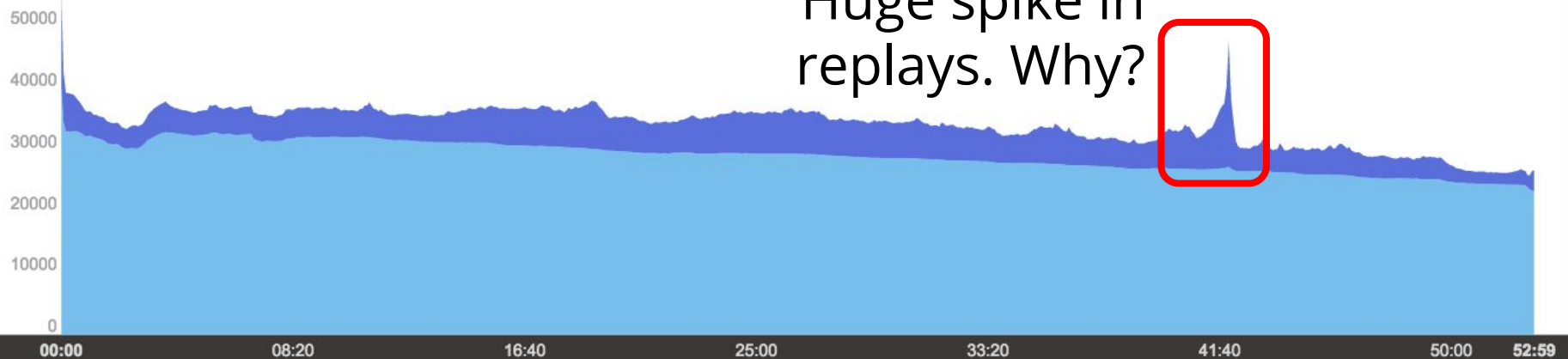
Lecture, continued ▾

What were the viewing patterns for this video?

Expand Preview

View Live

Total Video Views



Previous Video

Next Video

Where we see certain activity dips or that students are not utilising the components, it will act as trigger for interventions.



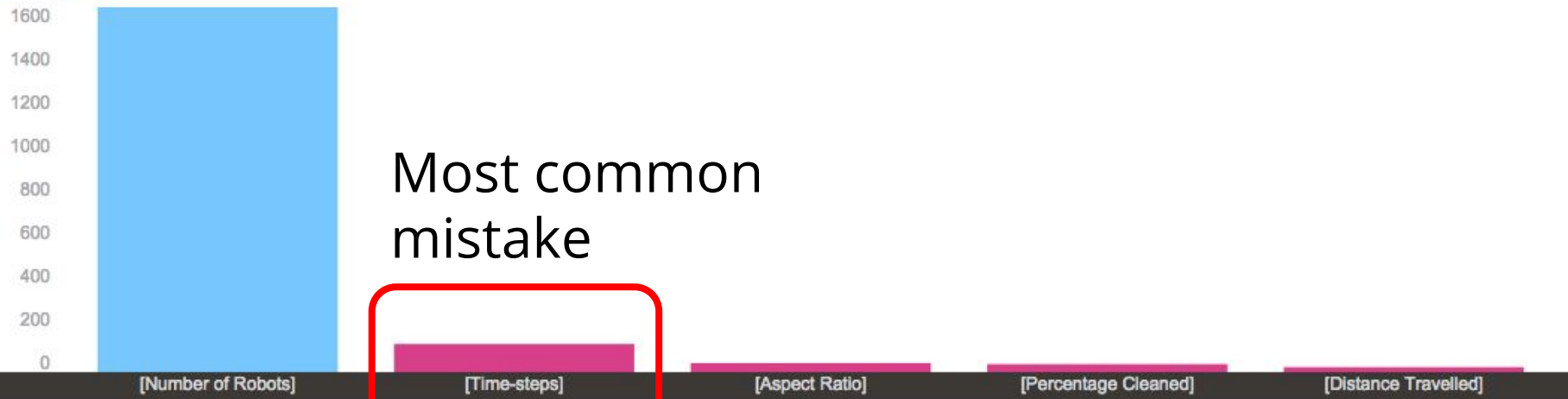
Who are my students?

What are they doing?

How well are they learning?

Problem Answer Distributions

Submissions



[Download CSV](#)

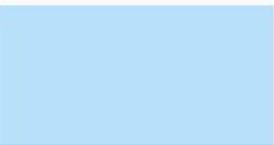
Submission Counts

Answer	Correct	Submission Count
[Number of Robots]	Correct	1,684
[Time-steps]	-	130
[Aspect Ratio]	-	42
[Percentage Cleaned]	-	37
[Distance Travelled]	-	23

Problem Answer Distributions

Submissions

1600
1400
1200



Answer ⌵

Submission Count ▼

[Number of Robots]

1,684

[Time-steps]

130

[Aspect Ratio]

42

[Percentage Cleaned]

-

37

[Distance Travelled]

