

# Software Project Management CS587

Neha Ramesh Gawali A20523722

## Assignment 3

### PART 1:

Identify and calculate the missing data in the following Estimation Baseline Table

Task Name	Work size	Productivity
<b>Project Plan</b>		
Write Plan	182 pages	3 pages/hr
<b>Review Plan</b>		
Preparation for Review		5 pages/hr
Review Meeting		10 pages/hr
Rework	61 defects	8 defects/hr
<b>Documented Software Development Process Updates</b>		
Process Changes	72 changes	3 changes/hr
<b>Review Changes</b>		
Preparation for Review		5 changes/hr
Review Meeting		10 changes/hr
Rework	52 defects	5 changes/hr
<b>Requirement</b>		
Write Requirements	210 req	4 req/hr
Write Use Case Model	79 UC	1 uc/2 hour
<b>Review Requirements/ Use Case Model</b>		
Preparation for Review- requirement		16 req/hr
Preparation for Review- UC model		5 Uc/hr
Review Meeting- Requirement		20 req/hr
Review Meeting- UC		10 UC/hr
Rework	171 defects	5 defects/hr
<b>Build the development and testing lab environment</b>		
<b>Hardware Environment</b>		
Servers	15	1 server /day
Clients	31	4 clients/day
<b>Software Development Tools</b>		
Build/compile tools	8	1 tool/hr
<b>Software Testing Tools</b>		

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Test Cases Execution tools	7	2 tool/day
Simulation Tools	12	2 tool/day
<b>Analysis</b>		
Write Analysis Document	93 pages	5 pages/hr
<b>Review Analysis Document</b>		
Preparation for Analysis Document		5 pages/hr
Review Meeting		10 pages/hr
Rework	35 defects	5 defects/hr
<b>Design</b>		
Write DD	132 pages	3 pages/hr
<b>Review DD</b>		
Preparation for DD		5 pages/hr
Review Meeting		9 pages/hr
Rework	123 defects	5 defects/hr
Write Data Model (DM)	132 pages	1 page/hr
<b>Review DM</b>		
Preparation for DM		4 pages/hr
Review Meeting		8 pages/hr
Rework	765 defects	5 defects/hr
<b>Coding</b>		
Write Code	4103 SLOC	5 SLOC/ hr
<b>Unit Testing</b>		
Prepare/Execute Test Cases	415 TC	7 TC/hr
Fix Found Defects	390 defects	13 defects/day
Test Fixed Defects	390 defects	28 defects/day
<b>Code Inspection</b>		
Preparation for Code Inspection	4103 SLOC	125 SLOC/hr
Code Inspection Meeting	4103 SLOC	175 SLOC/hr
Rework	349 defects	5 defects/hr
<b>Testing</b>		
Write Test Plan (TP)	145 pages	8 pages/day
<b>Review TP</b>		
Preparation for TP		4 pages/hr
Review TP Meeting		10 pages/hr
Rework	9 defects	5 defects/hr
Execute TP (test cases)	210 TC	12 TC/day
Fix Found Defects	67 defects	10 defects/day
Test Fixed Defects	67 defects	15 defects /day
<b>Documentation</b>		
User Documentation	118 pages	4 pages/hr

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<b>Review UD</b>		
Preparation for UD Review		5 pages/hr
Review UD Meeting		9 pages/hr
Rework	117 defects	8 defects/ hr

**Following are the assumptions for the Project Plan and Resources Assigned:**

1. A day constitutes of 8 business hours for each resource.
2. Duration (in hours) is calculated using (Amount of Work) / (Productivity Rate \* Head Count).
3. Inspection of code is done by peer programmer (other than author of code) considering their expertise will be helpful.

## PART 2

**7. What is the earliest finish date for this project if it is scheduled to start on 3/6/23?**

**Ans:**

If the project is scheduled to start on **3/6/23**, the earliest finish date for this project with 100% utilization of resources will be **11/22/23**.

**8. Can this project be completed 2 months after it starts? Explain why yes or no**

**Ans:**

The project starts on **3/6/23**, and finishes on **11/22/23**. So, it cannot be completed within 2 months after it starts. The project might complete within 2 months, if we allocate more resources, but for now we have constraints of using only 4 engineers for preparation tasks and 5 engineer for review tasks. So, with this assumption it is not possible to allocate more resources and complete the project within 2 months.

**10. Submit your Comments regarding the start and completion dates and resources assignments for the three projects in a PDF document called Analysis.pdf.**

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**Ans:** Considering resources shared and other requirement and constraints. Many resources are working on all three projects at the same time. Accordingly, it affects the projects schedule.

The start and completion dates of all three projects are as follows:

**Project Start Date Completion Date**

	Start Date	Completion Date
<b>Project 1</b>	<b>02/06/23</b>	<b>7/10/23</b>
<b>Project 2</b>	<b>2/13/23</b>	<b>4/29/24</b>
<b>Project 3</b>	<b>3/6/23</b>	<b>11/22/23</b>

**Document and comment on the WBS**

**Ans:**

Work Breakdown Structure is referred to as WBS. It provides the project's whole hierarchical structure. Each task is given a sequential number. It entails breaking the project down into more manageable tasks and activities. The assignments and responsibilities are divided as 1, 1.1, 1.1.1 and so on.

Project 3 is broken down into 9 different activities as follows:

1. Project Plan
1. Project Plan
3. Requirements
4. Build the development and testing lab environment
5. Analysis
6. 6. Design
7. Coding
8. Testing
9. Documentation

**3. Document and comment on the resource pool utilization**

**Ans:**

1. Assignment 3 is independent project that is this project is having its own resources that are not being shared among other 2 projects that are assignment1 and assignment 2. We are extrapolating the values for Assignment 3 using 1 and 2.
2. Also, we have one resource pool, and we share them within Assignment 1 project and Assignment 2. Thus, we need to assign resources more carefully. otherwise we will get conflict. In our case, Assignment 1 is the resource Pool for Assignment 2 project.

