

R3: No more than five weeks should elapse for a single sprint.								
Project Name	Total Sprints	Sprint Sample Value per Project	NaNs in Sprints Start Date	NaNs in Sprints End Date	Sprint Duration (in days) - counts	Percentage	Binary Output	Comments
XD	66	Sprint 68	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Apstnd	34	2012 Sprint 15	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Tstnd	59	2012 Sprint 18	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mobile	23, out of which, 1 sprint is invalid, cause it is a duplication of two individual sprints that already exist in the project. So, for this rule, only 22 sprints are analyzed in this project!	"com.atlassian.greenhopper.service.sprint.Sprint@245bca8aId=289,rapidViewId=43,stage=ACTIVE,name=Moodle App 3.8.2,startDate=2020-03-30T11:10:08.305Z,endDate=2020-04-03T16:56:00.000Z,completeDate=null,activatedDate=2020-03-30T11:10:08.305Z,sequence=289,goal=JT"	0	0	Sprint 74: 29 days 23:59:37.232000 Sprint 75: 43 days 23:59:36.097000 Sprint 79: 25 days 15:28:15.293000 Sprint 85: 7 days 13:59:31.072000 Sprint 92: 35 days 13:59:00.015000 Sprint 95: 61 days 13:59:20.498000 Sprint 106: 74 days 01:59:46.847000 Sprint 114: 58 days 01:59:28.395000 Sprint 125: 52 days 01:59:53.962000 Sprint 136: 59 days 06:45:29.153000 Sprint 143: 86 days 06:45:01.383000 Sprint 152: 12 days 06:45:58.552000 Sprint 160: 10 days 06:45:09.003000 Sprint 165: 2 days 06:45:48.239000 Sprint 167: 55 days 06:45:42.189000 Sprint 170: 54 days 06:45:26.546000	6/22 sprints pass the rule (including the Sprint that lasted 29 days)  16/22 sprints fail the rule	0	There are 23 sprints in this project, and most of them (15/23) lasted much longer than 4 weeks. This tells us that this team was doing long sprints that exceed the principles of the Scrum Guide.
MDL	269	"com.atlassian.greenhopper.service.sprint.Sprint@40c6b8aaId=237,rapidViewId=126,stage=ACTIVE,name=Moodle 3.9 - Moppies Kanban,startDate=2019-09-15T13:49:00.000Z,endDate=2019-10-31T14:49:00.000Z,completeDate=null,sequence=237,goal=null=JT"	1 sprint has NULL start date: <null>,endDate=<null>,completeDate=<null>	1 sprint has NULL end date: <null>,completeDate=<null>	Sprint 114: 58 days Sprint 114: 13 days Sprint 237: 46 days Sprint 245: 32 days Sprint 264: 58 days Sprint 92: 35 days	Total Sprints After cleaning the data field: 126 sprints Cleaning was done, due to the fact that there were many sprints with invalid IDs (combination of other sprints IDs), duplicate IDs, etc.  120/126 sprints pass the rule  6/126 sprints fail the rule since the duration of these sprints was more than 28 days	0	There is one sprint with NULL start and end date!  Most of the sprints (120) were lasting less than 4 weeks, as prescribed by the Scrum Guide. There are only 6 sprints that lasted longer than the usual. Overall, MDL project sprints seem to have adhered to the Scrum principles as per Scrum Guide.
DNN	103	Sprint 2, Content 8.1.0 - Sprint 3,	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mesos	70	Metasphere Sprint 34	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Male	104	startDate=2016-04-27T11:27:32.496-05:00	1 sprint has no valid start date Its value is: startDate=<null>	104. There is no end date recorded for this project. For the analysis, the start date of the next sprint will be considered as the end date of the previous sprint.	Sprint: 2015-10-19 14:50:33.528000-05:00: 42 days	102/103 sprints pass the rule.  1/103 sprint fails the rule. Its duration is 42 days!  103 sprints in total, because we do not have information for the duration of 1 sprint.	0	For this project, we only have the start date. Since the end date is missing, the start date of the next sprint is considered as the end date of the previous sprint. Almost all (102/103) of the sprints in this project have a duration less than 28 days, very well aligned with Scrum Guide guidelines. Only 1 sprint has a duration of 42 days, thus failing the rule. There is one sprint with invalid date.
Nexus	70	Sprint 68 - Fohn	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Timob	63	Documentation Sprint 03 - 2016; Sprint 2012-15 API	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
R4: The duration of all sprints should follow similar pace.								
Project Name	Total Sprints	NaNs in Sprints Start Date	NaNs in Sprints End Date	Sprint Duration (in days) - counts	Percentage	Binary Output	Comments	
XD	66	N/A	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Apstnd	34	N/A	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Tstnd	59	N/A	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mobile	23, out of which, 1 sprint is invalid, cause it is a duplication of two individual sprints that already exist in the project. So, for this rule, only 22 sprints are analyzed in this project!	0	0	Sprint 74: 29 days 23:59:37.232000 Sprint 75: 43 days 23:59:36.097000 Sprint 79: 25 days 15:28:15.293000 Sprint 85: 7 days 13:59:31.072000 Sprint 92: 35 days 13:59:00.015000 Sprint 95: 61 days 13:59:20.498000 Sprint 106: 74 days 01:59:46.847000 Sprint 114: 58 days 01:59:28.395000 Sprint 125: 52 days 01:59:53.962000 Sprint 136: 59 days 06:45:29.153000 Sprint 143: 86 days 06:45:01.383000 Sprint 152: 12 days 06:45:58.552000 Sprint 160: 10 days 06:45:09.003000 Sprint 165: 2 days 06:45:48.239000 Sprint 167: 55 days 06:45:42.189000 Sprint 170: 54 days 06:45:26.546000 Sprint 176: 51 days 15:07:34.811000 Sprint 195: 62 days 06:46:00.000000	Descriptives for the sprint duration:  count 1209 mean 53 days 05:19:15.071289454 std 20 days 12:15:46.771487106 min 2 days 06:45:48.239000 25% 51 days 15:07:34.811000 50% 55 days 06:45:42.189000 75% 62 days 06:46:00 max 87 days 06:46:00	9/22 sprints pass the rule (as they have similar amounts of time for completion: Sprints: 170, 95, 167, 176, 264, 136, 114, 125)  14/22 sprints fail the rule, cause their duration is very widespread.	0	The sprints in this project were definitely not following a similar pace. As we can see from the descriptives, there are sprints that took only 2 days to complete, and there are sprints that took 87 days to complete. However, there are 9 sprints that took around 50 to 60 days to complete, which duration is similar.
MDL	269	1	1	18 days 00:00:00 293 18 days 08:00:00 149 20 days 23:59:44.867000 129 18 days 07:59:16.554000 86 18 days 07:59:31.089000 76 18 days 08:07:00 56 15 days 07:59:44.435000 53 18 days 05:41:27.883000 52 14 days 00:00:00 49 17 days 08:21:00 49 17 days 08:00:00 49 18 days 08:19:59.001000 48 17 days 23:59:24.732000 46 20 days 11:11:10.672000 45 18 days 07:59:48.967000 44 18 days 11:59:06.843000 42 46 days 01:00:00 40 15 days 07:59:26.577000 39 21 days 23:59:01.288000 36 18 days 07:59:54.022000 33 23 days 00:00:00 32 18 days 07:59:02.189000 30 17 days 23:59:17.250000 30 18 days 07:59:28.377000 29 18 days 14:59:11.353000 29 20 days 09:54:28.441000 28 18 days 07:59:09.539000 27 10 days 23:59:00 27	Total Sprints After cleaning the data field: 126 sprints  Descriptives for the sprint duration:  count 2417 mean 18 days 08:59:58.505575482 std 4 days 18:45:10.662651953 min 6 days 23:59:53.615000 25% 17 days 23:59:17.250000 50% 18 days 07:59:09.324000 75% 18 days 10:01:17.050000 max 58 days 05:46:00	62/126 sprints followed a similar duration among the sprints, thus 62 sprints pass the rule.  64/126 sprints have taken longer or less than the average/std time duration, thus for 64 sprints, the rule fails	0	Roughly half of the sprints (62/126) have followed a similar duration of completion. Additionally, there are more sprints who have taken around 13 days to complete. However, there are several sprints that interestingly have taken much longer or lesser to complete than the majority of the sprints in total.