-

23

Course
team

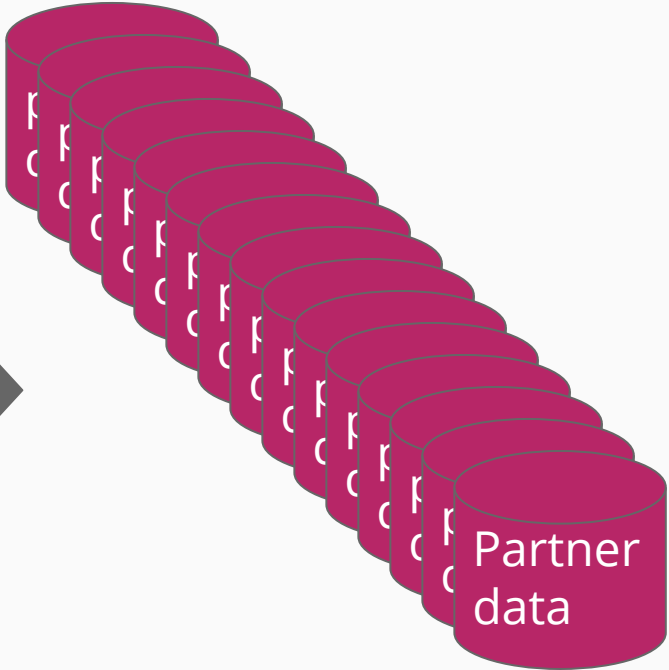
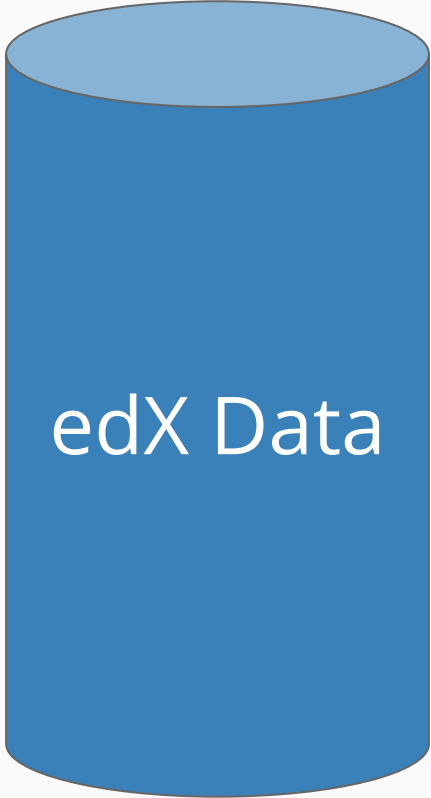
Researcher

Student

Institution

edX

Open edX
Community



Course
team

Researcher

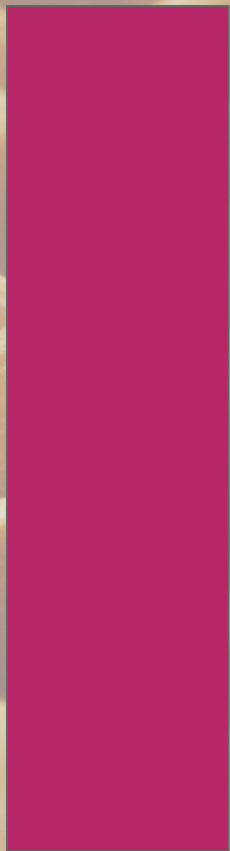
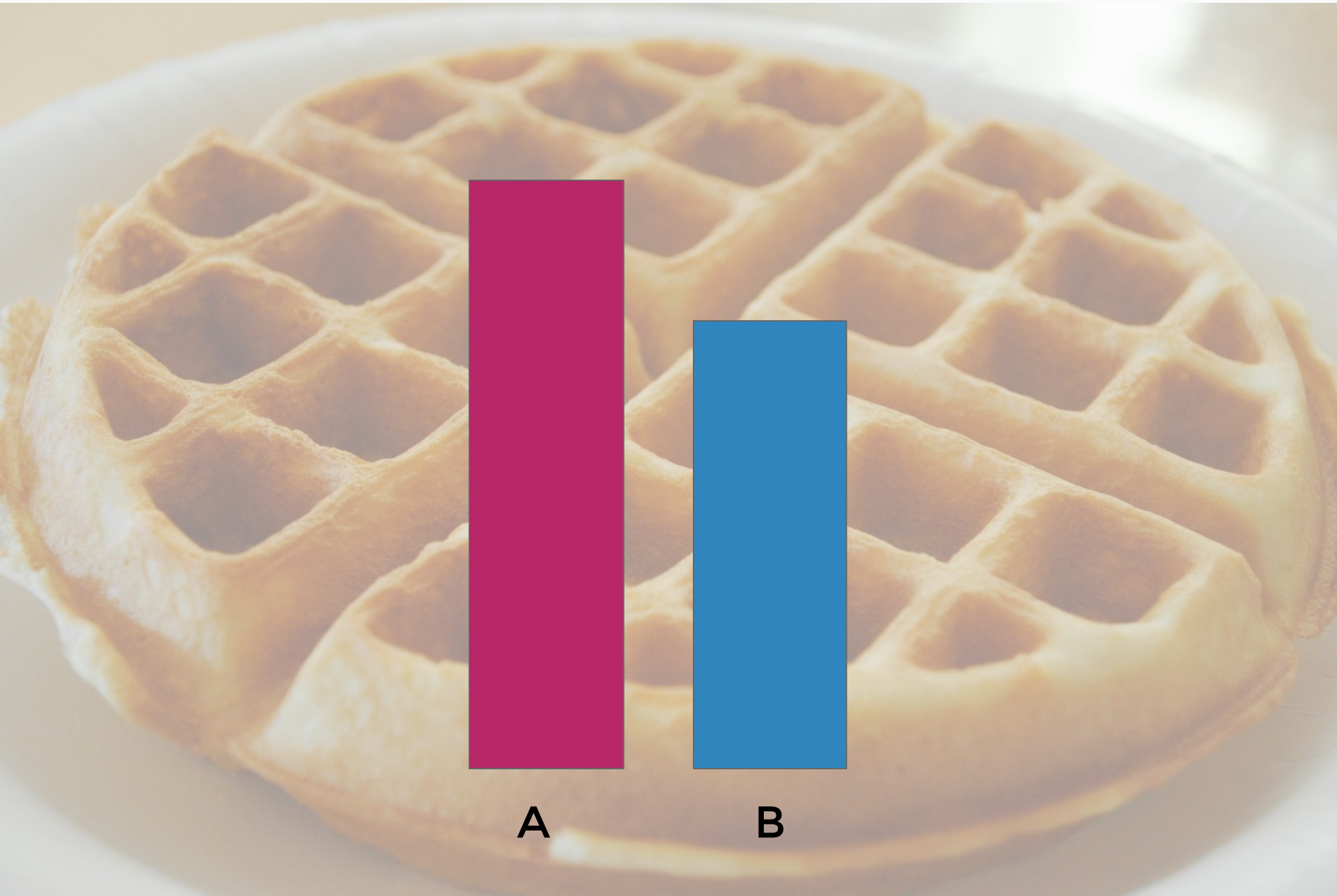
Student

