

MOMENTUM

“JUST DOUBLE IT.”

Anita Leung, Austin Ha, Haley Ruth, Josh Pollock, Leon Pan

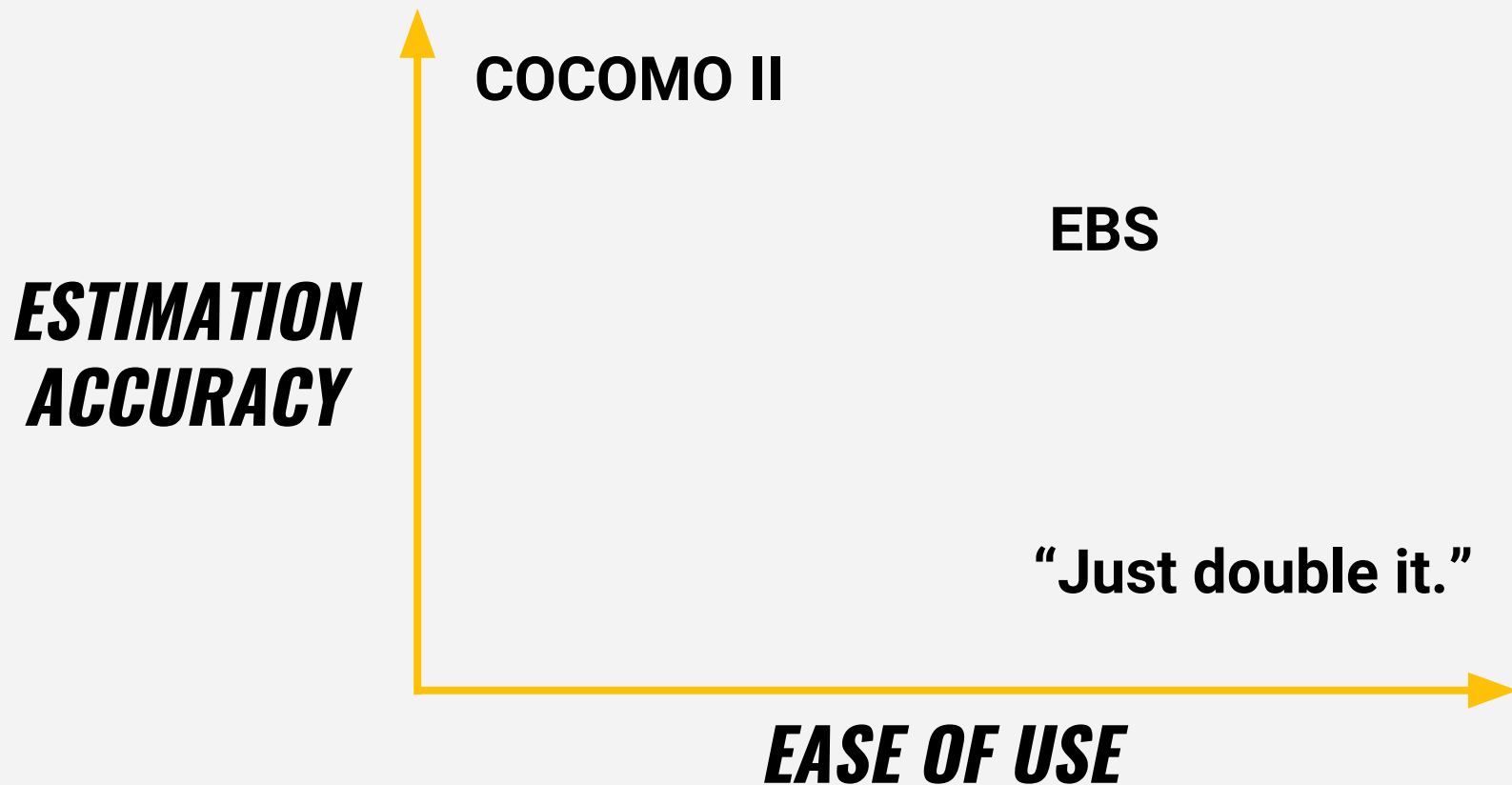
BACKGROUND AND MOTIVATION

- Development teams want to know how long their projects will take.