DNN	103	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Menos	70	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mule	104	1	104. There is no end date recorded for this project. For the analysis, the start date of the next sprint will be considered as the end date of the previous sprint.	Many sprints to show. Can be found in the notebook.	<div>count 1146.000000 mean 0.967714 std 3.698909 min 0.000000 25% 0.000000 50% 0.000000 75% 0.000000 max 42.000000</div> <div>20/103 sprints have shared a similar range of duration, from 0 to 3 days.</div> <div>83/103 sprints have taken longer than the aforementioned range of similar duration.</div> <div>There are 5 sprints that started instantly after the previous sprint was finished.</div>	0	Most of the sprints have a similar pace of completion, time wise. However, there are around 6 sprints in this project whose completion duration deviates from the others. Only 1 sprint took 42 days to complete. All other sprints took less than 28 days. Project Mule complies to the Scrum rules well.
Nexus	70	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Timob	63	N/A	N/A	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.

**R5: The next Sprint execution should begin only after the previous Sprint's resolution.**

Project Name	Total Sprints	Sprint Duration (in days) - count	Percentage	Binary Output	Comments
XD	66	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Apntad	34	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Tintad	59	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mobile	23, out of which, 1 sprint is invalid, cause it is a duplication of two individual sprints that already exist in the project. So, for this rule, only 22 sprints are analyzed in this project!	Sprint 170: 54 days 06:45:26.546000 Sprint 95: 61 days 13:59:20.490000 Sprint 195: 62 days 06:46:00 Sprint 229: 87 days 06:46:00 Sprint 167: 55 days 06:45:42.189000 Sprint 92: 35 days 13:59:00.015000 Sprint 85: 7 days 13:59:31.072000 Sprint 106: 74 days 01:59:46.847000 Sprint 176: 51 days 15:07:34.811000	<div>21/22 sprints pass the rule</div> <div>1/22 sprints fail the rule</div>	0	22 sprints in this project begin after the previous sprint has already been completed. There is one sprint that has started before the previous sprint has been finished. This can be due to the fact that Jira has not recorded all sprints for this project and there can be sprints in between whose data we do not have!
MDL	269	Many sprints to show. Can be found in the notebook.	<div>38/126 sprints pass the rule</div> <div>43/126 sprints fail the rule</div> <div>For the remaining 45/126 sprints, we can't calculate this information because there are missing sprints between them. For example, we have a sprint with id: 150, but we do not have both Sprint 149 nor Sprint 151.</div>	0	59 sprints fail the rule. Whereas for 67 other sprints, they have started after the previous sprint has been completed.
DNN	103	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Menos	70	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mule	104	Many sprints to show. Can be found in the notebook.	<div>103/104 sprints pass for this rule.</div> <div>For 1/104 sprint, we do not have the information.</div>	1	All sprints in this project begin after the previous sprint has been closed. From the results, I observe that the sprints were shorter and the team accommodated usually 2 sprints per month, sometimes 1 and sometimes more. Once again, Mule project complies with the rules very well.
Nexus	70	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Timob	63	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.

