[***Apache Commons Collections***](https://www.openhub.net/p/Apache-Commons-Collections)***:***

For project one, LOC is [72.9K](https://www.openhub.net/p/Apache-Commons-Collections/analyses/latest/languages_summary)

For version 4.0, the total number of bug is 74, the defined period is from 23/Oct/19 to 10/Apr/14. The Defect Density is 74/72900=0.0010151

For version 4.1, the total number of bug is 31, the defined period is from 12/Jan/15 to 01/Nov/19. The Defect Density is 31/72900=0.0004252

For version 3.2, the total number of bug is 107, the defined period is from 10/Jul/04 to 26/Apr/16. The Defect Density is 107/72900=0.014678

For version 2.1, the total number of bug is 24, the defined period is from 01/Nov/02 to 27/Nov/15. The Defect Density is 24/72900=0.0003292

For version 3.0, the total number of bug is 23, the defined period is from 28/Jan/04 to 05/Dec/19. The Defect Density is 23/72900=0.0003155

***Apache commons CLI***

For project two, the LOC is 9.29K

For version 1.4, the total number of bug is 12, the defined period is from 10/Jun/18 to 22/Nov/19. The Defect Density is 12/9290 = 0.00129171

For version 1.3.1, the total number of bug is 10, the defined period is from 29/Dec/15 to 12/May/18. The Defect Density is 10/9290=0.00107643

For version 1.2, the total number of bug is 10, the defined period is from 04/Jul/13 to 28/Jan/20. The Defect Density is 10/9290=0.00107643

For version 1.3, the total number of bug is 6, the defined period is from 23/Jun/15 to 14/Feb/19.

The Defect Density is 6/9290=0.00064586

For version 1.1, the total number of bug is 1, the defined period is from 11/Sep/07 to 07/Sep/16.

The Defect Density is 1/9290=0.00010764

***Apache Commons Configuration***

For project three, the LOC is 847K

For version 1.6, the total number of bug is 95, the defined period is from 06/Feb/08 to   
09/Sep/19. The Defect Density is 95/847000=0.00011216

For version 1.9, the total number of bug is 62, the defined period is from 21/Aug/16 to 08/Sep/12. The Defect Density 62/847000=0.0000732

For version 1.5, the total number of bug is 48, the defined period is from 23/Aug/07 to 24/Mar/16. The Defect Density 48/847000=0.00005667

For version 1.4, the total number of bug is 43, the defined period is from 19/Jan/07 to 03/Aug/15. The Defect Density 43/847000=0.00005077

For version 1.1, the total number of bug is 43, the defined period is from 22/Aug/09 to 04/Apr/05. The Defect Density 43/847000=0.00005077

***Apache Commons Math***

For project four, the LOC is 166k

For version 3, the total number of bug is 179, the defined period is from 18/Jun/10 to   
06/Sep/16. The Defect Density is 179/166000=0.00107831

For version 2, the total number of bug is 116, the defined period is from 16/Jan/08 to 24/Mar/12. The Defect Density 116/166000=0.0006988

For version 2.2, the total number of bug is 107, the defined period is from 04/Dec/09 to 01/Jun/16. The Defect Density 107/166000=0.00064458

For version 3.2, the total number of bug is 88, the defined period is from 10/Jul/12 to 18/Apr/17. The Defect Density 88/166000=0.00053012

For version 2.1, the total number of bug is 86, the defined period is from 12/Dec/08 to 07/Apr/13. The Defect Density 86/166000=0.00051807