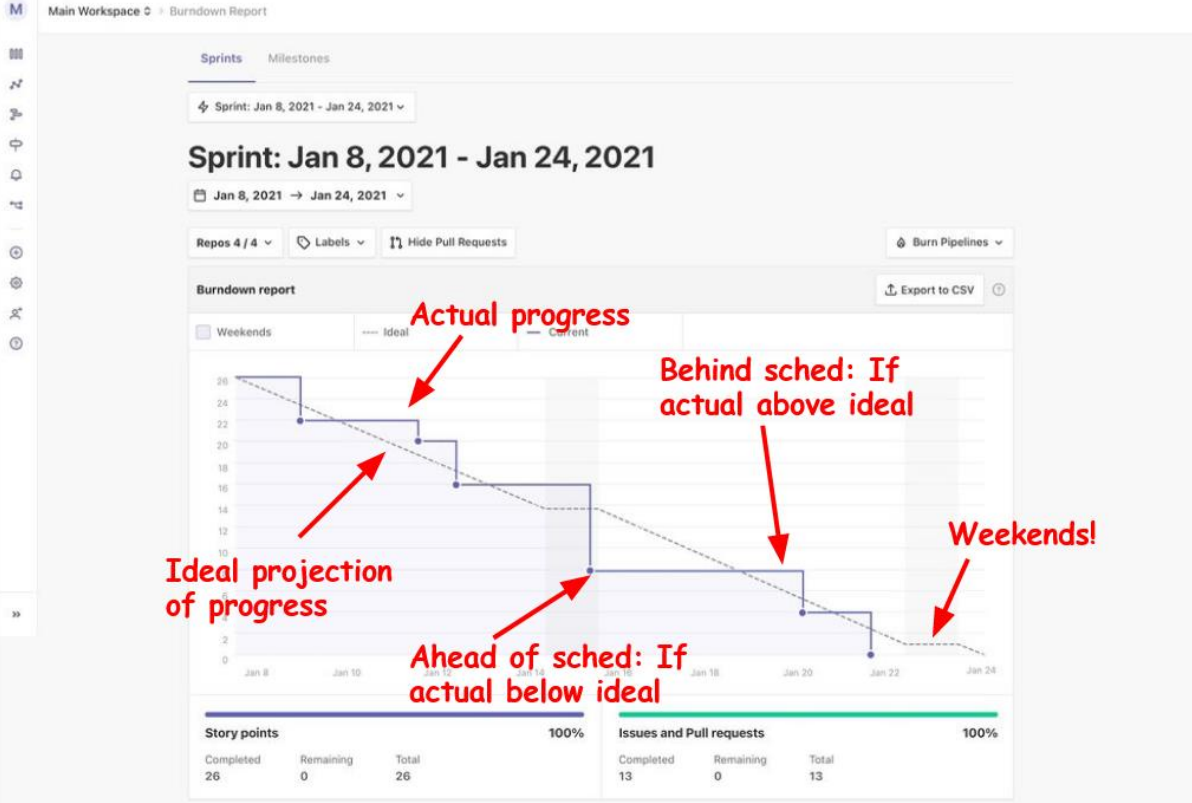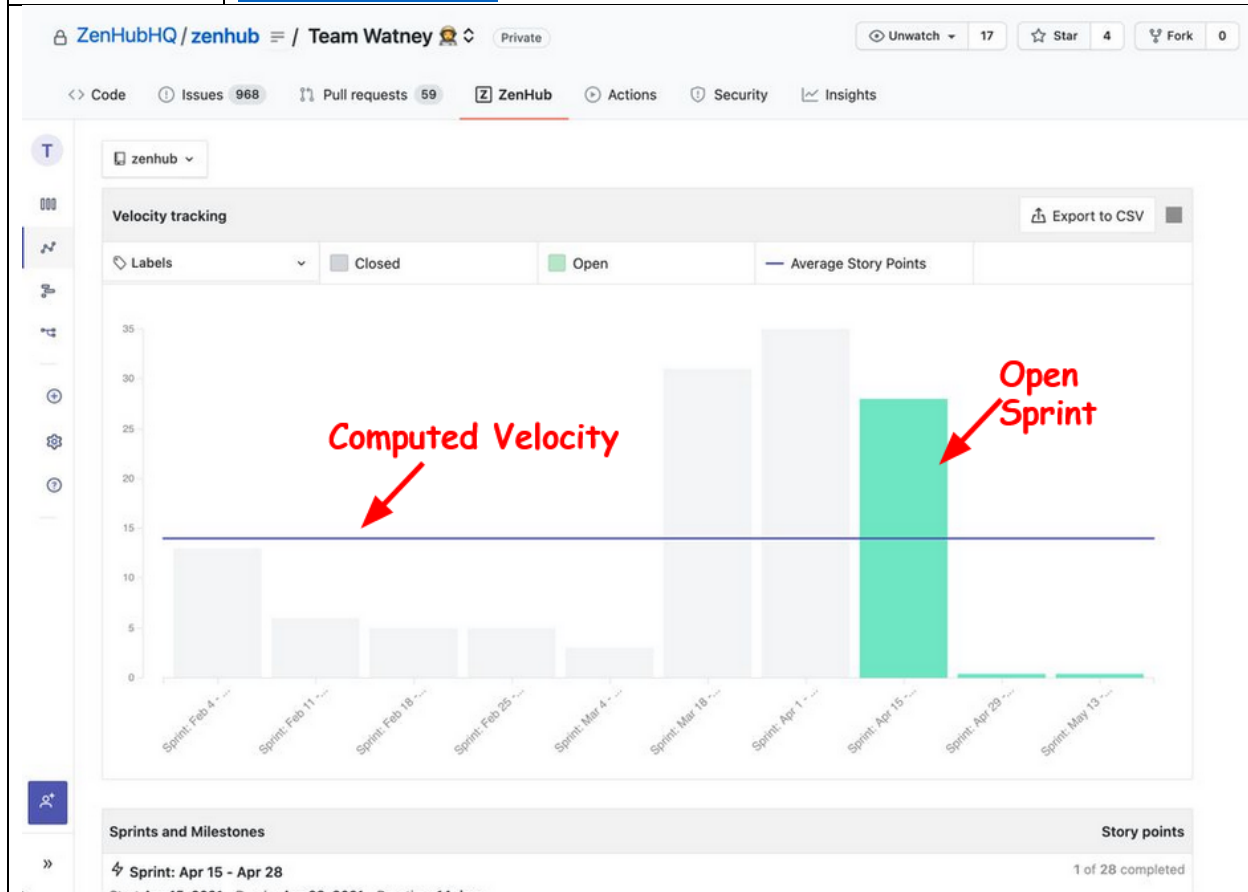| Preliminaries | • Each "issue" needs to have a "story point" assigned to it<br>• This is an estimate of difficulty, *sized in relation* to other tasks<br>• Helps the velocity chart to show how many points you can reasonably complete in a sprint<br>• Helps the burn down chart to show how quickly you can accomplish work<br>• There are many ways to do this<br>• We'll do one of the simplest |
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| Story Points | • The numbers are **<u>NOT</u>** time estimates<br>• They are unit-less measures of effort, relative to other tasks<br>• Some issues may be easy ("1"), medium ("5"), or very hard ("34") |
| Story Point Range | • A very popular range is the Fibonacci sequence<br>• $F(n) = F(n-1) + F(n-2)$, where $F(1) = 1$ and $F(2) = 2$<br>• 1, 2, 3, 5, 8, 13, 21, etc.<br>• Each step is a significant increase from the previous step<br>• Prevents you from quibbling about "is this an 18, 19, 20, 21) |
| When to Estimate and Who Does It | • Estimate when you are moving an issue to the "Product Backlog"<br>• If not then, then certainly before you start any sprint planning<br>• "Agile estimation is a team sprot. It is considered a best practice to have multiple people participate in the activity to allow for differing perspectives on difficulty."   https://help.zenhub.com/support/solutions/articles/43000010347-estimate-work-using-story-points |
| Caution. . . | • "Agile estimation works best with small units of work. Larger stories and epics should be broken down into smaller pieces."<br>• "Try to avoid overthinking the estimate or spending too much time diving into technical details." |
| Planning Poker | • For each issue that needs estimation, everyone holds up a card (or fingers) showing their vote on the difficulty for the issue<br>• If everyone agrees, you're done<br>• Ask the outliers to state their case (the highest and lowest estimators)<br>• The outliers discuss the reasons for their estimate<br>• After this discussion, give all participants the opportunity to select an estimate<br>• Take the average result and move on (as it's just an 'estimate' anyway) |
| T-Shirt Sizes (Optional) | • Instead of raw story points, use t-shirt sizes<br>• XS, S, M, L, XL<br>• M = 5<br>• Rougher granularity means it's easier to visualize difficulty in your mind and to think "this issue is harder/easier than the last one we voted on" without getting caught up in a specific number. |