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### Document and comments on Network Diagram:

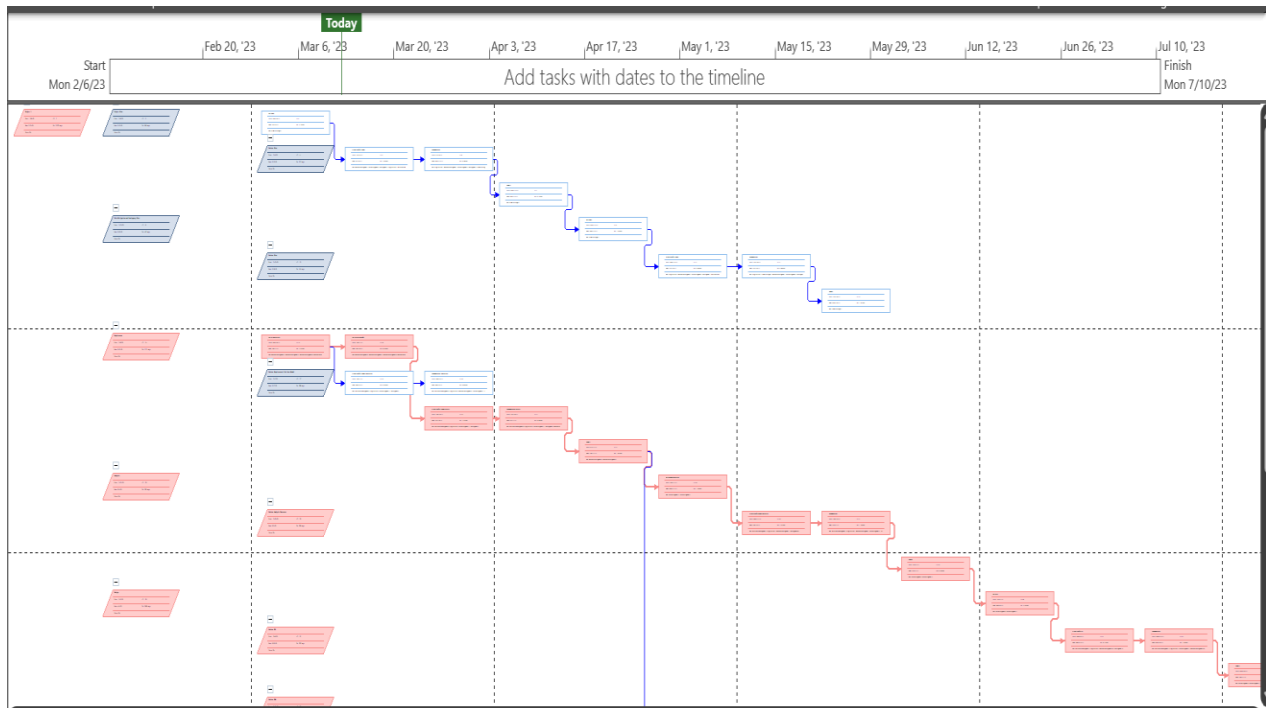
The task dependencies and project's critical path are depicted graphically in a network diagram. By using network diagrams, we can understand the order in which a project can be completed.

### ND for the Project 3:

1. The New Phase 'Document Software Process Update' is introduced after the project plan phase and before the requirements phase.
2. The Phase 'Build the Development and Testing Lab Environment' needs to be completed before the design and coding phase can start.
3. As soon as the 'Requirements' Phase are complete, we can start 'Write Test Plan', 'Analysis', 'Documentation' and 'Build the Development and Testing Lab Environment'.
4. The 'Execution of Test Plan' can begin as soon as the 'Coding' Phase is completed.

Network Diagram gives us a visual representation of the entire project. It can also be used to identify the critical path of the project  
Below are the Network Diagrams for all 3 projects:

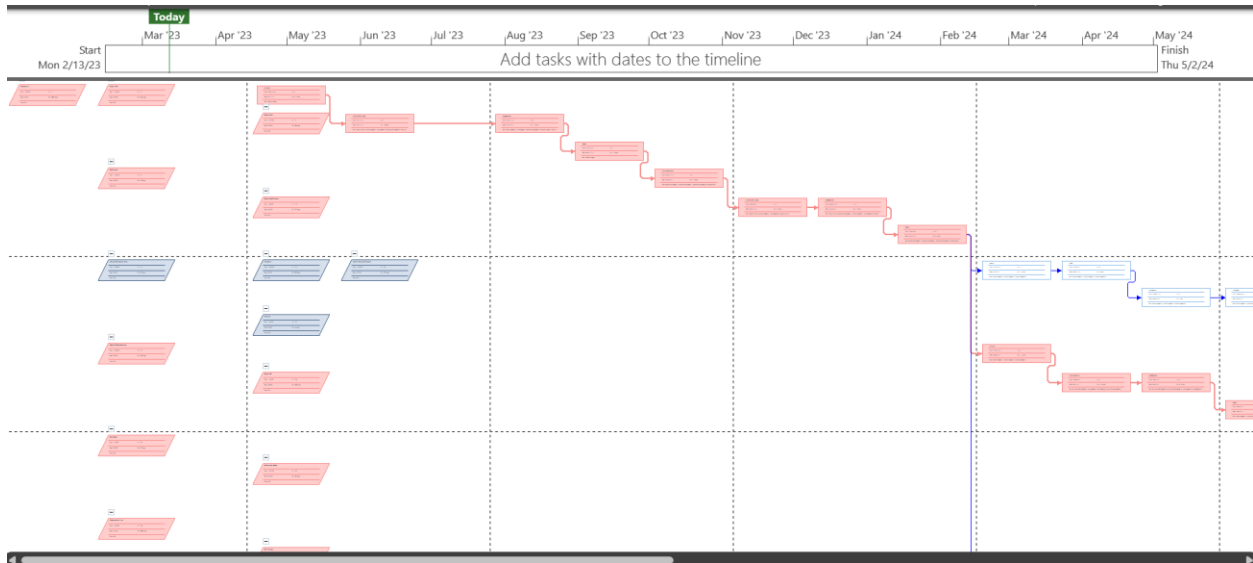
## Project 1:



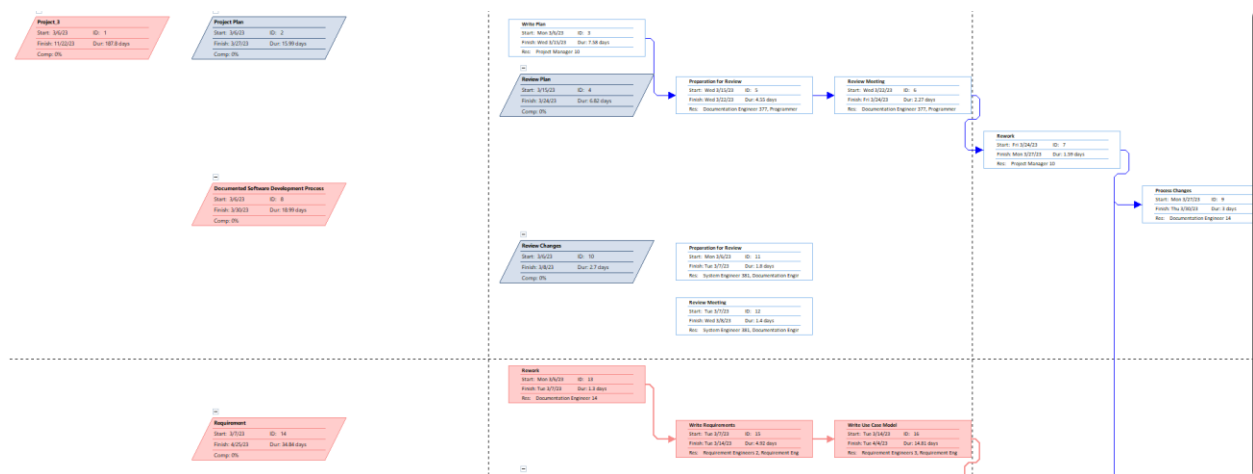
# Software Project Management CS587

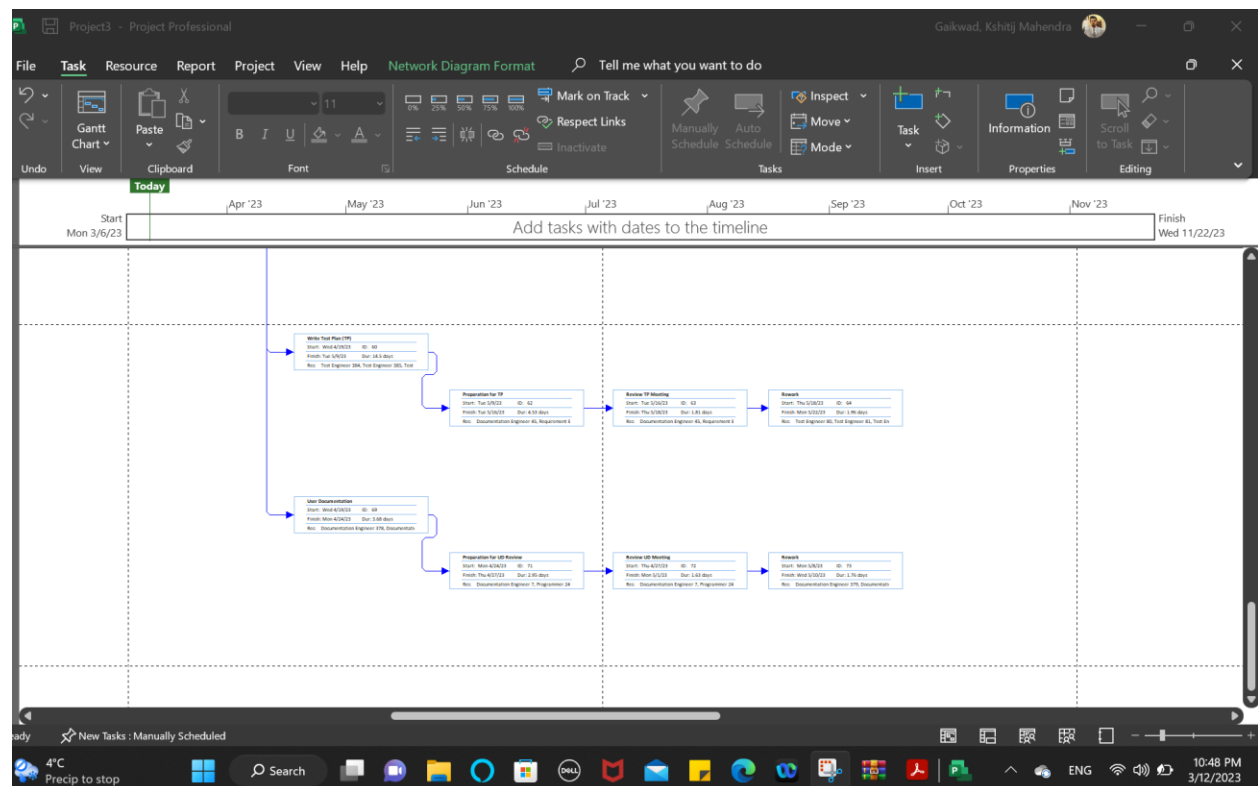
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## Project 2:



