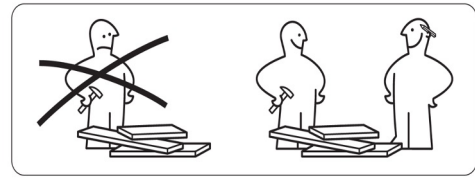




# MASTER of EDUCATIONAL TECHNOLOGY



## DIY LEARNING ANALYTICS

(THE “IKEA MODEL” FOR DEVELOPMENT OF A LEARNING ANALYTICS DASHBOARD)

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THE UNIVERSITY OF BRITISH COLUMBIA

[met.ubc.ca](http://met.ubc.ca)

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## Background



### Educator perspective

- Challenges of institutional LA implementation
- The need for LA customization to match learning design and pedagogical goals
- Awareness of LA potential but caught in LA limbo

### Practitioner perspective

- Desire for solutions somewhere between one-off and fully developed
- Limited development time and resources - building from what you know
- Assumed technical ability of users

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## An interim solution? *An IKEA LA model ‘flatpack’*

### Needs to:

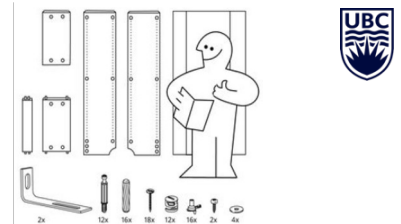
- Be moderately user friendly
- Use tools that educators can use and learn quickly (and probably for free)
- Use data that an ordinary educator has access to
- Have instructions ‘for dummies’

### The flatpack:

- A set of python scripts for data extraction and management,
- A prototype learning data dashboard built using Tableau data visualization software,
- Detailed step-by-step instructions that facilitate local project setup and maintenance.

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## The “flatpack” solution



### 1) Data Extraction



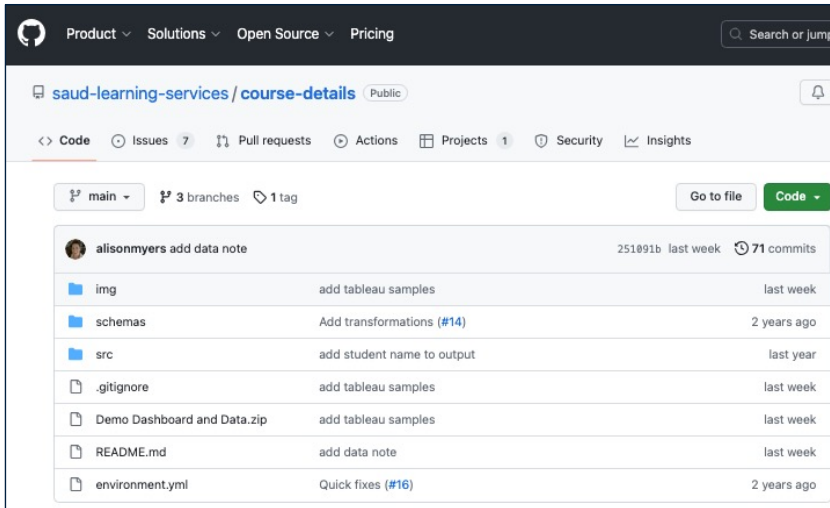
### 2) Project Management



### 3) Dashboard Development



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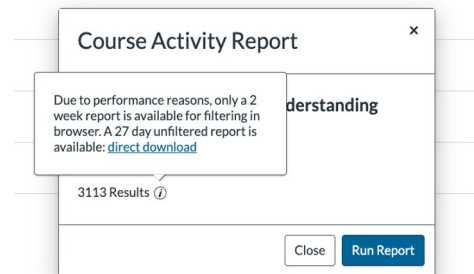
<https://github.com/saud-learning-services/course-details>

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## Canvas New Analytics - activity report



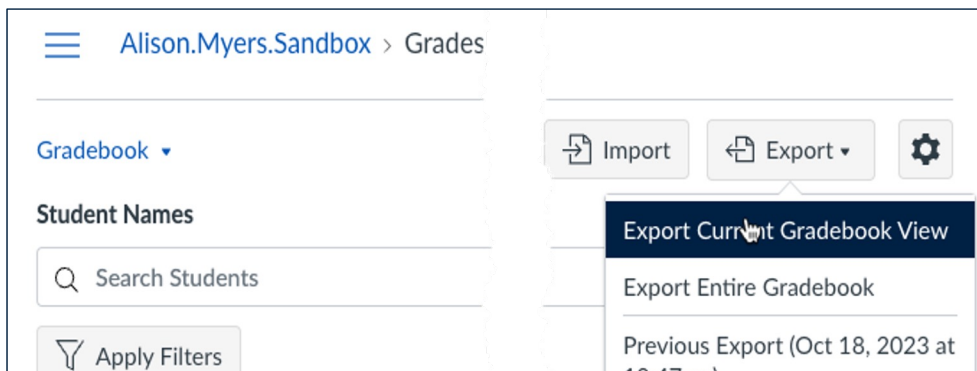
- Must be downloaded at a regular interval
  - Limited to 27 day downloads
  - Does not store past data from a course