effort estimation tool := estimation model + UI

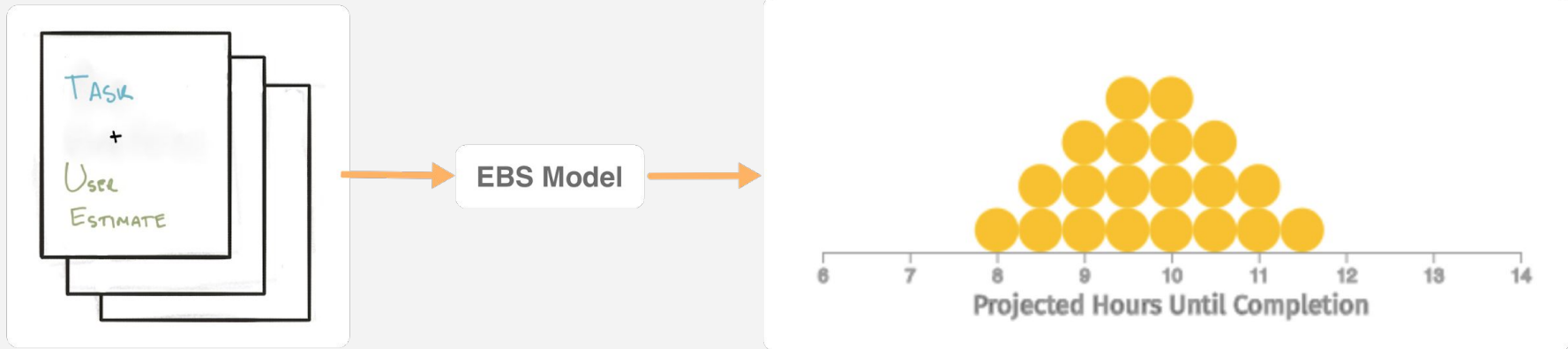
- An **estimation model** should balance the work required by the developer and the accuracy of the estimation.
- A **UI** should provide a simple interface to the estimation model.

ESTIMATION MODELS



EVIDENCE BASED SCHEDULING (EBS)

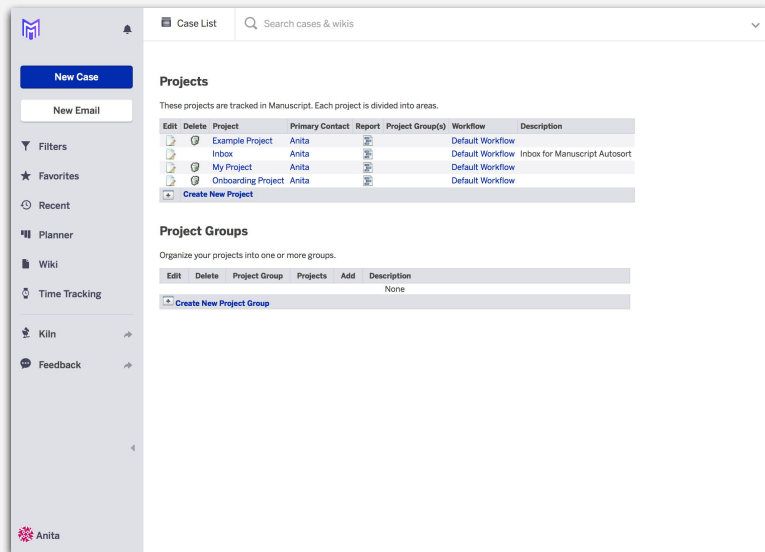
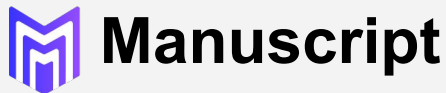
- A statistical technique for estimating project completion time.