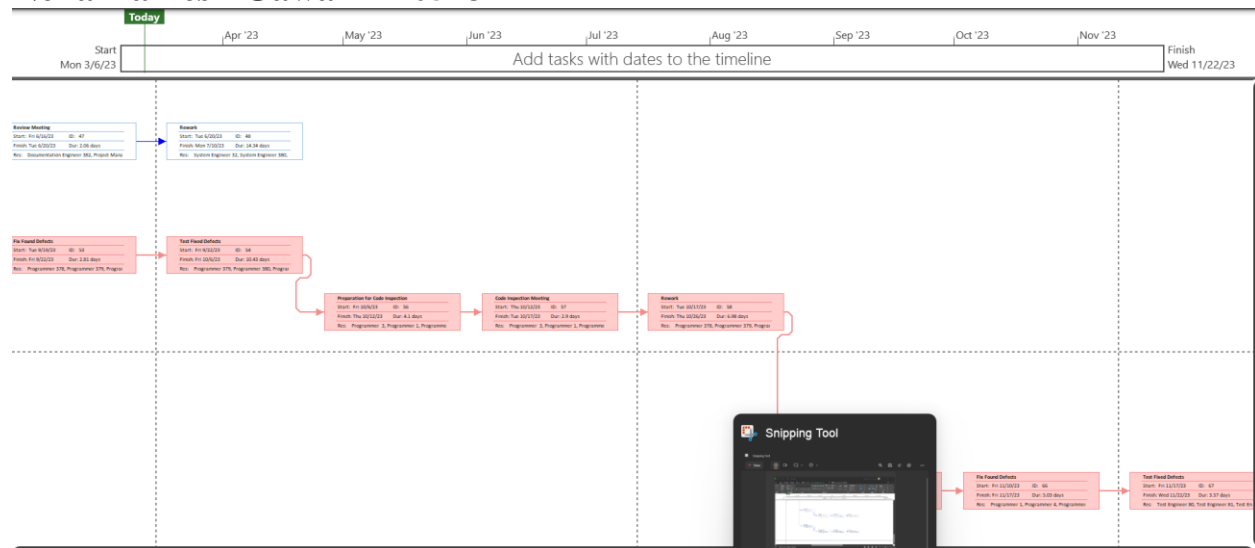
## Project 3:





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Following are the detailed BASELINE calculations:

## 1. PROJECT PLAN:

a) Write Plan:

Ans:

### In Assignment #1:

Amount of Work = 52 pages

Productivity Rate = 2 pages/hour =  $2 * 8 = 16$  pages/day

### In Assignment #2:

Amount of Work = 132 pages

Productivity Rate = 4 pages/hour =  $4 * 8 = 32$  pages/day

Average from Assignment #1 & Assignment #2:



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Productivity Rate =  $(2+4)/2$  pages/hour  $\approx 3$  pages/hour

**In Assignment #3:**

Amount of Work = 182 pages

Productivity Rate = 3 pages/hour =  $3 * 8 = 24$  pages/day

Effort = Amount of Work/Productivity Rate =  $182/24$  days = **7.58 days**

b) Preparation for Review:

**Ans:**

**In Assignment #1:**

Amount of Work = 52 pages

Productivity Rate = 5 pages/hour =  $5 * 8 = 40$  pages/day

**In Assignment #2:**

Amount of Work = 132 pages

Productivity Rate = 5 pages/hour =  $5 * 8 = 40$  pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(5+5)/2$  pages/hour  $\approx 5$  pages/hour

**In Assignment #3:**

Amount of Work = 182 pages

Productivity Rate = 5 pages/hour =  $5 * 8 = 40$  pages/day

Effort = Amount of Work/Productivity Rate =  $182/40$  days = **4.55 days**

c) Review Meeting:

**Ans:**

**In Assignment #1:**

Amount of Work = 52 pages

Productivity Rate = 10 pages/hour =  $10 * 8 = 80$  pages/day

**In Assignment #2:**

Amount of Work = 132 pages

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Productivity Rate = 10 pages/hour =  $10 * 8 = 80$  pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(10+10)/2$  pages/hour  $\approx 10$  pages/hour

**In Assignment #3:**

Amount of Work = 182 pages

Productivity Rate = 10 pages/hour =  $10 * 8 = 80$  pages/day

Effort = Amount of Work/Productivity Rate =  $182/80$  days = **2.27 days**

d) Rework:

**Ans:**

**In Assignment #1:**

Amount of Work = 19 defects/52 pages = 0.36 defects/page

Productivity Rate = 10 defects/hour

**In Assignment #2:**

Amount of Work = 102 defects/132 pages = 0.77 defects/page

Productivity Rate = 5 defects/hour

**Average from Assignment #1 & Assignment #2:**

Amount of Work =  $(0.36+0.77)/2 = 0.56$  defects/page

Productivity Rate =  $(5+10)/2$  defects/hour  $\approx 8$  defects/hour

**In Assignment #3:**

Amount of Work =  $0.56 * 182$  pages  $\approx 102$  defects

Productivity Rate = 8 defects/hour =  $8 * 8 = 64$  defects/day

Effort = Amount of Work/Productivity Rate =  $102/64$  days = **1.59 days**

## 2. DOCUMENTED SOFTWARE DEVELOPMENT PROCESS UPDATES:

a) Process Changes:

**Ans:** Amount of Work = 72 changes

Productivity Rate = 3 changes/hour =  $3 * 8 = 24$  changes/day

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Effort = Amount of Work/Productivity Rate =  $72/24$  days = **3 days**

b) Preparation for Review:

**Ans:** Amount of Work = 72 changes

Productivity Rate = 5 changes/hour =  $5 * 8 = 40$  changes/day

Effort = Amount of Work/Productivity Rate =  $72/40$  days = **1.8 days**

c) Review Meeting:

**Ans:** Amount of Work = 72 changes

Productivity Rate = 10 changes/hour =  $10 * 8 = 80$  changes/day

Effort = Amount of Work/Productivity Rate =  $72/80$  days = **0.9 days**

d) Rework:

**Ans:** Amount of Work = 52 defects

Productivity Rate = 5 defects/hour =  $5 * 8 = 40$  defects/day

Effort = Amount of Work/Productivity Rate =  $52/40$  days = **1.3 days**

## 3. REQUIREMENTS:

a) Write Requirements:

**Ans:**

**In Assignment #1:**

Amount of Work = 117 Req

Productivity Rate = 2 Req/hour =  $2 * 8 = 16$  Reqs/day

**In Assignment #2:**

Amount of Work = 256 Req

Productivity Rate = 5 Req/hour =  $5 * 8$  Req/day = 40 Req/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(5 + 2)/2 = 3.5$  Req/hour  $\equiv 4$  Req/hour

**In Assignment #3:**

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Amount of Work = 210 Req

Productivity Rate = 4 req/hour =  $4 * 8 = 32$  Req/day

Effort = Amount of Work/Productivity Rate =  $210/32$  days = **6.56 days**

b) Write Use Case Model:

**Ans:**

**In Assignment #1:**

Amount of Work = 79 Use Case/117 Req = 0.67

Productivity Rate = 1 Use Case/2 hour = 0.5 Use Case/hr  $\equiv$  1 Use Case/2hr

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = 1 Use Case/2hr

**In Assignment #3:**

Amount of Work =  $79 * 0.67 = 52.93$  Use Cases  $\equiv$  53 Use Cases

Productivity Rate = 0.5 Use Case/hour =  $0.5 * 8 = 4$  Use Cases/day

Effort = Amount of Work/Productivity Rate =  $79/4$  days = **19.75 days**

c) Preparation for Review - Requirements:

**Ans:**

**In Assignment #1:**

Amount of Work = 117 Req

Productivity Rate = 25 Req/hour =  $25 * 8 = 200$  Reqs/day

**In Assignment #2:**

Amount of Work = 256 Req

Productivity Rate = 7 req/hour =  $7 * 8 = 56$  Req/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(25 + 7)/2 = 16$  Req/hour

**In Assignment #3:**

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Amount of Work = 210 Req

Productivity Rate = 16 req/hour =  $16 * 8 = 128$  Req/day

Effort = Amount of Work/Productivity Rate =  $210/128$  days = **1.64 days**

d) Preparation for Review – Use Case:

**Ans:**

**In Assignment #1:**

Amount of Work = 79 Use Case/117 Req = 0.67

Productivity Rate = 5 Use Cases/hour =  $5 * 8 = 40$  Use Cases/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = 5 Use Cases/hr

**In Assignment #3:**

Amount of Work =  $210 * 0.67 = 140.7$  Use Cases  $\equiv 141$  Use Cases

Productivity Rate = 5 Use Cases/hour =  $5 * 8 = 40$  Use Cases/day

Effort = Amount of Work/Productivity Rate =  $141/40$  days = **3.52 days**

e) Review Meeting – Requirements:

**Ans:**

**In Assignment #1:**

Amount of Work = 117 Req

Productivity Rate = 30 Req/hour =  $30 * 8 = 240$  Reqs/day

**In Assignment #2:**

Amount of Work = 256 Req

Productivity Rate = 10 req/hour =  $10 * 8 = 80$  Req/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(30+10)/2 = 20$  Req/hour

**In Assignment #3:**

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Amount of Work = 210 Req

Productivity Rate = 20 req/hour =  $20 * 8 = 160$  Req/day

Effort = Amount of Work/Productivity Rate =  $210/160$  days = **1.31 days**

f) Review Meeting – Use Case:

**Ans:**

**In Assignment #1:**

Amount of Work = 79 Use Case/117 Req = 0.67

Productivity Rate = 10 Use Cases/hour =  $10 * 8 = 80$  Use Cases/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = 10 Use Cases/hr

**In Assignment #3:**

Amount of Work =  $210 * 0.67 = 140.7$  Use Cases  $\equiv 141$  Use Cases

Productivity Rate = 10 Use Cases/hour =  $10 * 8 = 80$  Use Cases/day

Effort = Amount of Work/Productivity Rate =  $141/80$  days = **1.76 days**

g) Rework:

**Ans:**

**In Assignment #1:**

Amount of Work = 113 defects/117 req = 0.96 defects/req

Productivity Rate = 5 defects/hour

**In Assignment #2:**

Amount of Work = 173 defects/256 req = 0.67 defects/req

Productivity Rate = 4 defects/hour

**Average from Assignment #1 & Assignment #2:**

Amount of Work =  $(0.96+0.67)/2 = 0.81$  defects/req

Productivity Rate =  $(5+4)/2$  defects/hour = 5 defects/hour

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## **In Assignment #3:**

Amount of Work =  $0.81 * 210 \text{ req} = 170.1 \approx 171 \text{ defects}$

Productivity Rate =  $5 \text{ defects/hour} = 5 * 8 = 40 \text{ defects/day}$

Effort = Amount of Work/Productivity Rate =  $171/40 \text{ days} = \mathbf{4.27 \text{ days}}$

## **4. BUILD THE DEVELOPMENT AND TESTING LAB ENVIRONMENT:**

a) Servers:

**Ans:** Amount of Work = 15

Productivity Rate =  $1 \text{ server/day}$

Effort = Amount of Work/Productivity Rate =  $15/1 \text{ days} = \mathbf{15 \text{ days}}$

b) Clients:

**Ans:** Amount of Work = 31

Productivity Rate =  $4 \text{ clients/day}$

Effort = Amount of Work/Productivity Rate =  $31/4 \text{ days} = \mathbf{7.75 \text{ days}}$

c) Build/Compile Tools:

**Ans:** Amount of Work = 8

Productivity Rate =  $1 \text{ tool/hr} = 1 * 8 = 8 \text{ tool/day}$

Effort = Amount of Work/Productivity Rate =  $8/8 \text{ days} = \mathbf{1 \text{ days}}$

d) Test Cases Execution tools:

**Ans:** Amount of Work = 7 Clients

Productivity Rate =  $2 \text{ tool/day}$

Effort = Amount of Work/Productivity Rate =  $7/2 \text{ days} = \mathbf{3.5 \text{ days}}$

e) Simulation Tools:

**Ans:** Amount of Work = 12 Tools

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Productivity Rate = 2 tool/day

Effort = Amount of Work/Productivity Rate = 12/2 days = 6 **days**

## 5. ANALYSIS:

a) Write Analysis Document:

**Ans:**

**In Assignment #1:**

Amount of Work = 141 pages

Productivity Rate = 5 pages/hour = 5 \* 8 = 40 pages/day

**In Assignment #2:**

Not Available

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = 5 pages/hour

**In Assignment #3:**

Amount of Work = 93 Pages

Productivity Rate = 5 pages/hr = 5 \* 8 pages/day = 40 pages/day

Effort = Amount of Work/Productivity Rate = 93/40 days = **2.32 days**

b) Preparation for Analysis Document:

**Ans:**

**In Assignment #1:**

Amount of Work = 141 pages

Productivity Rate = 5 pages/hour = 5 \* 8 = 40 pages/day

**In Assignment #2:**

Not Available

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = 5 pages/hour



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**In Assignment #3:**

Amount of Work = 93 Pages

Productivity Rate = 5 pages/hr =  $5 * 8$  pages/day = 40 pages/day

Effort = Amount of Work/Productivity Rate =  $93/40$  days = **2.32 days**

c) Review Meeting:

**Ans:**

**In Assignment #1:**

Amount of Work = 141 pages

Productivity Rate = 10 pages/hour =  $10 * 8$  = 80 pages/day

**In Assignment #2:**

Not Available

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = 10 pages/hour

**In Assignment #3:**

Amount of Work = 93 Pages

Productivity Rate = 10 pages/hr =  $10 * 8$  pages/day = 80 pages/day

Effort = Amount of Work/Productivity Rate =  $93/80$  days = **1.16 days**

d) Rework:

**Ans:**

**In Assignment #1:**

Amount of Work = 47 defects/141 pages = 0.33 defects/page

Productivity Rate = 5 defects/hour

**In Assignment #2:**

Not Available

**Average from Assignment #1 & Assignment #2:**

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Amount of Work = 0.33 defects/page

Productivity Rate = 5 defects/hour

**In Assignment #3:**

Amount of Work =  $0.37 * 93 = 35$  Defects

Productivity Rate = 5 defects/hr =  $5 * 8$  defects/day = 40 defects/day

Effort = Amount of Work/Productivity Rate =  $35/40$  days = **0.87 days**

## 6. DESIGN:

a) Write DD:

**Ans:**

**In Assignment #1:**

Amount of Work = 189 pages

Productivity Rate = 3 pages/hour =  $3 * 8 = 24$  pages/day

**In Assignment #2:**

Amount of Work = 278 Pages

Productivity Rate = 3 pages/hour =  $3 * 8$  pages/day = 24 pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(3+3)/2 = 3$  pages/hour

**In Assignment #3:**

Amount of Work = 132 Pages

Productivity Rate = 3 pages/hr =  $3 * 8$  pages/day = 24 pages/day

Effort = Amount of Work/Productivity Rate =  $132/24$  days = **5.5 days**

b) Preparation for DD:

**Ans:**

**In Assignment #1:**

Amount of Work = 189 pages

Productivity Rate = 5 pages/hour =  $5 * 8 = 40$  pages/day

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**In Assignment #2:**

Amount of Work = 278 Pages

Productivity Rate = 5 pages/hour =  $5 * 8$  pages/day = 40 pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(5 + 5)/2 = 5$  pages/hour

**In Assignment #3:**

Amount of Work = 132 Pages

Productivity Rate = 5 pages/hr =  $5 * 8$  pages/day = 40 pages/day

Effort = Amount of Work/Productivity Rate =  $132/40$  days = **3.3 days**

c) Review Meeting:

**Ans:**

**In Assignment #1:**

Amount of Work = 189 pages

Productivity Rate = 8 pages/hour =  $8 * 8 = 64$  pages/day

**In Assignment #2:**

Amount of Work = 278 Pages

Productivity Rate = 10 pages/hour =  $10 * 8$  pages/day = 80 pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(8 + 10)/2 = 9$  pages/hour

**In Assignment #3:**

Amount of Work = 132 Pages

Productivity Rate = 9 pages/hr =  $9 * 8 = 72$  pages/day

Effort = Amount of Work/Productivity Rate =  $132/72$  days = **1.83 days**

d) Rework:

**Ans:**

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**In Assignment #1:**

Amount of Work = 134 defects/189 pages = 0.70 defects/page

Productivity Rate = 5 defects/hour

**In Assignment #2:**

Amount of Work = 327 defects/278 pages = 1.17 defects/page

Productivity Rate = 4 defects/hour

**Average from Assignment #1 & Assignment #2:**

Amount of Work =  $(0.70 + 1.17)/2 = 0.93$  defects/page

Productivity Rate =  $(5 + 4)/2$  defects/hour = 5 defects/hour

**In Assignment #3:**

Amount of Work =  $0.93 * 132$  page = 123 defects

Productivity Rate = 5 defects/hr =  $5 * 8$  defects/day = 40 defects/day

Effort = Amount of Work/Productivity Rate =  $123/40$  days = **3.07 days**

e) Write Data Model:

**Ans:**

**In Assignment #1:**

Amount of Work = 36 pages

Productivity Rate = 1 page/5 hour =  $8/5 = 1.6$  pages/day

**In Assignment #2:**

Amount of Work = 23 Pages

Productivity Rate = 1 page/hour =  $1 * 8$  pages/day = 8 pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(0.2 + 1)/2 = 0.6$  pages/hr  $\approx 1$  pages/hour

**In Assignment #3:**

Amount of Work = 132 Pages

Productivity Rate = 1 page/hr =  $1 * 8$  pages/day = 8 pages/day

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Effort = Amount of Work/Productivity Rate =  $132/8$  days = **16.5 days**

f) Prepare for DM:

**Ans:**

**In Assignment #1:**

Amount of Work = 36 pages

Productivity Rate = 3 pages/hour =  $3 * 8 = 24$  pages/day

**In Assignment #2:**

Amount of Work = 23 Pages

Productivity Rate = 5 Pages/hour =  $5 * 8$  pages/day = 40 pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(3+5)/2 = 4$  pages/hr

**In Assignment #3:**

Amount of Work = 132 Pages

Productivity Rate = 4 page/hr =  $4 * 8$  pages/day = 32 pages/day

Effort = Amount of Work/Productivity Rate =  $132/32$  days = **4.12 days**

g) Review Meeting:

**Ans:**

**In Assignment #1:**

Amount of Work = 36 pages

Productivity Rate = 5 pages/hour =  $5 * 8 = 40$  pages/day

**In Assignment #2:**

Amount of Work = 23 Pages

Productivity Rate = 10 Pages/hour =  $10 * 8$  pages/day = 80 pages/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(5+10)/2 = 8$  pages/hr