Institution

edX

Open edX
Community





A



B

Course
team

Researcher

Student

Institution

edX

Open edX
Community

Repositories

People 95

Filters ▾

analytics

edx-analytics-dashboard

Python ★ 21 🍷 28

Dashboard to display course analytics to course teams

Updated an hour ago



edx-analytics-pipeline

Python ★ 12 🍷 24

Updated 5 hours ago



edx-analytics-configuration

Python ★ 0 🍷 12

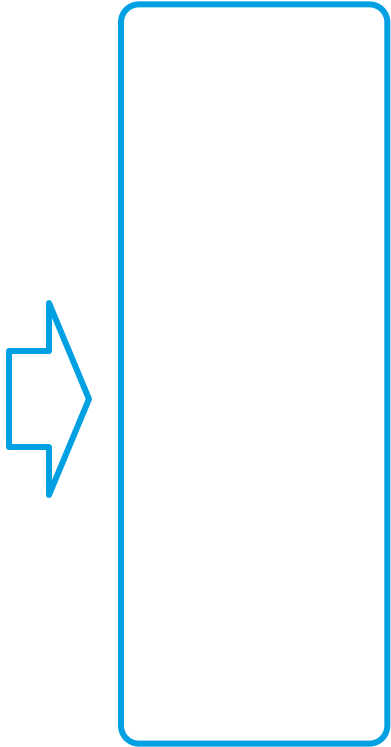
Updated 3 days ago



Thanks to everyone who's helped so far!