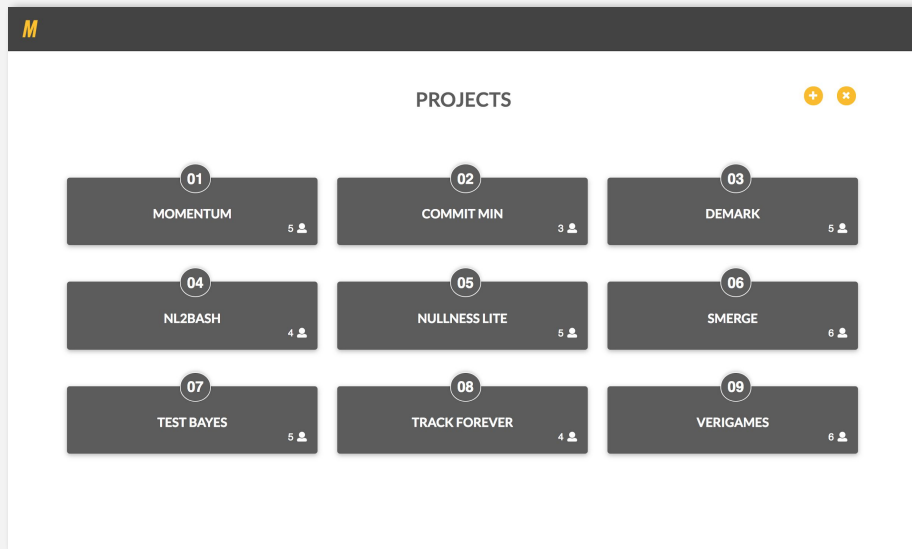
GOAL

Momentum will be **easier to use** and **more accessible** than existing effort estimation tools.

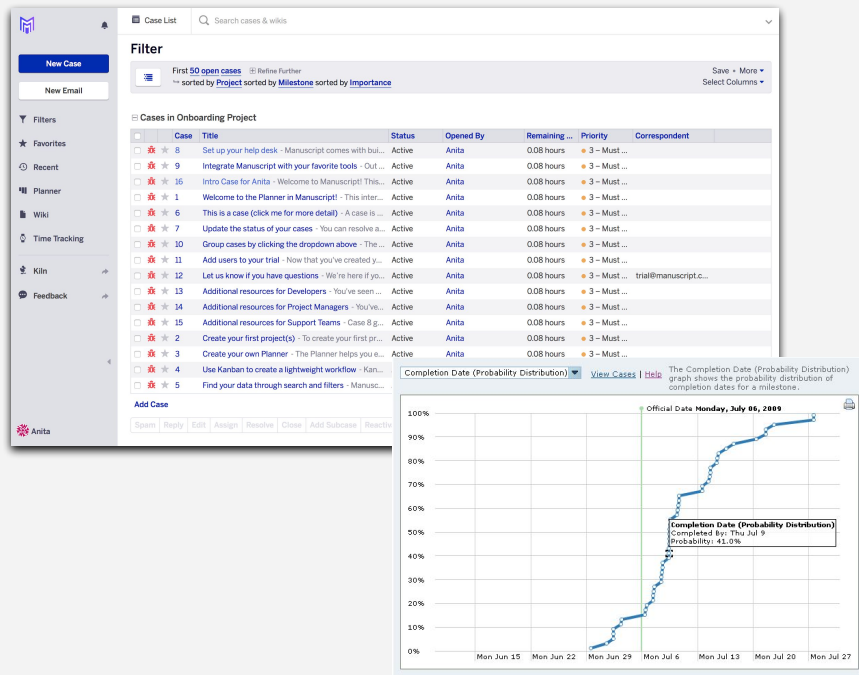
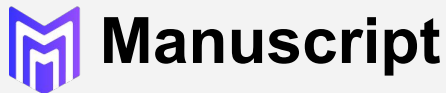
UI COMPARISON: PROJECTS PAGE