contentType	contentName	startDate	pageviewCount	participationCount	lastAccessTime	firstAccessTime
course.externaltool	KALTURA - 161 - Media Gallery & BSE	2023-06-28	1	0	2023-06-28 10:58:48	2023-06-28 10:58:48
course.home	Course Home	2023-06-21	1	0	2023-06-21 10:49:01	2023-06-21 10:49:01
course.home	Course Home	2023-06-28	2	0	2023-06-28 11:33:18	2023-06-28 10:58:40

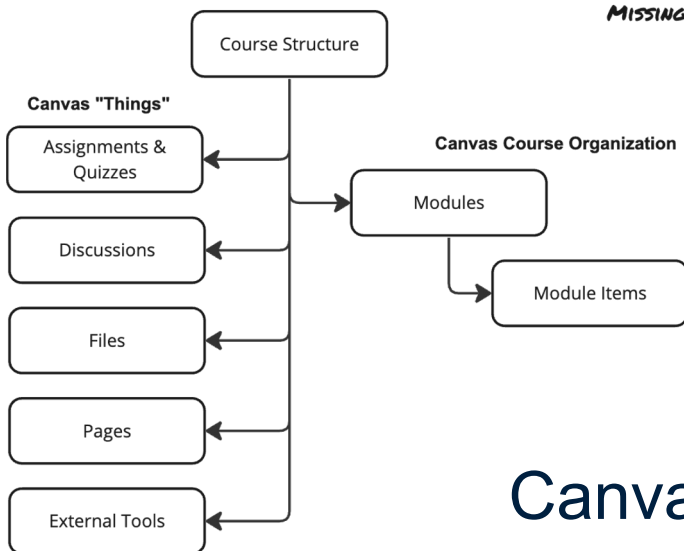
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# Gradebook



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*MISSING FROM NEW ANALYTICS*