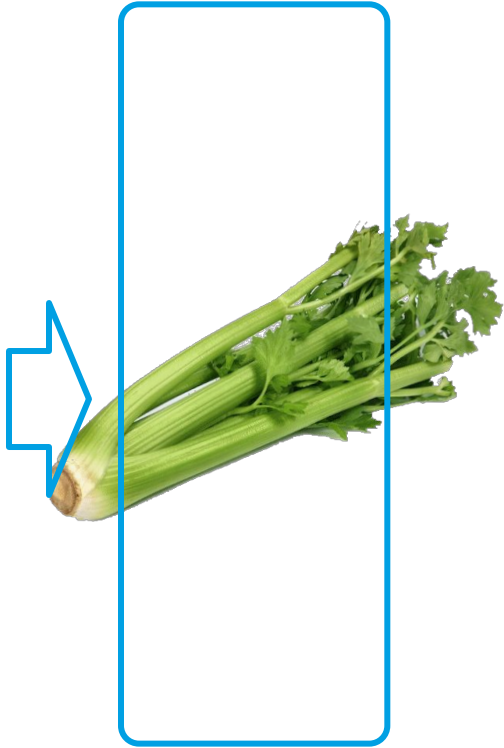
Let's dive under the hood

Analytics Pipeline



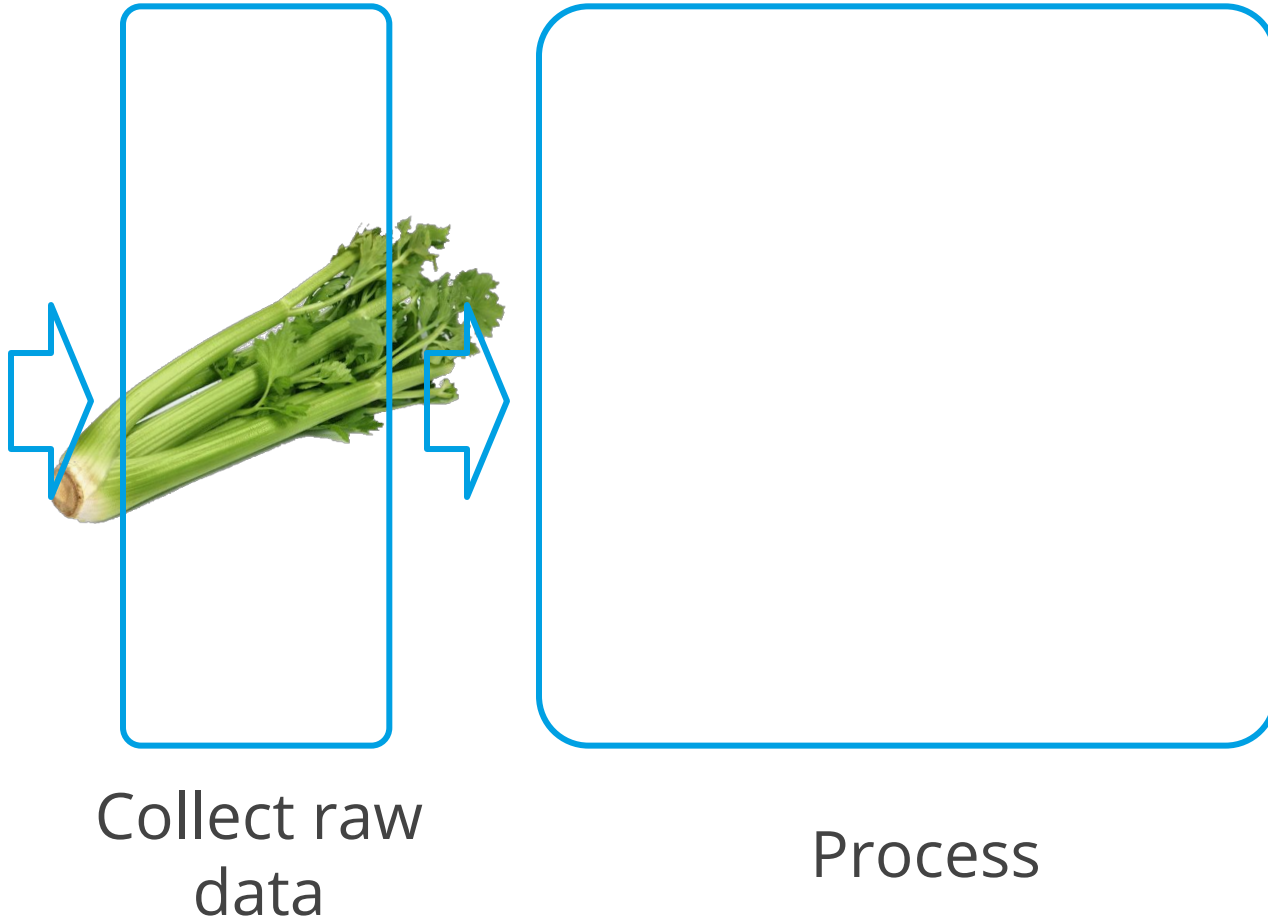
Collect raw
data

Analytics Pipeline

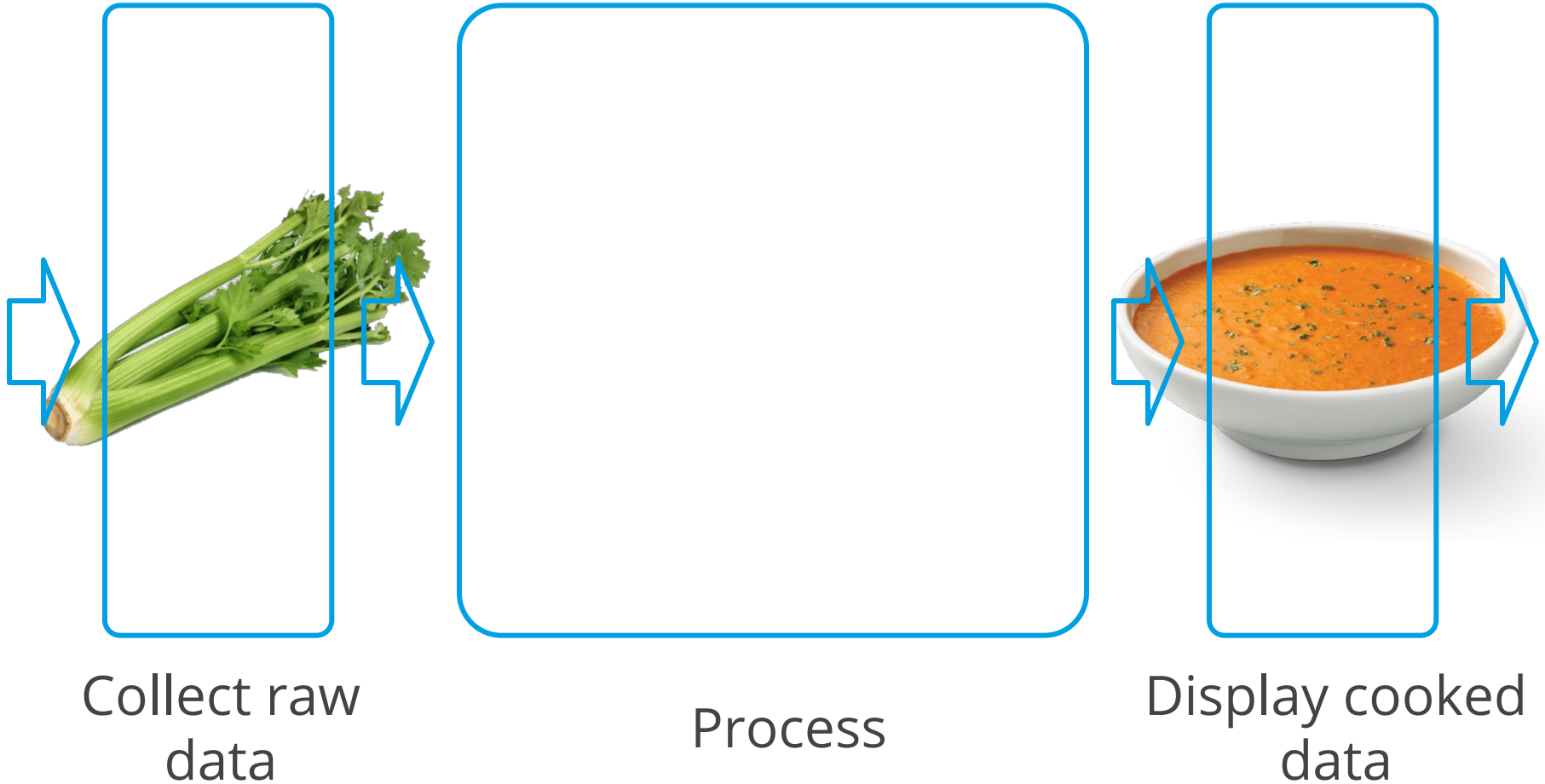


Collect raw
data

Analytics Pipeline



Analytics Pipeline