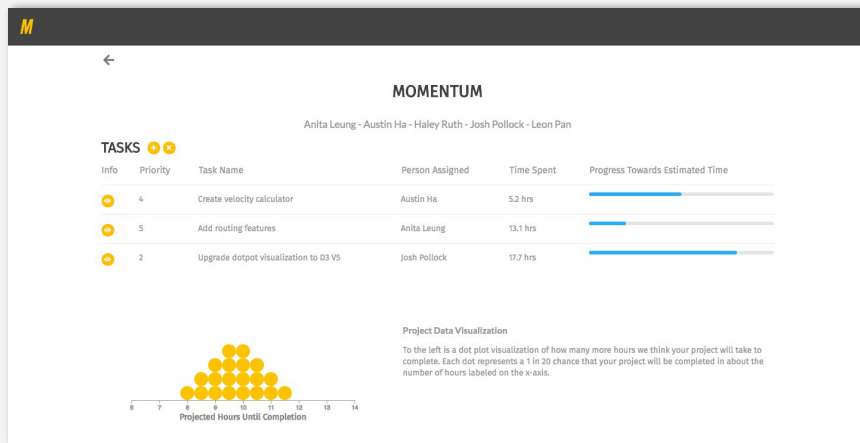
MOMENTUM



UI COMPARISON: TASKS PAGE

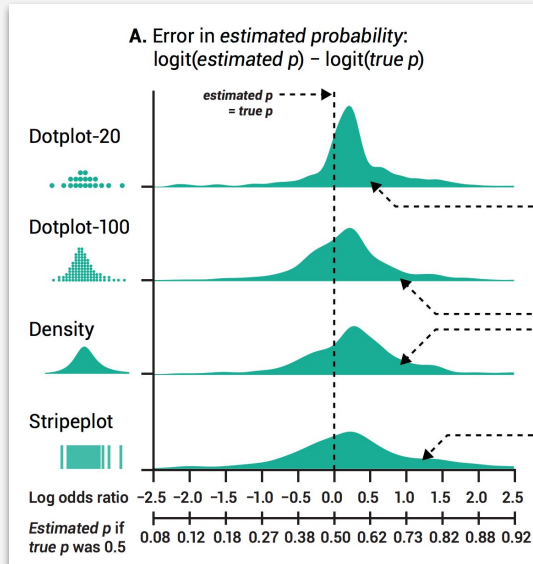


MOMENTUM



QUANTILE DOTPLOTS

- Discrete version of a continuous probability distribution.
- People can more accurately estimate probabilities from a dotplot with 20 points than from a density plot.