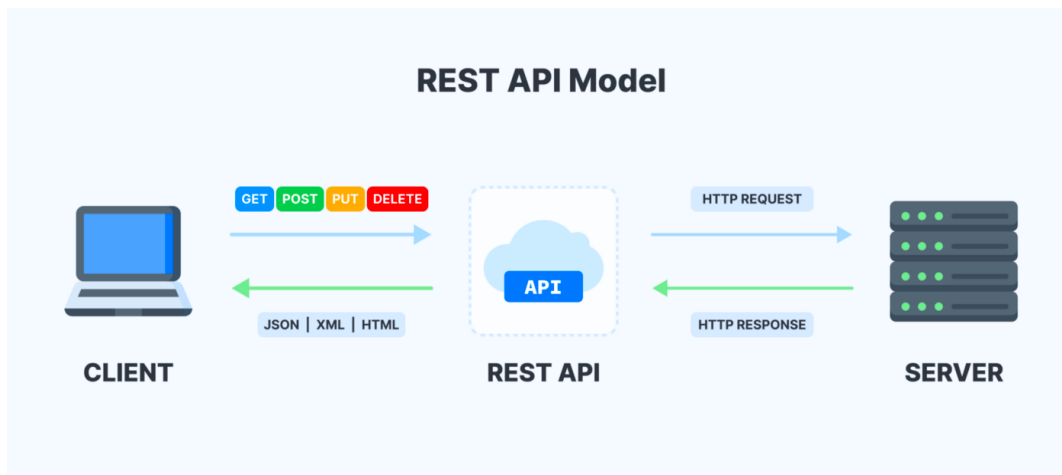


## Canvas "course" data

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# REST APIs



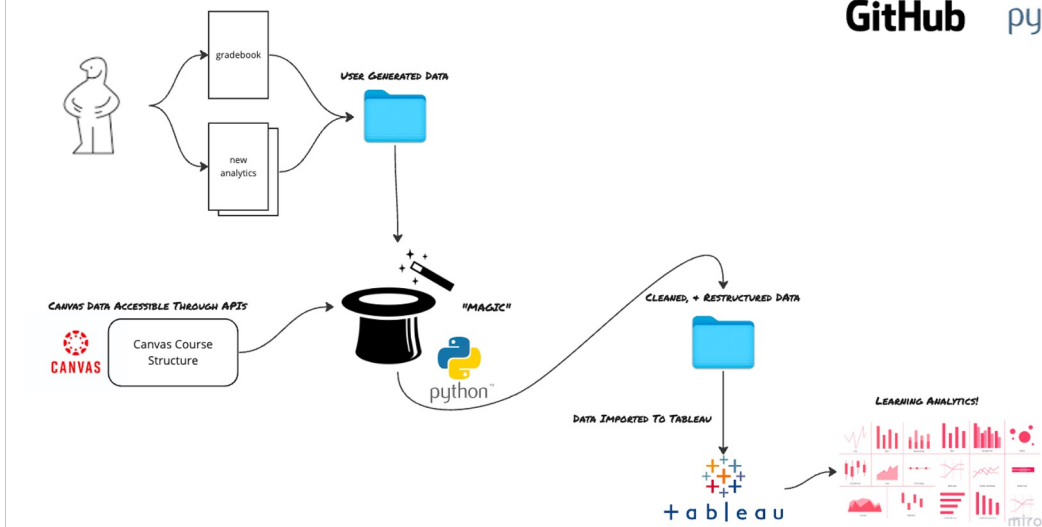
# Canvas REST API



canvas.instructure.com/doc/api/live#!/modules.json

Moderated Grading		List	Expand	Raw
<b>Modules</b>				
GET	/v1/courses/{course_id}/modules	List	Expand	Raw
GET	/v1/courses/{course_id}/modules/{id}	Show	Expand	Raw
POST	/v1/courses/{course_id}/modules	Create	Expand	Raw
PUT	/v1/courses/{course_id}/modules/{id}	Update	Expand	Raw
DELETE	/v1/courses/{course_id}/modules/{id}	Delete	Expand	Raw
PUT	/v1/courses/{course_id}/modules/{id}/relock	Re-lock	Expand	Raw
GET	/v1/courses/{course_id}/modules/{module_id}/items	List	Expand	Raw
GET	/v1/courses/{course_id}/modules/{module_id}/items/{id}	Show	Expand	Raw
POST	/v1/courses/{course_id}/modules/{module_id}/items	Create	Expand	Raw
PUT	/v1/courses/{course_id}/modules/{module_id}/items/{id}	Update	Expand	Raw
POST	/v1/courses/{course_id}/modules/{module_id}/items/{id}/select_mastery_path	Select	Expand	Raw
DELETE	/v1/courses/{course_id}/modules/{module_id}/items/{id}	Delete	Expand	Raw
PUT	/v1/courses/{course_id}/modules/{module_id}/items/{id}/done	Mark	Expand	Raw
GET	/v1/courses/{course_id}/modules/{module_id}/item_sequence	Get	Expand	Raw
POST	/v1/courses/{course_id}/modules/{module_id}/items/{id}/mark_read	Mark	Expand	Raw
GET	/v1/courses/{course_id}/modules/{context_module_id}/assignment_overrides	List	Expand	Raw
PUT	/v1/courses/{course_id}/modules/{context_module_id}/assignment_overrides	Update	Expand	Raw

# Pull everything together



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## Use case #1



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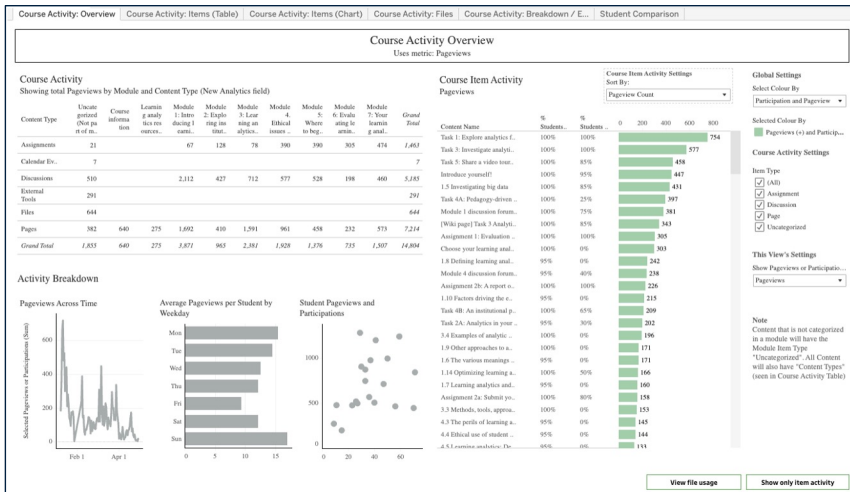
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# Kitchen sink dashboard (to be customized)