**R6: There should be a project clarity identifier attached to each issue within the sprints.**

Project Name	Total Issues	Total Sprints	Empty Project Clarity IDs	Percentage (Issues Unit)	Binary Output	Comments
XD	3182	66	0	66/66 sprints pass the rule	1	In all 66 sprints, all issues have a valid Project ID/Name
Apntad	825	34	0	34/34 sprints pass the rule	1	In all 34 sprints, all issues have a valid Project ID/Name
Tintad	2826	59	0	59/59 sprints pass the rule	1	In all 59 sprints, all issues have a valid Project ID/Name
Mobile	3242	23	0	23/23 sprints pass the rule	1	In all 23 sprints, all issues have a valid Project ID/Name
MDL	63273	269	0	269/269 sprints pass the rule	1	In all 269 sprints, all issues have a valid Project ID/Name
DNN	1874	103	0	103/103 sprints pass the rule	1	In all 103 sprints, all issues have a valid Project ID/Name
Menos	1365	70	0	70/70 sprints pass the rule	1	In all 70 sprints, all issues have a valid Project ID/Name
Mule	1278	104	0	104/104 sprints pass the rule	1	In all 104 sprints, all issues have a valid Project ID/Name
Nexus	1037	70	0	70/70 sprints pass the rule	1	In all 70 sprints, all issues have a valid Project ID/Name



DNN	103	1874	1. 3.0 - Sprint 2 2. 3.0 - Sprint 3 3. 7.2.1 Sprint 3 4. 7.2.2 Sprint 2 5. 7.3.0 Sprint 2	84/103 sprints pass the rule 19/103 sprints fail the rule	0	In most of the sprints, the developers did not log any long idle time while working on issues of the sprint.			
Mesos	70	1365	1. Mesos Q3 Sprint 6 2. Mesosphere Sprint 19 3. Mesosphere Sprint 21 4. Mesosphere Sprint 23	55/70 sprints pass the rule 15/70 sprints fail the rule	0	In most of the sprints, the developers did not log any long idle time while working on issues of the sprint.			
Mule	104	1278	1. startDate=2013-03-20T10:30:40.323+05:00 2. startDate=2013-05-22T16:15:43+02:00:00 3. startDate=2013-11-11T11:43:35.237+06:00 4. startDate=2014-01-15T12:46:01.431+06:00 5. startDate=2014-01-29T11:36:32.807+06:00	68/104 sprints pass the rule 36/104 sprints fail the rule	0	In most of the sprints, the developers did not log any long idle time while working on issues of the sprint.			
Nexus	70	1037	1. Sprint 44 2. Sprint 45	68/70 sprints pass the rule 2/70 sprints fail the rule	0	Almost in all sprints, the developers did not wait between undertaking issues. Nexus project complex well with this rule.			
Timob	63	1853	0	All 63 sprints pass the rule	1	All sprints in this project pass the rule. Developers did not log waiting times while completing their tasks within the sprints. A reason behind these results can be that despite there being 63 sprints in this project, most of the issues have not been linked to their corresponding sprints. Or, it can be the case that this project was not using sprints for development.			

R24: The backlog does not contain meaningless or empty issues. I consider meaningless issues the issues that are duplicate, belong to no project and have no issue body, description and other details that are relevant to developers and other roles for completing them.

Project Name	NaNs in Sprint Field	NaNs in Description	NaNs in Summary	NaNs in Priority	NaNs in Issue Status	NaNs in Story Points	Percentage (Issue Unit)	Binary Output	Comments
XD	1326	0	0	0	0	0	3152/3152 issues pass the rule	1	assignee name has 933 null values resolutiondate has 574 null values sprint has 1326 null values
Aptiad	410	0	0	0	0	0	825/825 issues pass the rule	1	resolutiondate has 237 null values sprint has 410 null values
Tistud	1089	0	0	1/2826 Issue: "TISTUD-6753" has no priority assigned to it. It also belongs to no sprint!	0	6 TISTUD-8447, TISTUD-8027, TISTUD-8022, TISTUD-8021, TISTUD-7999, TISTUD-7984 are the only 6 issues that do not have story points assigned to out of all other issues.  Since there are only 6 issues that do not have story points, and all others have this information, it means that these 6 issues do not carry the full information as the majority of the other issues. Same goes for the 1 issue that does not have a priority label attached to it.	2819/2826 issues pass the rule 7/2826 issues fail the rule	0	priority name has 1 null values resolutiondate has 198 null values storypoints has 6 null values sprint has 1089 null values
Mobile	2032	0	0	0	0	3242/3242	3242/3242 issues pass the rule	1	assignee name has 520 null values resolutiondate has 359 null values storypoints has 3242 null values sprint has 2032 null values
MDL	60540	0	0	0	0	61871/63273 issues do not have story points assigned to them. This means that MDL project did not use any practice related to story points. However, it is worth mentioning that a small number of issues (1402) actually have story points assigned. It could be that they tried to incorporate some story points practice in the beginning or along the way, but it did not turn out to be useful for them, hence they stopped.	63271/63273 issues pass the rule 2/63273 issues fail the rule Out of these 4 issues, 3 of them do not have a reporter, and one of them, does not have an Issue ID/Name.	0	assignee name has 16919 null values reporter name has 3 null values resolutiondate has 10285 null values key has 1 null values storypoints has 61871 null values sprint has 60540 null values
DNN	246	0	0	0	0	0	1874/1874 pass the rule	1	assignee name has 1002 null values resolutiondate has 104 null values sprint has 246 null values  This project has 40 incomplete issues per sprint!
Mesos	286	0	0	0	0	0	1365/1365 issues pass the rule	1	assignee name has 119 null values resolutiondate has 277 null values sprint has 286 null values  This project has the most incomplete issues per sprint (103 issues)!
Mule	120	0	0	0	0	0	1278/1278 issues pass the rule	1	assignee name has 55 null values resolutiondate has 78 null values sprint has 120 null values
Nexus	404	0	0	0	0	0	1034/1037 pass the rule 3/1037 issues fail the rule. There are 3 issues in this project that do not have a reporter! This is an interesting catch, since by default, Jira records as reporters, the person who creates the issue. What does this mean in the case of these 3 issues? How and who created them?	0	assignee name has 287 null values reporter name has 3 null values resolutiondate has 42 null values sprint has 404 null values
Timob	1574	0	0	1 Issue: TIMOB-17705 has no priority assigned to it. It also belongs to no sprint!	0	0	1852/1853 issues pass the rule 1/1853 fails the rule  Since there is only 1 issue that does not have priority label, and all other issues have this information, it means that this 1 issue does not carry the full information as the majority of the other issues.	0	priority name has 1 null values resolutiondate has 174 null values sprint has 1574 null values