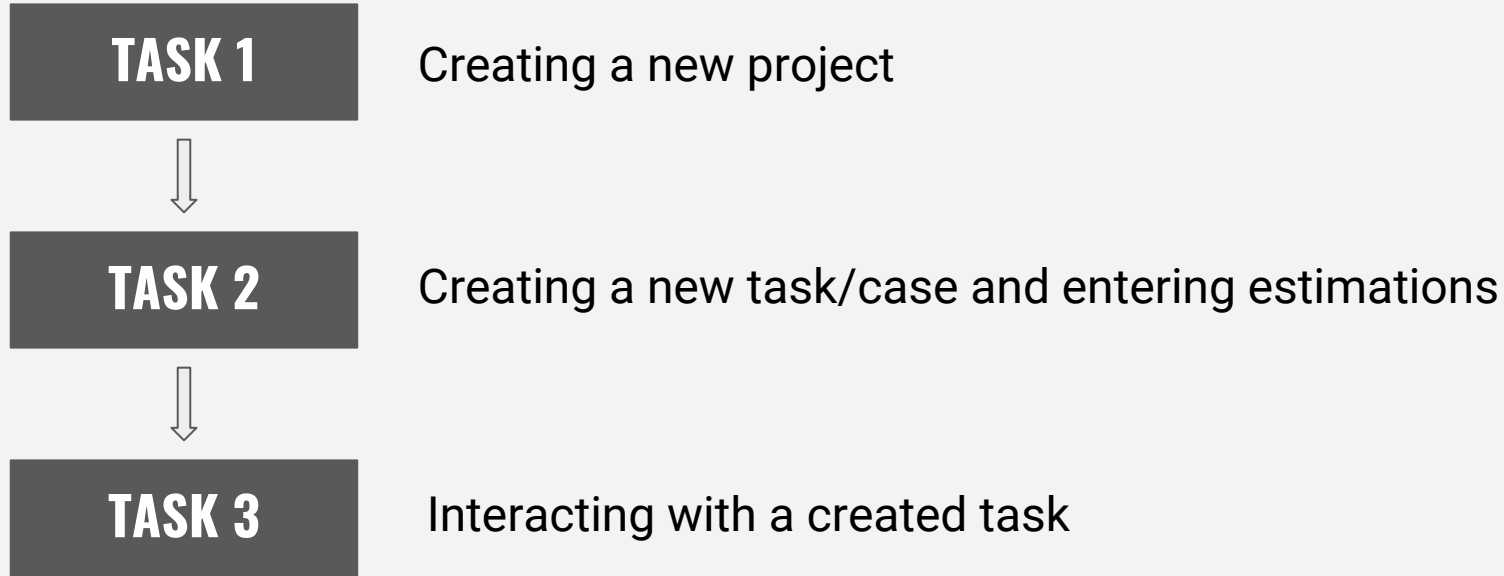


USER RESEARCH: USERS

Current Job/Student Status	Years on project development teams	Years spent programming	Major/Degree
4 th Year UW Student	1	6	CSE/HCDE
3 rd Year UW Student	1	4	CSE
2 nd Year UW Student	5	8	CSE
Network/Security Engineer	28	32	CSE/EE

Two users tested Manuscript first, then version one of momentum. The other two users tested these in the opposite order. All users tested version two of momentum last.

USER RESEARCH: TASKS AS A USER STORY



Users were asked to answer questions about their experience completing the tasks in a conclusion segment.

USER RESEARCH: TASK RESULTS- 90 SECOND COMPLETION

	User 1	User 2	User 3	User 4
Manuscript	X	X	X	X
Momentum 1.0	✓	✓	✓	✓
Momentum 2.0	✓	✓	✓	✓

NEW PROJECT

(Task 1)

NEW TASK/CASE

(Task 2)

	User 1	User 2	User 3	User 4
Manuscript	X	X	X	X
Momentum 1.0	X	✓	✓	✓
Momentum 2.0	✓	✓	✓	✓

	User 1	User 2	User 3	User 4
Manuscript	X	X	✓	✓
Momentum 1.0	✓	✓	✓	✓
Momentum 2.0	✓	✓	✓	✓

ALTER TASK

(Task 3)

USER RESEARCH: CONCLUSION RESULTS

Users were asked “How would you rate your experience with [the tool] with 1 being the lowest and 5 being the highest?” The average user response for each tool was:



Manuscript

2.0/5

MOMENTUM 1.0

4.3/5

MOMENTUM 2.0

4.6/5

DEMO

LIMITATIONS

- Limited number of user studies
- Limited time to evaluate the effectiveness of our tools on long-term projects
- Limited time to complete user studies on small teams

CONCLUSION

- Momentum is easier to use and more accessible than Manuscript.
- Momentum lowers the barrier to entry for software effort estimation.



Manuscript

2.0/5

MOMENTUM

4.6/5

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QUESTIONS?