<http://tiny.cc/IKEAmodel>

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# Whole class progress and engagement

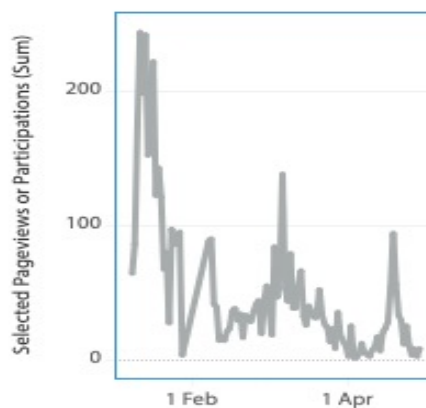


Pedagogical relevance

Sample dashboard element

- Is course activity engagement sustained over time?

Pageviews Across Time



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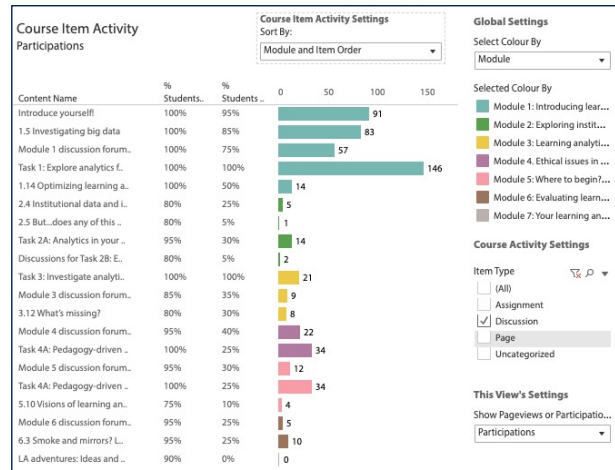
## Whole class progress and engagement



### Pedagogical relevance

- Are some course topics attracting more interest than others? Are some course topics being avoided?
- Are some course discussions attracting more engagement than others? How could discussions be redesigned to promote greater peer engagement?

### Sample dashboard element



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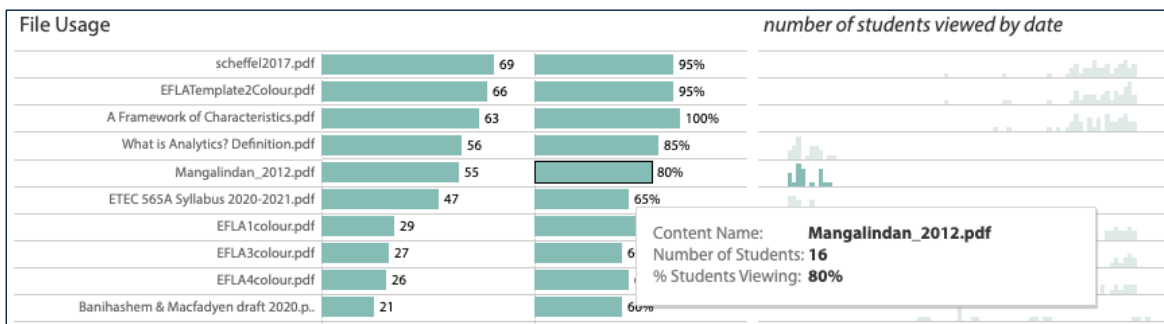
## Engagement with selected course resources



### Pedagogical relevance

- Which course resources are students accessing most? Least?

### Sample dashboard element



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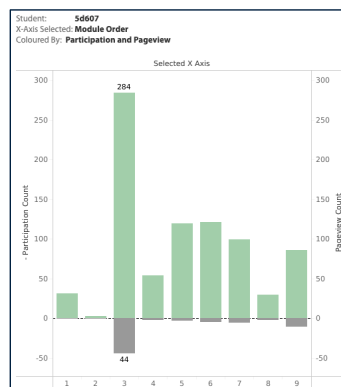
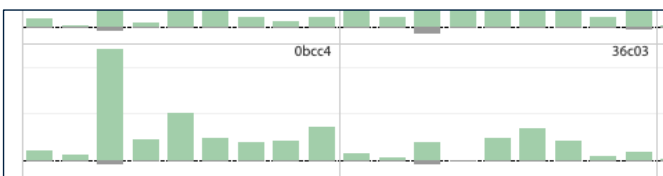
## Individual learner progress and engagement



### Pedagogical relevance

### Sample dashboard elements

- Which students are not engaging?
- Are individual students showing sustained participation? Are individual students showing reduced engagement over time?