| Asynchronous Poker | • See   https://help.zenhub.com/support/solutions/articles/43000620555 to see how Zenhub supports async poker<br>• YouTube demo of the feature: https://youtu.be/4_oSM3iKAKc |

| User Story Examples | 1. Change the color of the login button from grey to blue<br>2. Refactor the login system to use Google OAUTH<br>3. As a user, I want to reset my password, so that I recover access from my account<br>4. As a Content Owner, I want to be able to create product content so that I can provide information and market to customers<br>5. Build a simple DB just to get something working<br>6. Squash bug #34<br>7. Investigate pathfinding algorithms for the drone<br>8. Replace the homepage image with the one from the meeting last night |
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| Tracking Effort: Burndown Charts | •      Each sprint gets its own burndown chart<br>•      A user-friendly visualization of the team's velocity *during* the sprint<br>•      ZenHub will automatically generate a burndown for each of your sprints (found under *Reports* on the nav menu)<br>•      "burning down" the sprint backlog – think in terms of a candle, once you light it, it burns until it's gone<br>•      Helps the team understand the answer to the question "are we on, ahead of, or behind schedule?"<br>•      Learn more: https://blog.zenhub.com/tracking-sprint-progress-with-scrum-burndown-charts/ |
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| Tracking Effort: Velocity chart | •      Velocity – a measure of the amount of work a team can get done in a single sprint (a key metric) |

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| | • Team's velocity = sum of all story points completed on past sprints/# of sprints (ZenHub includes the past 7 sprints)<br>• Gives the team a more realistic understanding of how long it will take to complete scheduled tasks, based on their complexity estimations<br>• The computed team velocity will start to take on more meaning after the team has completed 2-e sprints together<br>• Learn more: https://blog.zenhub.com/how-to-measure-team-velocity-and-meet-deadlines/ |
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| Exercise | Create a web app to manage a todo list list of tasks. The app should allow the user to CRUD a task, as well as mark it "complete" which moves it to an archive. The app should allow the user to view and clear the archive. The app should provide the ability to export the task list and archive as a CSV file (separately).<br><br>• What are the epics?<br>• What are some user stories?<br>• Are they specific, finite, and measurable?<br>• Assign story points to the stories. |