R27: No more than 8 active developers should be involved in development tasks

Project Name	Total Issues Before and After Retaining only Active Developers	Total Sprints Before and After Retaining only Active Developers	Total Developers Before and After Retaining only Active Developers	Threshold	Active Developers	Percentage (Sprint Unit)	Binary Output	Comments
XD	Before: 3152 After: 2566	Before: 66 After: 66	Before: 31 After: 8	98	1 to 9 devs per sprint	66/66 sprints pass the rule	1	Out of 3152 issues, 2219 of them have developers assigned to them.
Aptiad	Before: 825 After: 646	Before: 34 After: 34	Before: 11 After: 4	39	1-4 devs per sprint	34/34 sprints pass	1	Out of 825 issues, 825 of them have developers assigned to them.
Tistud	Before: 2826 After: 2484	Before: 59 After: 59	Before: 31 After: 5	100	2-5 devs per sprint	59/59 sprints pass	1	Out of 2826 issues, 2826 of them have developers assigned to them.
Mobile	Before: 3242 After: 2789	Before: 23 After: 23	Before: 28 After: 3	100	1-3 devs per sprint	23/23 sprints pass	1	Out of 3242 issues, 2722 of them have developers assigned to them.
MDL	Before: 63273 After: 50108	Before: 269 After: 165	Before: 522 After: 23	386	1-7 devs per sprint. 25 sprints have 0 developers in them. 1 sprint has 10 active devs.	139/165 sprints pass 26/165 sprints fail	0	Out of 63273 issues, 46354 of them have developers assigned to them. 25 sprints have 0 developers in them. 1 sprint has 10 active devs.
DNN	Before: 1874 After: 1960	Before: 103 After: 6	Before: 12 After: 6	62	1-6 devs per sprint 9 sprints have 0 developers	91/100 sprints pass 9/100 sprints fail	0 - cause 9 sprints fail	Out of 1874 issues, 872 of them have developers assigned to them.
Mesos	Before: 1365 After: 821	Before: 70 After: 65	Before: 74 After: 13	31	1-12 devs per sprint 1 sprint has 0 developers. 7 sprints have more than 8 active developers.	56/65 (after) pass 8/65 fail	0	Out of 1365 issues, 1246 of them have developers assigned to them.

Male	Before: 1278 After: 1014	Before: 104 After: 94	Before: 38 After: 7	73	1-6 devs per sprint	84/94 sprints pass 10/94 fail	0	Out of 1278 issues, 1223 of them have developers assigned to them.
Nexus	Before: 1037 After: 777	Before: 70 After: 69	Before: 22 After: 4	56	1-4 devs per sprint 8 sprints have 0 developers	61/69 sprints pass 8/69 fail	0	Out of 1037 issues, 750 of them have developers assigned to them.
Timob	Before: 1853 After: 1359	Before: 63 After: 36	Before: 49 After: 10	73	1-2 devs per sprint	36/36 sprints pass	1	Out of 1853 issues, 1853 of them have developers assigned to them.