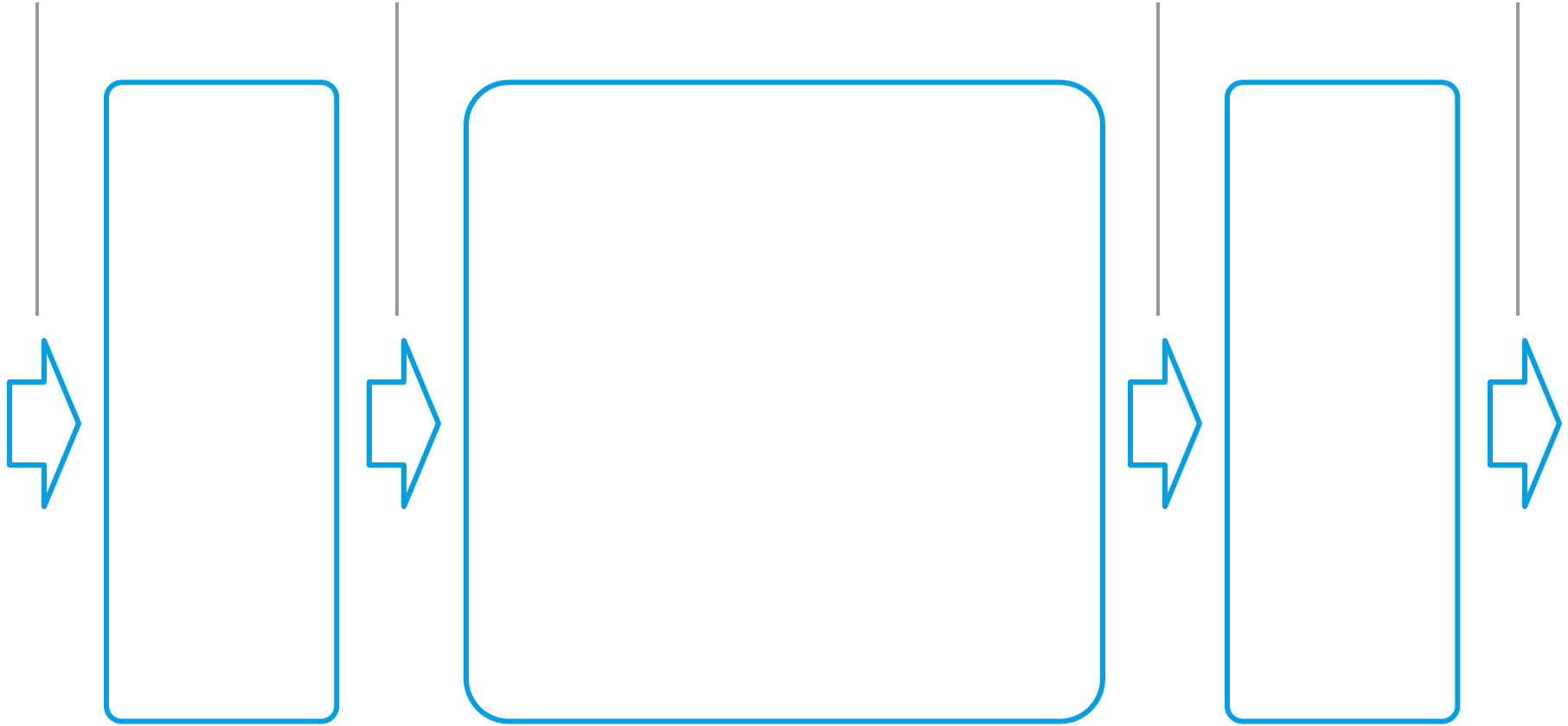


Behavior

Events

Queries

Knowledge

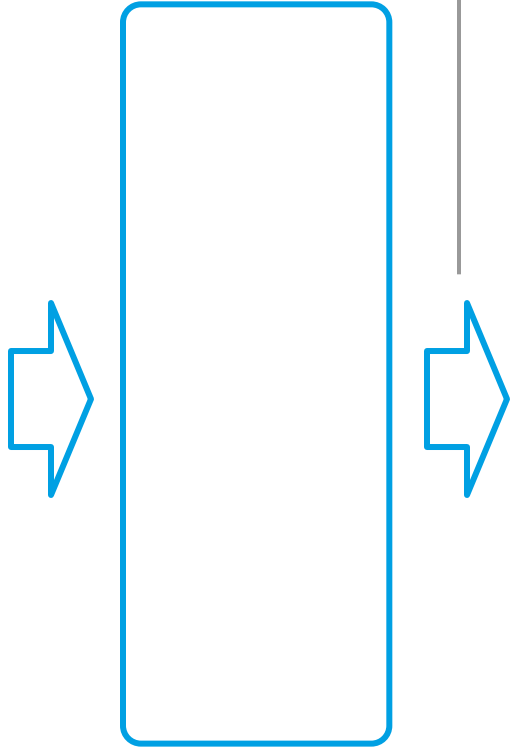


LMS

Pipeline

Insights

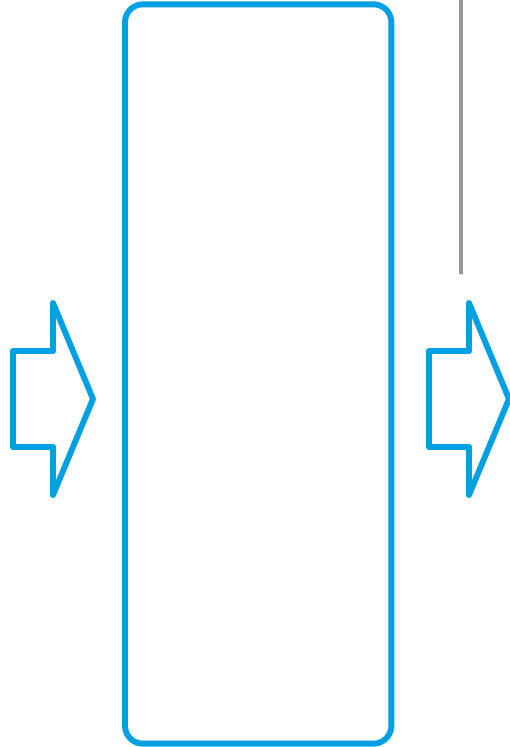
Events



LMS

```
{  
  "username": "Victor",  
  "event_type": "play_video",  
  "event_source": "mobile",  
  "name": "edx.video.played",  
  "time": "2014-12-09T03:57:24+00:00",  
  "context": {  
    "component": "videoplayer",  
    "course_id": "edX/DemoX/Demo_Course"}}  
},  
  "event": {"code": "mobile", "id": "12345"},  
  "currentTime": 114}  
}
```