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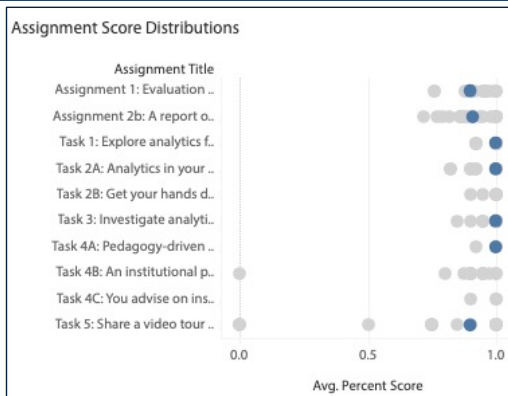
## Learner grade achievement and comparisons



### Pedagogical relevance

### Sample dashboard element

- How is a selected student performing over time?
- Are some assessments more challenging for the group than others?



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# Use case #2

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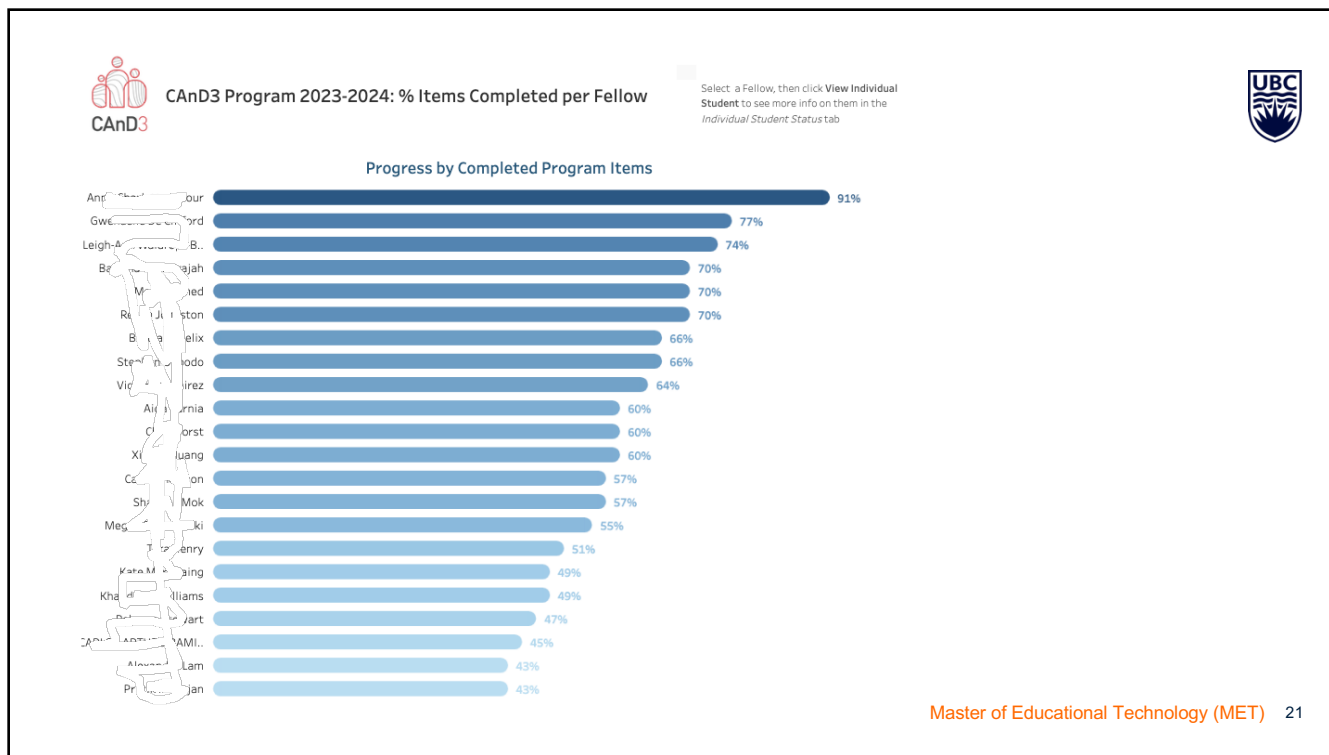
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<https://github.com/saud-learning-services/>

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## Actual usability / Limitations

- Need for iterative and collaborative approach (and limits to time and attention).
- ‘Busy-ness’ of dashboards
- Lack of technical skill
- Lack of data skills
- Assistance needed with customization

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