1. Calculate the defect removal rate for every phase.

Defect removal rate = number of defects removed / 120KLOC

|  |  |  |
| --- | --- | --- |
| Phase | Number of Defects removed | Defect Removal rate |
| Requirement | 223 | 1.858 |
| Analysis | 136 | 1.133 |
| Design | 311 | 2.591 |
| Coding | 508 | 4.233 |
| Unit testing | 244 | 2.033 |
| Integration Testing | 111 | 0.925 |
| System Testing | 67 | 0.558 |
| Field | 18 | 0.15 |

1. Calculate the defect injection rate for every phase.

Defect injection rate = number of defects injected / 120 KLOC

|  |  |  |
| --- | --- | --- |
| Phase | Number of Injected Defects | Defect Injectional rate |
| Requirement | 542 | 4.52 |
| Analysis | 207 | 1.73 |
| Design | 373 | 3.11 |
| Coding | 472 | 3.94 |
| Unit testing | 4 | 0.04 |
| Integration Testing | 7 | 0.06 |
| System Testing | 6 | 0.05 |
| Field | 7 | 0.06 |

1. Calculate the defect escape rate for every phase.

Defect escape rate = Number of defects escaped / 120 KLOC

Number of defects escaped = Number of defects injected + Number of defects

escaped from prior phase – Number of defects removed.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Phase | Total Number of Defects Injected (A) | Total Number of Defects Escaped from prior phase (B) | Total number of defects removed (C) | Total number of defects escaped (A+B-C) | Defect escape rate |
| Requirement | 542 | 0 | 223 | 319 | 2.658 |
| Analysis | 207 | 319 | 136 | 390 | 3.25 |
| Design | 373 | 390 | 311 | 452 | 3.766 |
| Coding | 472 | 452 | 508 | 416 | 3.466 |
| Unit testing | 4 | 416 | 244 | 176 | 1.466 |
| Integration Testing | 7 | 176 | 111 | 72 | 0.6 |
| System Testing | 6 | 72 | 67 | 11 | 0.091 |
| Field | 7 | 11 | 18 | 0 | 0 |

1. Calculate the overall defect removal effectiveness.

Overall defect removal effectiveness = [(1 – (Defects in field / Total defects)] \* 100

Overall defect removal effectiveness = (1 – 18/1618) \* 100 = 98.88%

1. Which phase is the most effective in removing defects? Explain.

Defect removal effectiveness = No. of defects found / no. of defects injected from previous Phase + No. of defects injected.

Phase wise defect removal effectiveness

Requirement = [223 / 542] \*100 = 41.143%

Analysis = [136 / (207+319)] \*100 = 25.855%

Design = [311 / (373+390)] \*100 = 40.76%

Coding = [508 / (472+452)] \*100= 54.978%

Unit test = [244 / (4+416)] \*100= 58.095%

Integration test = [111 / (7+176)] \*100 = 60.655%

System test = [67 / (6+72)] \*100 = 85.897%

Field = [18 / (7+11)] \*100 = 100%