**In Assignment #3:**

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Amount of Work = 132 Pages

Productivity Rate = 8 page/hr = 8 \* 8 pages/day = 64 pages/day

Effort = Amount of Work/Productivity Rate = 132/64 days = **2.06 days**

h) Rework:

**Ans:**

**In Assignment #1:**

Amount of Work = 56 defects/36 pages = 1.55 defects/page

Productivity Rate = 5 defects/hour

**In Assignment #2:**

Amount of Work = 231 defects/23 pages = 10.04 defects/page

Productivity Rate = 4 defects/hour

**Average from Assignment #1 & Assignment #2:**

Amount of Work = (1.55+10.04)/2 = 5.79 defects/page

Productivity Rate = (5+4)/2 defects/hour = 5 defects/hour

**In Assignment #3:**

Amount of Work = 5.79 \* 132 page = 764.28  $\approx$  765 defects

Productivity Rate = 5 defects/hr = 5 \* 8 pages/day = 40 defects/day

Effort = Amount of Work/Productivity Rate = 765/40 days = **19.12 days**

## 7. CODING:

a) Write Code:

**Ans:**

**In Assignment #1:**

Amount of Work = 5100 SLOC

Productivity Rate = 5 SLOC/hour = 5 \* 8 = 40 SLOC/day

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**Neha Ramesh Gawali A20523722**

**In Assignment #2:**

Amount of Work = 6928 SLOC

Productivity Rate = 5 SLOC/hour = 5 \* 8 SLOC/day = 40 SLOC/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = (5+5)/2 SLOC /hour  $\approx$  5 SLOC /hour

**In Assignment #3:**

Amount of Work = 4103 SLOC

Productivity Rate = 5 SLOC/hr = 5 \* 8 SLOC/day = 40 SLOC/day

Effort = Amount of Work/Productivity Rate = 4103/40 = **102.5 days**

b) Prepare/Execute Test Cases:

**Ans:**

**In Assignment #1:**

Amount of Work = (324 tc \* 1000)/5100 SLOC = 63.52 tc/KSLOC

Productivity Rate = 10 tc/hour

**In Assignment #2:**

Amount of Work = (954 tc\*1000)/6928 SLOC = 137.7 tc/KSLOC

Productivity Rate = 3 tc/hour

**Average from Assignment #1 & Assignment #2:**

Amount of Work = = (63.52+137.7)/2tc/KSLOC = 101 tc/KSLOC

Productivity Rate = (10+3)/2 tc/hour = 7 tc/hour

**In Assignment #3:**

Amount of Work = 101 \*4103/1000 = 415 test cases

Productivity Rate = 7 tc/hr = 7 \* 8 tc/day = 56 tc/day

Effort = Amount of Work/Productivity Rate = 415/56 = **7.41 days**

c) Fix found defects:

**Ans:**

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**In Assignment #1:**

Amount of Work =  $210 \text{ defects} / 5100 \text{ SLOC} = 41.17 \text{ tc/KSLOC}$

Productivity Rate =  $8 \text{ defects/hour}$

**In Assignment #2:**

Amount of Work =  $1023 \text{ defects} / 6928 \text{ SLOC} = 147.6 \text{ tc/KSLOC}$

Productivity Rate =  $18 \text{ defects/hour}$

**Average from Assignment #1 & Assignment #2:**

Amount of Work =  $((41.17 + 147.6) / 2) \text{ tc/KSLOC} = 94.38 \text{ tc/KSLOC} \approx 95 \text{ tc/KSLOC}$

Productivity Rate =  $(8+18) / 2 \text{ defects /hour} \approx 13 \text{ defects /hour}$

**In Assignment #3:**

Amount of Work =  $95 * 4103 / 1000 = 390 \text{ defects}$

Productivity Rate =  $13 \text{ pages/hour} = 104 \text{ defects/day}$

Effort = Amount of Work / Productivity Rate =  $390 / 104 = \mathbf{3.75 \text{ days}}$

d) Test fixed defects:

**Ans:**

**In Assignment #1:**

Amount of Work =  $210 \text{ defects} * 1000 / 5100 \text{ SLOC} = 41.17 \text{ tc/KSLOC}$

Productivity Rate =  $10 \text{ defects /day}$

**In Assignment #2:**

Amount of Work =  $1023 \text{ defects} * 1000 / 6928 \text{ SLOC} = 147.6 \text{ tc/KSLOC}$

Productivity Rate =  $45 \text{ defects /day}$

**Average from Assignment #1 & Assignment #2:**

Amount of Work =  $((41.17 + 147.6) \text{ tc/KSLOC} = 95 \text{ tc/KSLOC}$

Productivity Rate =  $(10+45) / 2 \text{ defects /day} \approx 28 \text{ defects /day}$

**In Assignment #3:**

Amount of Work =  $95 * 4103 / 1000 = 390 \text{ defects}$

Productivity Rate =  $28 \text{ defects/days}$



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Effort = Amount of Work/Productivity Rate =  $392/28 = 13.9$  days

e) Preparation for Code Inspection:

**Ans:**

**In Assignment #1:**

Amount of Work = 5100 SLOC

Productivity Rate = 150 SLOC/hour =  $150 * 8 = 1200$  SLOC/day

**In Assignment #2:**

Amount of Work = 6928 SLOC

Productivity Rate = 100 SLOC/hour =  $100 * 8$  SLOC/day = 800 SLOC/day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(150+100)/2$  SLOC /hour  $\approx 125$  SLOC/hour

**In Assignment #3:**

Amount of Work = 4103 SLOC

Productivity Rate = 125 SLOC/hr =  $125 * 8$  SLOC/day = 1000 SLOC/day

Effort = Amount of Work/Productivity Rate =  $4103/1000 = 4.1$  days

f) Code Inspection Meeting

**Ans:**

**In Assignment #1:**

Amount of Work = 5100 SLOC

Productivity Rate = 200 SLOC/hour =  $200 * 8 = 1600$  SLOC/day

**In Assignment #2:**

Amount of Work = 6928 SLOC

Productivity Rate = 150 SLOC/hour =  $150 * 8$  SLOC/day = 1200 SLOC/day

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**Neha Ramesh Gawali A20523722**

**Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(200+150)/2$  SLOC/hour  $\approx 175$  SLOC /hour

**In Assignment #3:**

Amount of Work = 4103 SLOC

Productivity Rate = 175 SLOC/hr =  $175 * 8$  SLOC/day = 1400 SLOC/day

Effort = Amount of Work/Productivity Rate =  $4103/1400 = 2.9$  days

g) Rework

**Ans:**

**In Assignment #1:**

Amount of Work =  $167 \text{ defects} * 1000 / 5100$  SLOC = 32.74 tc/KSLOC

Productivity Rate = 5 defects /hour

**In Assignment #2:**

Amount of Work =  $947 \text{ defects} * 1000 / 6928$  SLOC = 136.6 tc/KSLOC

Productivity Rate = 4 defects /hour

**Average from Assignment #1 & Assignment #2:**

Amount of Work =  $(37.74 + 136.6) / 2$  tc/KSLOC = 85 tc/KSLOC

Productivity Rate =  $(5+4) / 2$  defects /hour  $\approx 9$  defects /hour

**In Assignment #3:**

Amount of Work = 349 defects

Productivity Rate = 5 defects/hr =  $5 * 8$  defects/day = 40 defects/day

Effort = Amount of Work/Productivity Rate =  $349/40 = 8.72$  days

## 8. TESTING:

a) Write Test Plan

**Ans:** Amount of Work = 145 pages

Productivity Rate = 8 pages/day

Effort = Amount of Work/Productivity Rate =  $145/8 = 18.12$  days

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b) Preparation for TP

**Ans:** Amount of Work = 145 pages

Productivity Rate = 4 pages/hr =  $4 * 8$  pages/day = 32 pages/day

Effort = Amount of Work/Productivity Rate =  $145/32 = 4.53$  days

c) Review TP Meeting

**Ans:** Amount of Work = 145 pages

Productivity Rate = 10 pages/hr =  $10 * 8$  pages/day = 80 pages/day

Effort = Amount of Work/Productivity Rate =  $145/80 = 1.81$  days

d) Rework

**Ans:** Amount of Work = 9 defects

Productivity Rate = 5 defects/hr =  $5 * 8$  defects/day = 40 pages/day

Effort = Amount of Work/Productivity Rate =  $98/40 = 2.45$  days

e) Execute TP

**Ans:** Amount of Work = 210 testcases

Productivity Rate = 12 test cases/day

Effort = Amount of Work/Productivity Rate =  $210/12 = 17.5$  days

f) Fix Found Defects

**Ans:** Amount of Work = 67 defects

Productivity Rate = 10 defects/day

Effort = Amount of Work/Productivity Rate =  $67/10 = 6.7$  days

g) Test Fixed Defects

**Ans:** Amount of Work = 67 defects

Productivity Rate = 15 defects/day

Effort = Amount of Work/Productivity Rate =  $67/15 = 4.46$  days

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## 9. DOCUMENTATION:

a) User Documentation

**Ans:**

### **In Assignment #1:**

Amount of Work = 167 pages

Productivity Rate = 3 pages/hour =  $3 * 8$  pages/day = 24 pages/day

### **In Assignment #2:**

Amount of Work = 314 pages

Productivity Rate = 5 page/hour =  $5 * 8$  pages/day = 40 pages/ day

### **Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(5+3)/2$  pages/hour  $\approx 4$  pages/hour

### **In Assignment #3:**

Amount of Work = 118 pages

Productivity Rate = 4 pages/hr =  $4 * 8$  pages/day = 32 pages/day

Effort = Amount of Work/Productivity Rate =  $118/32 = 3.68$  days

b) Preparation for UD review meeting

**Ans:**

### **In Assignment #1:**

Amount of Work = 167 pages

Productivity Rate = 5 pages/hour =  $5 * 8$  pages/day = 40 pages/day

### **In Assignment #2:**

Amount of Work = 314 pages

Productivity Rate = 5 page/hour =  $5 * 8$  pages/day = 40 pages/ day

### **Average from Assignment #1 & Assignment #2:**

Productivity Rate =  $(5+5)/2$  pages/hour  $\approx 5$  pages/hour

### **In Assignment #3:**

Amount of Work = 118 pages

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Productivity Rate = 5 pages/hr = 5 \* 8 pages/day = 40 pages/day

Effort = Amount of Work/Productivity Rate = 118/40 = **2.95 days**

c) Review UD Meeting

**Ans:**

**In Assignment #1:**

Amount of Work = 167 pages

Productivity Rate = 10 pages/hour = 10 \* 8 pages/day = 80 pages/day

**In Assignment #2:**

Amount of Work = 314 pages

Productivity Rate = 8 page/hour = 8 \* 8 pages/day = 64 pages/ day

**Average from Assignment #1 & Assignment #2:**

Productivity Rate = (10+8)/2 pages/hour  $\approx$  9 pages/hour

**In Assignment #3:**

Amount of Work = 118 pages

Productivity Rate = 9 pages/hr = 9 \* 8 pages/day = 72 pages/day

Effort = Amount of Work/Productivity Rate = 118/72 = **1.63 days**

d) Rework

**Ans:**

**In Assignment #1:**

Amount of Work = 182 defect /167 pages = 1.08 defect/page

Productivity Rate = 10 defects/hour

**In Assignment #2:**

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Amount of Work = 283 defects/314 pages = 0.90 defects/page

Productivity Rate = 5 defects/hour

**Average from Assignment #1 & Assignment #2:**

Amount of Work =  $(1.08 + 0.90)/2$  defects/page = 0.99 defects/page

Productivity Rate =  $(10 + 5)/2$  pages/hour  $\approx 8$  pages/hour

**In Assignment #3:**

Amount of Work =  $0.99 * 118 = 117$  defects

Productivity Rate = 8 defects/hr =  $8 * 8$  defects/day = 64 defects /day

Effort = Amount of Work/Productivity Rate =  $117/64 = 1.82$  days