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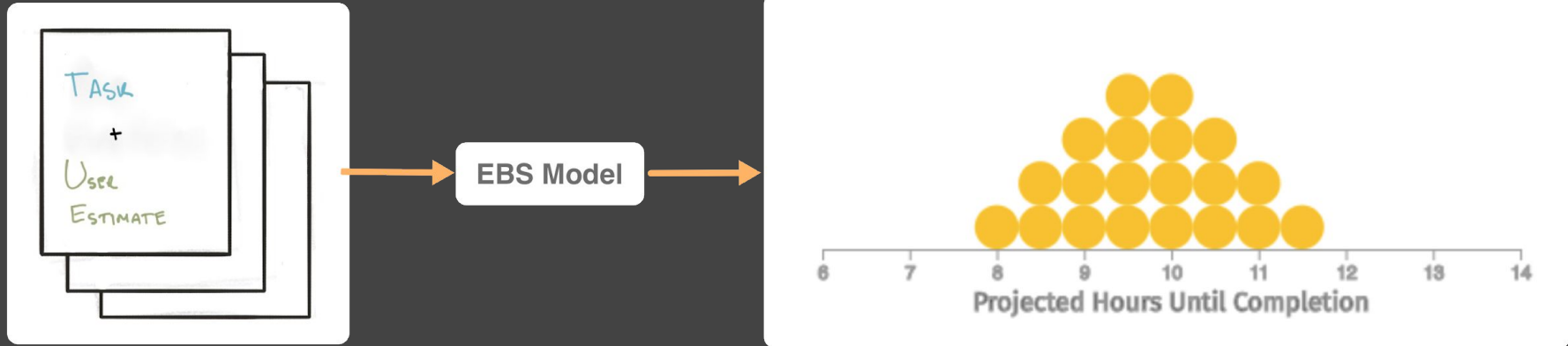
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ESTIMATION MODELS




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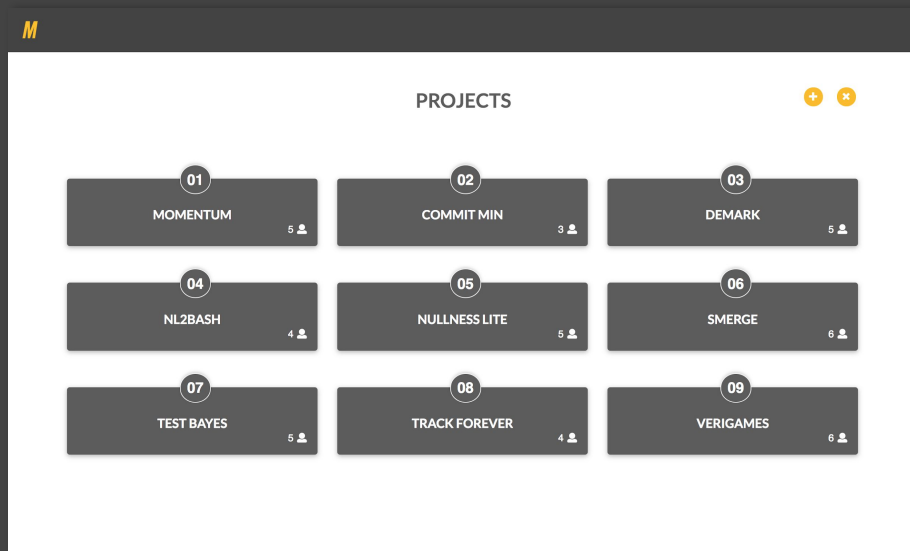
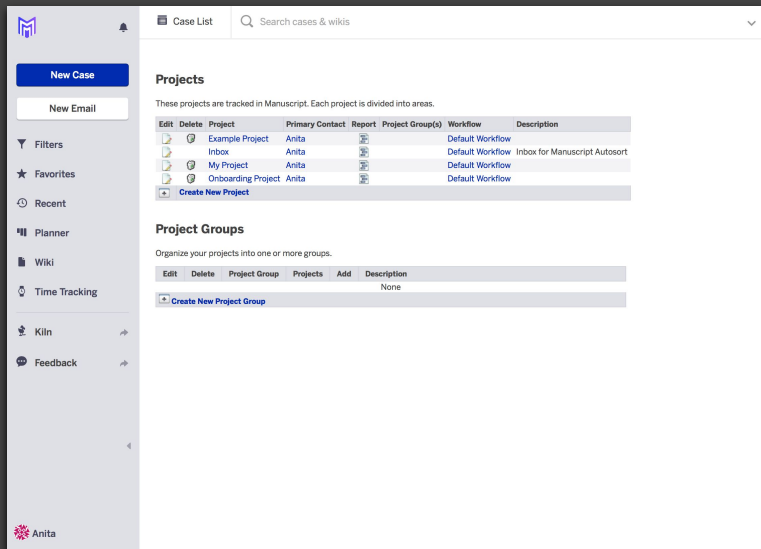
FEATURES COMPARISON