R28: The status of issues should always follow the agreed workflow, depending on the project and development team.									
Project Name	Total Sprints	Total Issues	Total Complete Issues	Total Issue Statues per Project	Statues and their counts	Statues (name and id)	Percentage (Sprint Unit)	Binary Output	Comments
XD	66	3182	574	4	Done 2578 To Do 550 In Progress 20 In PR 4	To Do 10000 In PR 10000 Done 10001 In Progress 3	574/574 complete issues pass the rule	1	4 2140 45 1406 49 1136 15 675 30 630 -4 184 -45 129 -19 25 -15 165
Apstnd	34	825	237	5	Closed 567 Open 220 Resolved 21 Reopened 16 In Review 1	Open 1 In Review 10003 Resolved 5 Closed 6 Reopened 4	234/237 complete issues pass the rule 3/237 complete issues fail the rule	0	-50 634 19 302 80 220 50 180 0 171 -80 164 -50 88 99 29 49 10 -49 8 -30 4 -99 3
Tstnd	59	2826	198	6	Closed 2341 Resolved 287 Open 170 Reopened 22 In Progress 4 In Review 2	# Reopened 4 # Closed 6 # Open 170 # Open 1 # In Review 10003 # In Progress 3	174/198 complete issues pass the rule 24/198 complete issues fail the rule	0	50 2571 4 2044 45 1820 0 1311 49 625 100 796 150 657 -150 548 -95 475 -100 438
Mobile	23	3242	359	8	Closed 2252 Resolved 631 Open 335 Development in progress 14 Reopened 5 Waiting for peer review 2 Waiting for testing 2 Waiting for integration review 1	# Open 1 # Dev in progress 3 # closed 6 # Resolved 5 # waiting for integration review 10010 # Waiting for peer review 10012 # Reopened 4	280/359 complete issues pass the rule 79/359 complete issues fail the rule	0	95 1306 399 641 199 459 99 444 45 423 -50 336 195 253 -795 218 -4 167 395 94 -292 29
MDL	269	63273	10285	10	Closed 52988 Open 9270 Reopened 492 Development in progress 361 Waiting for peer review 84 Waiting for integration review 32 Peer review in progress 30 Tested 9 Integration review in progress 6 Waiting for testing 2	We do not have the changelog for this project!	We do not have the changelog for this project!	N/A	We do not have the changelog dataset for MDL project. This dataset contains information about the workflow of the issues and the transition of issue statuses.
DNN	103	1874	104	6	Closed 1765 Open 76 Reopened 23 Pull Request Submitted 6 Planned Development 3 Resolved 1	# Closed 6 # Open 1 # Reopened 4 # Pull Request Submitted 10133 # Planned Development 10008 # Resolved 5	94/104 issues pass the rule 10/104 issues fail the rule	0	50 1791 49 619 150 601 -4 453 30 375 -150 313 100 152 19 75 -100 67 99 31
Meson	70	1365	277	5	Resolved 1088 Accepted 136 Reviewable 65 Open 56 In Progress 20	# Resolved 5 # Accepted 10020 # Reviewable 10006 # Open 1 # In Progress 3	277/277 complete issues pass the rule	1	49 1231 15 1126 -45 1013 80 970 4 267 -15 154 95 135 50 115 -4 112 -50 82 -30 69 99 55 45 34 -49 7
Mule	104	1278	78	5	Closed 1196 To Do 69 In Progress 7 Resolved 4 Reopened 2	# Closed 6 # To Do 1 # In Progress 3 # Resolved 5 # Reopened 4	74/78 complete issues pass the rule 4/78 complete issues fail the rule	0	4 968 45 738 -45 577 50 328 49 302 -50 186 -49 159 15 95 30 90 -4 51 -95 41 95 14 99 11 -30 6 -99 4 -80 1 80 1
Nexus	70	1037	42	5	Closed 967 Open 40 Done 25 Refine 1 Raw 1	# Closed 6 # Open 1 # Done 10017 # Refine 10734 # Raw 10016	42/42 complete issues pass the rule	1	99 215 -99 60 -50 29 15 1 4 1

R32 - There should be a type, such as bug, improvement or task, associated to each issue								
Project Name	Total Issues	Types	Types Values and their Count	Issues having no type	Percentage (Issues Unit)	Binary Output	Comments	
XD	3192	6	Story, Bug, Improvement, Technical task, Epic	0	3192/3192 issues pass pass the rule	1		
Aptitud	825	6	Bug, Story, Improvement, Technical task, Epic, New Feature	0	825/825 issues pass pass the rule	1		
Tintad	2826	6	Bug, Story, Improvement, Technical task, New Feature, Sub-Task	0	2826/2826 issues pass pass the rule	1	There are 2826 values present in the issue type name data field. Total number of issues having no issue status is: 0.	
Mobile	3242	8	Bug, Improvement, Sub-task, New Feature, Task, Epic, Story, Release Test	0	3242/3242 issues pass pass the rule	1	There are 3242 values present in the issue type name data field. Total number of issues having no issue status is: 0.	

MDL	63273	6	Bug Improvement 39732 Sub-task 12343 New Feature 4523 Task 3872 Epic 2537 267	0	63273/63273 issues pass the rule	1	There are 63274 values present in the issue type name data field. Total number of issues having no issue status is: 0.
DNN	1874	6	Bug, Improvement, Story, Sub-task, Task, New Feature	0	1874/1874 issues pass the rule	1	Total number of issue statuses present in this Open-Source Project is: 6. There are 1874 values present in the issue type name data field. Total number of issues having no issue status is: 0.
Mesos	1365	7	Bug Task 497 Improvement 408 Documentation 353 Story 74 Epic 20 Epic 9 Wish 4	0	1365/1365 issues pass the rule	1	There are 1365 values present in the issue type name data field. Total number of issues having no issue status is: 0.
Mule	1278	8	Bug Task 594 Improvement 274 New Feature 251 Story 121 Story 32 Patch submission 2 Sub-task 2 Epic 2	0	1278/1278 issues pass the rule	1	Total number of issue statuses present in this Open-Source Project is: 8. There are 1278 values present in the issue type name data field. Total number of issues having no issue status is: 0.
Nexus	1037	5	Bug Improvement 697 Story 277 Task 30 Task 25 Technical Debt 8	0	1037/1037 issues pass the rule	1	There are 1037 values present in the issue type name data field. Total number of issues having no issue status is: 0.
Timob	1853	7	Bug Improvement 1141 Story 262 New Feature 218 Sub-task 192 Epic 19 Epic 17 Technical task 4	0	1853/1853 issues pass the rule	1	There are 1853 values present in the issue type name data field. Total number of issues having no issue status is: 0.