Events



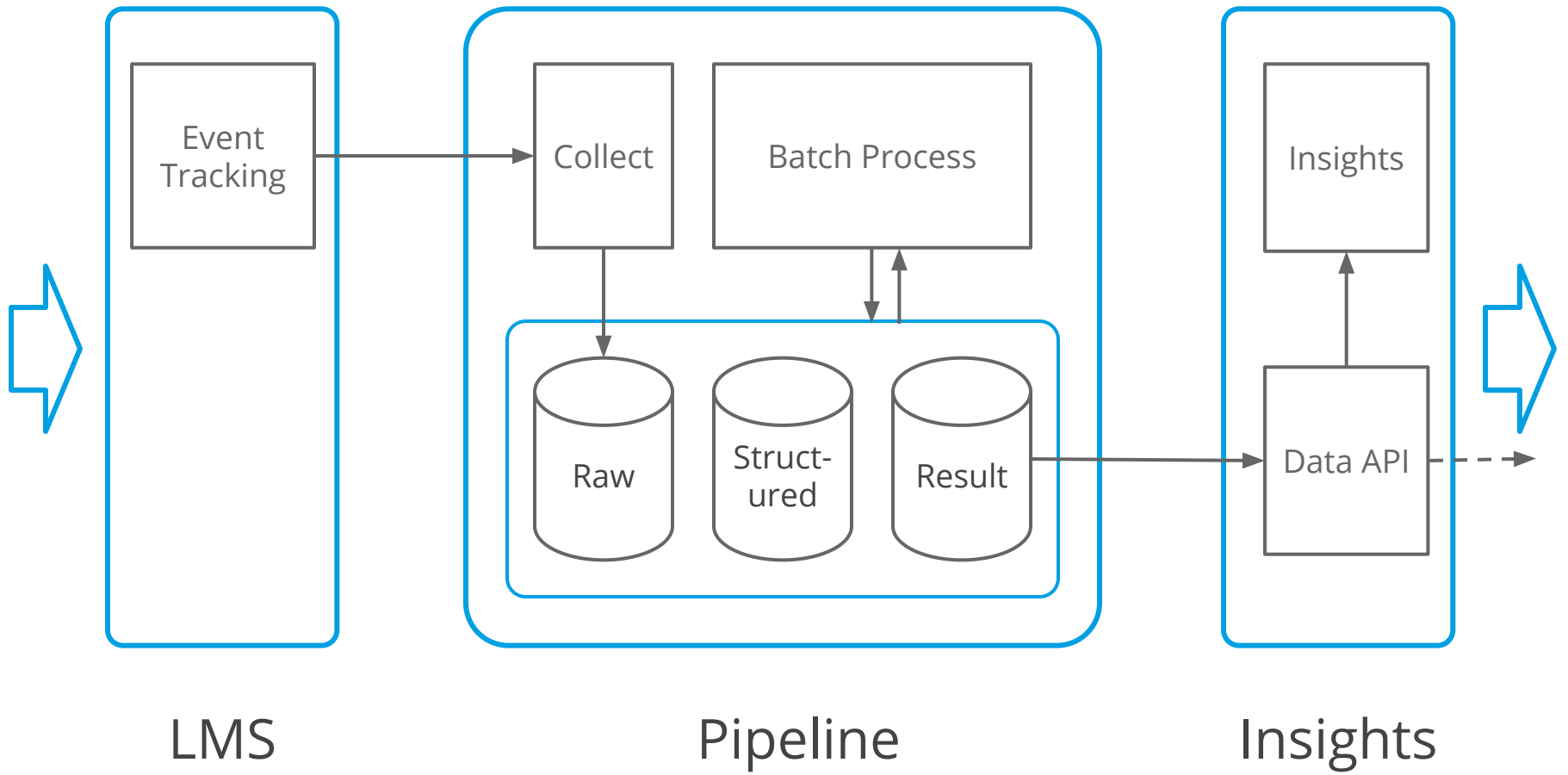
Have to track things to measure and report on them.

New student facing features need analytics instrumentation.

Plan for this in your PRs.

LMS

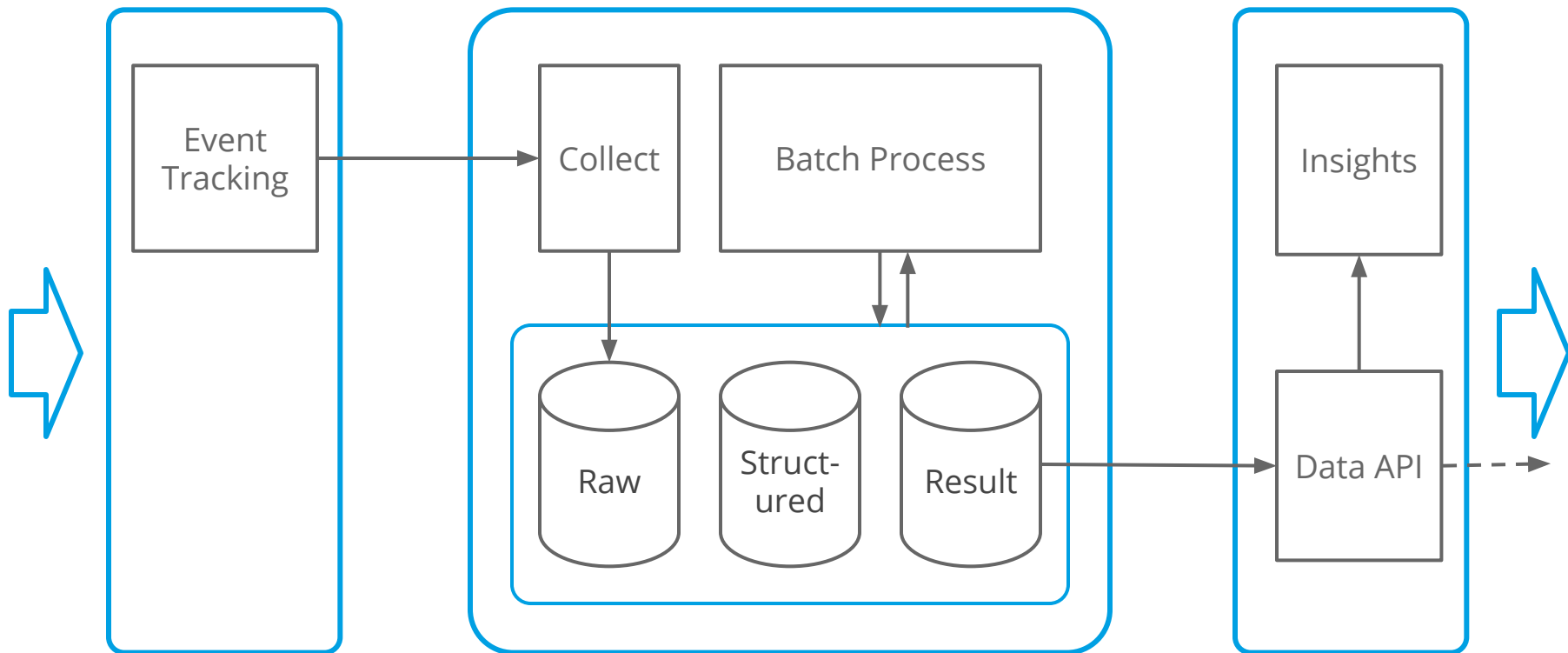
[See the Open edX developer guide](#)