Features	 Manuscript	<i>MOMENTUM</i>
EBS Model	✓	✓
Projection Visualization	✓	✓
Priority System	✓	✓
Progress Indicator	✗	✓
Iteration Planner	✓	✗
Kanban Board	✓	✗
Integration with Slack, Github, and Google Docs	✓	✗

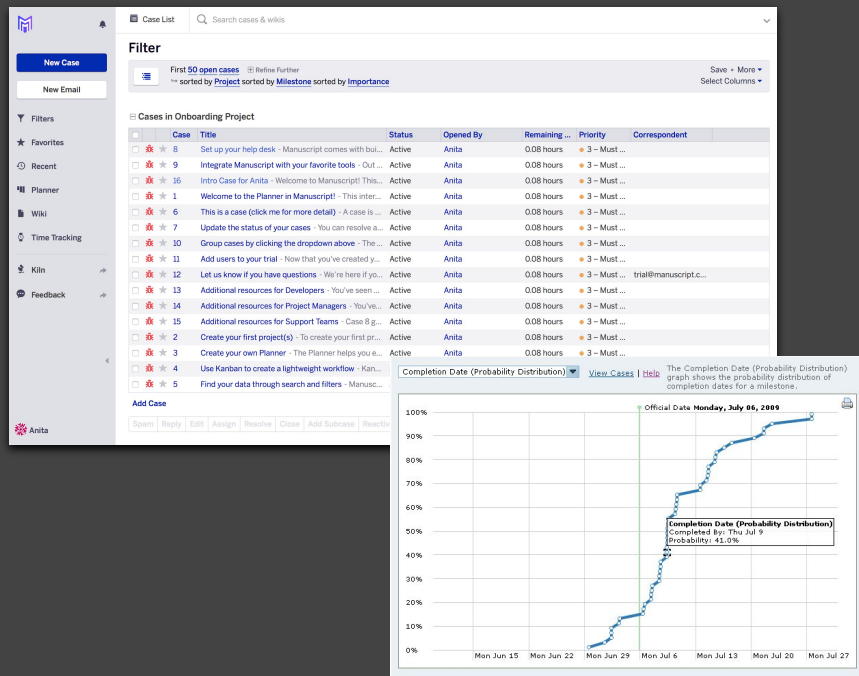
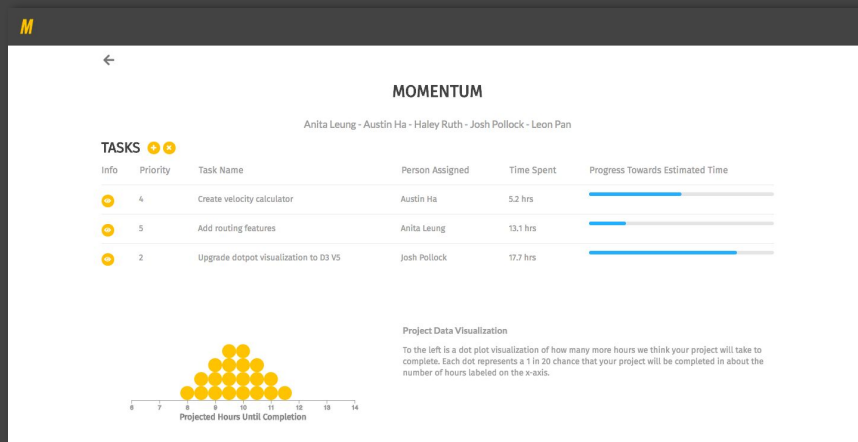
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UI COMPARISON: PROJECTS PAGE