R33 - Each issue belongs to a specific Sprint, therefore there should be a sprint identifier attached to each issue.						
Project Name	Total Issues	Total Sprints	Issues Having No Sprint ID	Percentage (Issues Unit)	Binary Output	Comments
XD	3152	66	1326	1826/3152 issues pass the rule 1326/3152 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 66. Total number of missing sprints present in this Open-Source Project is: 1326. Total number of unique issues present in this Open-Source Project is: 3152. Total number of missing issues present in this Open-Source Project is: 0.
Apsttd	825	34	410	415/825 issues pass the rule 410/825 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 34. Total number of missing sprints present in this Open-Source Project is: 410. Total number of unique issues present in this Open-Source Project is: 825. Total number of missing issues present in this Open-Source Project is: 0.
Tisttd	2826	59	1089	1737/2826 issues pass the rule 1089/2826 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 59. Total number of missing sprints present in this Open-Source Project is: 1089. Total number of unique issues present in this Open-Source Project is: 2826. Total number of missing issues present in this Open-Source Project is: 0.
Mobile	3242	23	2032	1210/3242 issues pass the rule 2032/3242 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 23. Total number of missing sprints present in this Open-Source Project is: 2032. Total number of unique issues present in this Open-Source Project is: 3242. Total number of missing issues present in this Open-Source Project is: 0.
MDL	63273	269	60539	2734/63273 issues pass the rule 60539/63273 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 269. Total number of missing sprints present in this Open-Source Project is: 60540. Total number of unique issues present in this Open-Source Project is: 63273. Total number of missing issues present in this Open-Source Project is: 1.
DNN	1874	103	246	1628/1874 issues pass the rule 246/1874 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 103. Total number of missing sprints present in this Open-Source Project is: 246. Total number of unique issues present in this Open-Source Project is: 1874. Total number of missing issues present in this Open-Source Project is: 0.
Mesos	1365	70	286	1079/1365 issues pass the rule 286/1365 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 70. Total number of missing sprints present in this Open-Source Project is: 286. Total number of unique issues present in this Open-Source Project is: 1365. Total number of missing issues present in this Open-Source Project is: 0.
Mule	1278	104	120	1167/1287 issues pass the rule, out of which: 11/1167 issues have no valid value in the sprint field 120/1287 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 104. Total number of missing sprints present in this Open-Source Project is: 120. Total number of unique issues present in this Open-Source Project is: 1278. Total number of missing issues present in this Open-Source Project is: 0.
Nexus	1037	70	404	633/1037 issues pass the rule 404/1037 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 70. Total number of missing sprints present in this Open-Source Project is: 404. Total number of unique issues present in this Open-Source Project is: 1037. Total number of missing issues present in this Open-Source Project is: 0.
Timob	1853	63	1574	279/1853 issues pass the rule 1574/1853 issues fail the rule	0	Total number of unique sprints present in this Open-Source Project is: 63. Total number of missing sprints present in this Open-Source Project is: 1574. Total number of unique issues present in this Open-Source Project is: 1853. Total number of missing issues present in this Open-Source Project is: 0. Total number of issues belonging to no sprints is: 1574.  The results indicate that the Timob project was not a fan of Sprints, since they did not incorporate Sprints in their agile work that much.

R34 - All issues must be uniquely identifiable, therefore there should be a unique identifier associated with each issue.						
Project Name	Total Issues	Total Sprints	Empty issue ID/keys	Percentage (Issues Unit)	Binary Output	Comments
XD	3152	66	0	3152/3152 issues pass the rule	1	Total number of unique issues present in this Open-Source Project is: 3152. Total number of issues having no issue IDs in this Open-Source Project is: 0.
Apsttd	825	34	0	825/825 issues pass the rule	1	Total number of unique issues present in this Open-Source Project is: 825. Total number of missing issues present in this Open-Source Project is: 0.
Tisttd	2826	59	0	2826/2826 issues pass the rule	1	Total number of unique issues present in this Open-Source Project is: 2826. Total number of missing issues present in this Open-Source Project is: 0.
Mobile	3242	23	0	3242/3242 issues pass the rule	1	Total number of issues present in this Open-Source Project is: 3242. Total number of missing issues present in this Open-Source Project is: 0.
MDL	63273	269	1	63272/63273 issues pass the rule 1/63273 issues fail the rule	0	Total number of issues present in this Open-Source Project is: 63273. Total number of missing issues present in this Open-Source Project is: 1.  Total number of sprints present in this Open-Source Project is: 269. Total number of missing sprint IDs present in this Open-Source Project is: 60540.