Python

Hadoop, Hive, Luigi, Jenkins

Django,
REST API



LMS

Pipeline

Insights

Analytics devstack

Pipeline

Insights

“Regular” devstack

[See the Guide to Installing and Running Open edX](#)

What are we planning?

Per-learner analytics

Per-learner analytics

Which students are struggling?

Per-learner analytics

Which students are struggling?

Has Ned B been engaged recently?

Per-learner analytics

Which students are struggling?

Has Ned B been engaged recently?

Who might make a good community
TA?

Learner Analytics



Viewing All 145 Learners

Low Grades (4)

Struggling (12)

Disengaging (12)

Hide Inactive

Get in touch with this group

[Contact All Learners](#)

Username ▾

Grade

Discussion Activity

Problems Attempted

Problems Completed

Attempts per Problem Completed

Videos Watched

AchievingAlex

Alex Sektor

92.2

24

138

76

2.1

30



FailingFloyd

Floyd Malloy

45.5

1

4

2

10.2

2



StrugglingSato

Bruce Sato

73.2

14

117

24

15.1

24



MediocreMiles

Miles Mayhem

72.2

7

100

65

5.2

24



NotThereNash

Nash Gorey

0

0

0

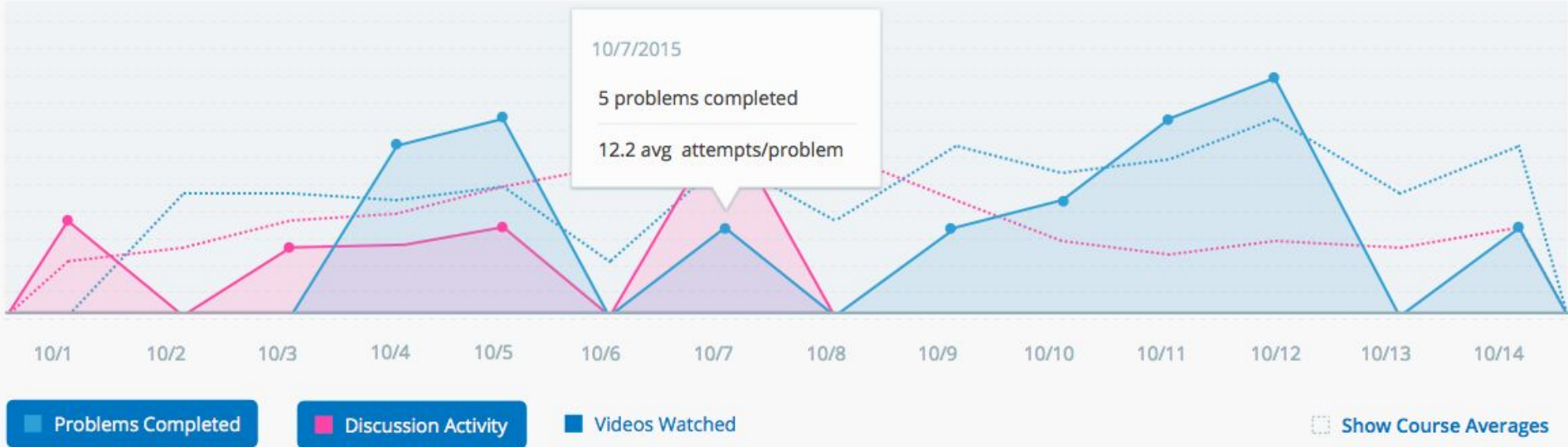
0

0

0

Floyd's Activity

10/1/2015 - 10/14/2015



Floyd's attempts per problem dramatically escalated in [Review and Prep to Crush This Course](#) about 10 days ago.

[Reach Out to Floyd](#)

Developer improvements

Acceptance tests in devstack

Easier Insights development

Bug fixes and docs

How can you get involved?

Use Insights and the pipeline!



Documentation:

github.com/edx/edx-analytics-pipeline/wiki
docs.edx.org

Devstack and install scripts:

[Open edX developer guide](#)

Mailing list:

openedx-analytics@googlegroups.com

Contribute!



Priority: easy installation

(Hackathon projects ideas!)

Install docs

Devstack and deployment

Non-AWS install

Other contributions

New reports

UX improvements

Contact us early to coordinate

victor@edx.org

Thanks again!

Stanford
OpenCraft
IONISx
Edraak

Your turn:

What are your questions?

Stay in touch: victor@edx.org