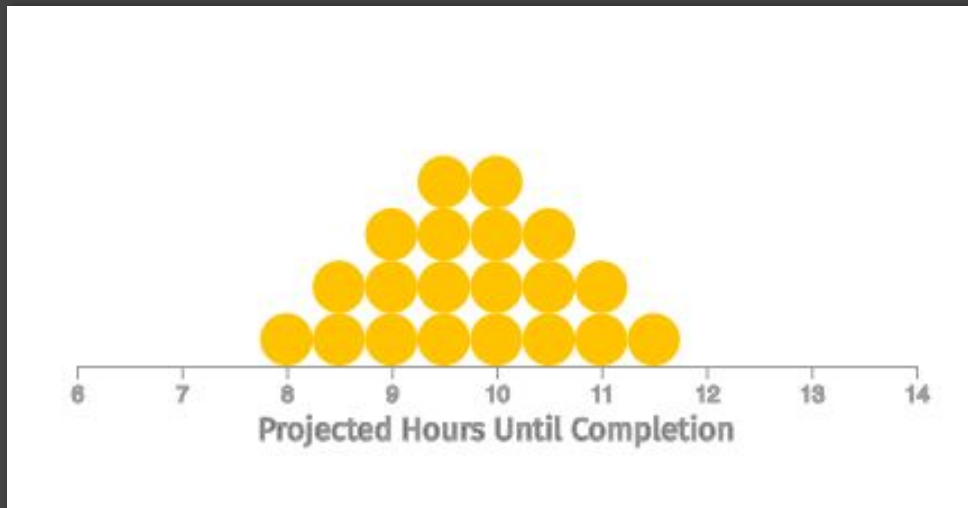
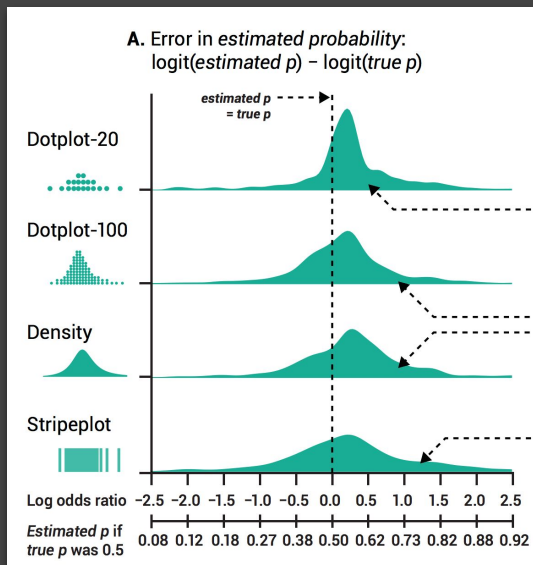


UI COMPARISON: TASKS PAGE

A screenshot of the Manuscript application's 'Case List' page. The interface includes a sidebar with navigation options like 'New Case', 'New Email', 'Filters', 'Favorites', 'Recent', 'Planner', 'Wiki', 'Time Tracking', 'Klin', and 'Feedback'. The main content area shows a table of cases with columns for Case, Title, Status, Opened By, Remaining, Priority, and Correspondent. Below the table, there is a 'Completion Date (Probability Distribution)' graph showing a probability curve over time, with a vertical line indicating the 'Official Date Monday, July 06, 2009'.A screenshot of the Momentum application's 'TASKS' page. The page header shows the name 'Anita Leung - Austin Ha - Haley Ruth - Josh Pollock - Leon Pan'. Below the header, there is a table of tasks with columns for Info, Priority, Task Name, Person Assigned, Time Spent, and Progress Towards Estimated Time. The tasks listed are 'Create velocity calculator', 'Add routing features', and 'Upgrade dotpot visualization to D3 V5'. At the bottom, there is a 'Project Data Visualization' section featuring a dot plot where each dot represents a 1 in 20 chance of completion by a certain number of hours.

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USER RESEARCH: TASKS AS A USER STORY

TASK 1

Creating a new project



TASK 2

Creating a new task/case and entering estimations



TASK 3

Interacting with a created task

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