DNN	1874	103	0	1874/1874 issues pass the rule	1	Total number of issues present in this Open-Source Project is: 1874. Total number of missing issues present in this Open-Source Project is: 0. Total number of issues present in this Open-Source Project is: 103. Total number of missing sprint IDs present in this Open-Source Project is: 246. Total number of issues present in this Open-Source Project is: 1365. Total number of missing issues present in this Open-Source Project is: 0. Total number of sprints present in this Open-Source Project is: 70. Total number of missing sprint IDs present in this Open-Source Project is: 286. Total number of issues present in this Open-Source Project is: 1278. Total number of missing issues present in this Open-Source Project is: 0.
Mesos	1365	70	0	1365/1365 issues pass the rule	1	Total number of sprints present in this Open-Source Project is: 70. Total number of missing sprint IDs present in this Open-Source Project is: 286. Total number of issues present in this Open-Source Project is: 1278. Total number of missing issues present in this Open-Source Project is: 0.
Mule	1278	104	0	1278/1278 issues pass the rule	1	Total number of sprints present in this Open-Source Project is: 104. Total number of missing sprint IDs present in this Open-Source Project is: 120. Total number of issues present in this Open-Source Project is: 1037. Total number of missing issues present in this Open-Source Project is: 0.
Nexus	1037	70	0	1037/1037 issues pass the rule	1	Total number of sprints present in this Open-Source Project is: 70. Total number of missing sprint IDs present in this Open-Source Project is: 404. Total number of issues present in this Open-Source Project is: 1853. Total number of missing issues present in this Open-Source Project is: 0.
Timob	1853	63	0	1853/1853 issues pass the rule	1	Total number of sprints present in this Open-Source Project is: 63. Total number of missing sprint IDs present in this Open-Source Project is: 1574. Most of the sprints have low number of issues resolved in them. The team perhaps did not correctly map the issues into the sprint they were completed in Jira, and perhaps the issues actually were resolved in one of these valid 63 sprints. This is another remark for future, that agile teams need to use Jira correctly and map out all activities related to the issues in order for us to have clearer data and better insights.

R35 - Scrum Sprints have a starting time. There should be timestamp indicating the sprints kick-off.						
Project Name	Sprint Sample Value	Total Sprints	Sprints having no Start Date	Percentage (Sprint Unit)	Binary Output	Comments
XID	Sprint 68	66	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Apistad	2012 Sprint 16	34	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Tutad	2012 Sprint 18	59	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mobile	"[com.atlassian.greenhopper.service.sprint.Sprint@40cf8baa [id=237,rapidViewId=126, state=ACTIVE, name=Khode 3.9 - Mogpies Karban, startDate=2019-09-16T13:49:00.000Z, endDate=2019-10-31T14:49:00.000Z, completedDate=null, sequence=237, goal=null]]"	23	0	23/23 sprints pass the rule	1	There are 23 sprints in this project, and for each of them we have the start date. However, there are many issues that do not belong to any sprints, which in the data is reflected as the NaN sprint.
MDL	"[com.atlassian.greenhopper.service.sprint.Sprint@69955afa [id=246,rapidViewId=116, state=CLOSED, name=Internationals - 3.8 Alpha, startDate=2019-10-08T02:30:06.385Z, endDate=2019-10-15T02:30:00.000Z, completedDate=2019-12-02T05:32:44.130Z, sequence=246, goal=Feature completion]]"	269	0	269/269 sprints pass the rule	1	There is no sprint that has a null value for the start date. Also checked manually for all sprints' start dates and all 269 have a timestamp indicating the start date of the given sprint.
DNN	Sprint 2, Content 8.1.0 - Sprint 3	103	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mesos	Mesosphere Sprint 34	70	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mule	startDate=2016-04-27T11:27:32-06:45:00	104	1	104/104 sprints pass the rule	1	There are 104 sprints, out of which all sprints have a valid timestamp indicating the beginning of the sprint. There are also 47 issues that belong to no sprints, and this value is reflected as NaN in the sprint field.
Nexus	Sprint 68 - Fohn	70	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Timob	2012 Sprint 20	63	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.

R36 - Scrum Sprints have a completion time. There should be timestamp indicating the sprints completion/resolution.						
Project Name	Sprint Sample Value	Total Sprints	Sprints having no End Date	Percentage (Sprint Unit)	Binary Output	Comments
XID	Sprint 68	66	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Apistad	2012 Sprint 16	34	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Tutad	2012 Sprint 18	59	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mobile	"[com.atlassian.greenhopper.service.sprint.Sprint@40cf8baa [id=237,rapidViewId=126, state=ACTIVE, name=Khode 3.9 - Mogpies Karban, startDate=2019-09-16T13:49:00.000Z, endDate=2019-10-31T14:49:00.000Z, completedDate=null, sequence=237, goal=null]]"	23	0	23/23 sprints pass the rule	1	Sample end date for this project: endDate=2018-11-06T06:39:00.000Z, completedDate=2019-02-07T11:09:45.209Z. There are 23 sprints in this project, and for each of them we have the end date and completion date. However, there are many issues that do not belong to any sprints, which in the data is reflected as the NaN sprint.
MDL	"[com.atlassian.greenhopper.service.sprint.Sprint@69955afa [id=246,rapidViewId=116, state=CLOSED, name=Internationals - 3.8 Alpha, startDate=2019-10-08T02:30:06.385Z, endDate=2019-10-15T02:30:00.000Z, completedDate=2019-12-02T05:32:44.130Z, sequence=246, goal=Feature completion]]"	269	0	269/269 sprints pass the rule	1	There is no sprint that has a null value for the start date. Also checked manually for all sprints' start dates and all 269 have a timestamp indicating the start date of the given sprint.
DNN	Sprint 2, Content 8.1.0 - Sprint 3	103	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mesos	Mesosphere Sprint 34	70	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Mule	startDate=2016-04-27T11:27:32-06:45:00	104	N/A	104/104 sprints pass the rule	1	From the next sprint's start date, we use this value as the end date of the previous sprint.
Nexus	Sprint 68 - Fohn	70	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.
Timob	2012 Sprint 20	63	N/A	N/A	N/A	This rule is not applicable for this project, because we do not have the needed information.

