

### Assignment #3

- Consider the data listed in the following matrix for a product of size 42 KLOC:
  - Calculate the defect removal rate for every phase

Phase	Defect/KLOC(removal)
Requirement	1.93
Analysis	1.2
Design	3.24
Coding	12.2
Unit Testing	6.24
Integration Testing	1.41
System Testing	2
Field	0.5
Total	28.72

- Calculate the defect injection rate for every phase

Phase	Defect Injection per KLOC
Requirement	4.55
Analysis	3.72
Design	4.27
Coding	14.65
Unit Testing	
Integration Testing	
System Testing	
Field	
Total	27.19

### 3. Calculate the defect escape rate for every phase

Phase	Escape Rate
Requirement	2.62
Analysis	5.14
Design	6.17
Coding	8.62
Unit Testing	3.6
Integration Testing	2.26
System Testing	0.33
Field	0

### 4. Which phase is the most effective in removing defects?

System Testing has 80.0% Defect Removing Effectiveness hence it is the most effective

### 5. Calculate the overall defect removal effectiveness

The overall defect removal effectiveness is 98.2%

### 6. Do you think reviews and inspections were effective? Explain.

Yes, Reviews and Inspections are effective to remove defects for years of customer usage

### 7. If the number of defects originated in requirements phase increased by 50% and defects detected in requirements review increased by 50%, do you think that will have a positive or negative impact on the defects originated in the coding phase? Explain your answer in detail (present data to support your answer).

Requirement	Requirement increase by 50%	Requirement Review Increased by 50%
81	121.5	183
21	31.5	
17	25.5	
36	54	
12	18	
7	10.5	
14	21	
3	4.5	

If the number of defects originated in Requirement phase is increased by 50% the total defects injected into Requirement phases is increased to 287 defects injected. Which has a **negative impact** on defects originated in coding phase as the effectiveness decreases with increase in defect injected.

8. If the number of defects originated in design phase increased by 30% and defects (defects escaped from prior phases and injected in current) detected in code inspections increased by 20%, do you think that will have a positive or negative impact on defect removal effectiveness for the testing phases? Explain your answer in detail (present data to support your answer).

Phases	Design	Design increased by 30%
Design	102	133
Coding	55	72
Unit Testing	8	11
Integration Testing	7	10
System Testing	5	7
Field	2	3

Increase in defects injected in design phase by 30% defects (defects escaped from prior phases and injected in current) detected in code inspections increased by 20%, has **negative impact** on the effectiveness as there will be more defects escaped from prior or subsequent phases which will have bad impact on testing phase.