R37 - There should be a minimum of one issue, representing a Sprint Backlog Item, per each Sprint.						
Project Name	Total Issues	Total Sprints	Min PBIs per Sprint	Max PBIs per Sprint	Sprints having 0 PBIs	Comments
XID	3102	66	1	87	0	66/66 sprints pass the rule
Apistad	244	34	1	35	0	34/34 sprints pass the rule
Tutad	2626	59	10	67	0	59/59 sprints pass the rule
Mobile	3242	23	1	180	0	23/23 sprints pass the rule



MDL	63273	269	1	129	0	269/269 sprints pass the rule	1	
DNN	1874	103	1	91	0	103/103 sprints pass the rule	1	There are many sprints having only 1 issue completed in them! 21/103 sprints have only 1 issue completed during the sprint. This project generally has low PRs per sprint.
Mesos	1365	70	1	69	0	70/70 sprints pass the rule	1	N/A
Mule	1278	104	1	43	0	104/104 sprints pass the rule	1	
Nexus	1037	70	1	42	0	70/70 sprints pass the rule	1	This project generally has low PRs per sprint.
Timob	1853	63	1	37	0	63/63 sprints pass the rule	1	This project generally has low PRs per sprint. There are 24 sprints that only have 1 issue resolved in them!

R38 - There should be timestamp indicating the issue development kick-off.								
Project Name	Total Issues	Issues having no Start Date	Percentage (Issues Unit)	Binary Output	Comments			
XD	3152	0	3152/3152 issues pass the rule	1	Total number of issues in the Open-Source Project are: 3152. Total number of unique issues (excluding nan) in the Open-Source Project are: 3152. There are: 0 issue duplicates! In case of duplicate issues, the duplicates will be removed! However, this step was already performed in the data cleaning part. Total number of issues having no created date is: 0.			
Apptad	825	0	825/825 issues pass the rule	1	Total number of issues in the Open-Source Project are: 825. There are: 0 issue duplicates! Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no created date is: 0.			
Tsttad	2826	0	2826/2826 issues pass the rule	1	Total number of issues in the Open-Source Project are: 2826. There are: 0 issue duplicates! Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no created date is: 0.			
Mobile	3242	0	3242/3242 issues pass the rule	1	Total number of issues in the Open-Source Project are: 3242. Total number of unique issues (excluding nan) in the Open-Source Project are: 3242. Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no created date is: 0.			
MDL	63273	0	63273/63273 issues pass the rule	1	Total number of issues in the Open-Source Project are: 63273. Total number of missing values in the "key" column in the Open-Source Project: 1. Total number of issues having no created date is: 0.			
DNN	1874	0	1874/1874 issues pass the rule	1	Even the 1 issue which does not have an ID/name, it has been created and records a creation date. Total number of issues in the Open-Source Project are: 1874. Total number of unique issues (excluding nan) in the Open-Source Project are: 1874. Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no created date is: 0.			
Mesos	1365	0	1365/1365 issues pass the rule	1	Total number of issues in the Open-Source Project are: 1278. Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no created date is: 0.			
Mule	1278	0	1278/1278 issues pass the rule	1	Total number of issues in the Open-Source Project are: 1037. Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no created date is: 0.			
Nexus	1037	0	1037/1037 issues pass the rule	1	Total number of issues in the Open-Source Project are: 1853. Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no created date is: 0.			
Timob	1853	0	1853/1853 issues pass the rule	1				

R39 - There should be timestamp indicating the issue development completion.								
Project Name	Total Issues	Issues having no End Date	Percentage (Issues Unit)	Binary Output	Comments			
XD	3152	574	2578/3152 issues pass the rule 574/3152 issues fail the rule	0	Total number of issues in the Open-Source Project are: 3152. There are: 0 issue duplicates! Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no end date is: 574.			
Apptad	825	237	588/825 issues pass the rule 237/825 issues fail the rule	0	Total number of issues in the Open-Source Project are: 825. There are: 0 issue duplicates! Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no end date is: 237.			
Tsttad	2826	198	2628/2826 issues pass the rule 198/2826 issues fail the rule	0	Total number of issues in the Open-Source Project are: 2826. There are: 0 issue duplicates! Total number of issues having no end date is: 198.			
Mobile	3242	359	2883/3242 issues pass the rule 359/3242 issues fail the rule	0	Total number of issues having no end date is: 359.			
MDL	63273	10285	52988/63273 issues pass the rule 10285/63273 issues fail the rule	0	Total number of issues in the Open-Source Project are: 63273. Total number of missing values in the "key" column in the Open-Source Project: 1. Total number of issues having no end date is: 10285.			
DNN	1874	104	1770/1874 issues pass the rule 104/1874 issues fail the rule	0	Total number of issues in the Open-Source Project are: 1874. Total number of unique issues (excluding nan) in the Open-Source Project are: 1874. Total number of issues having no end date is: 104.			
Mesos	1365	277	1088/1365 issues pass the rule 277/1365 issues fail the rule	0	Total number of issues having no end date is: 277.			
Mule	1278	78	1209/1287 issues pass the rule 78/1287 issues fail the rule	0	Total number of issues in the Open-Source Project are: 1278. Total number of issues having no end date is: 78.			
Nexus	1037	42	995/1037 issues pass the rule 42/1037 issues fail the rule	0	Total number of issues in the Open-Source Project are: 1037. Total number of missing values in the "key" column in the Open-Source Project: 0. Total number of issues having no end date is: 42.			
Timob	1853	174	1679/1853 issues pass the rule 174/1853 issues fail the rule	0	This project has the lowest number of incomplete issues, proportionally to the number of total issues among all projects. Total number of issues in the Open-Source Project are: 1853. Total number of issues having no end date is: 174.			