Assignment 2

ENGINEERING MANAGEMENT

Section I

Project Title: IoT Based Smart Instant Ticket and Hotel Booking System for Tourist Spots in Bangladesh.

Submitted To:
DR. BIKASH BARUA

Name	ID
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Snehasish Saha	21-45065-2

Introduction:

The project we have used is an online bus ticketing management system, IoT Based Smart Instant Ticket and Hotel Booking System for Tourist Spots in Bangladesh. Without considering the weekends, the project was estimated to take 60 days to complete, or three months. The project was broken down into seven primary tasks, each with a subtask structure and start and end times. After that, a list of resources was created and assigned to every subtask. Lastly, a corresponding Gantt chart was created to illustrate the project's overall schedule. To show every path as well as the crucial path, a network diagram was also created. To display the number of resources used, a resource usage and resource graph were also created. It also demonstrates the excessive use of resources.

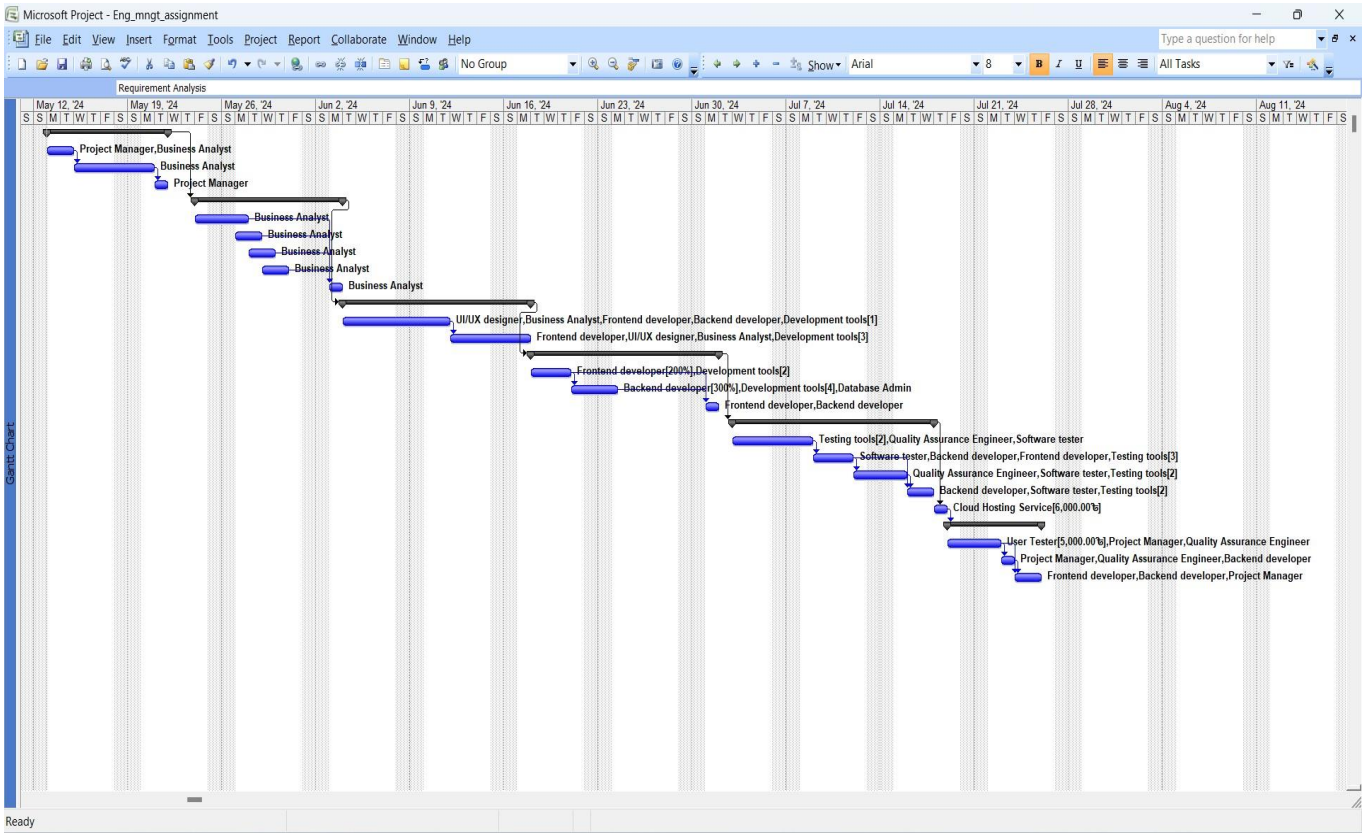
Work Breakdown Structure:

	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	**Project Planning**	**7 days**	**Mon 5/13/24**	**Tue 5/21/24**		
2	Scope Definition	2 days	Mon 5/13/24	Tue 5/14/24		Project Manager,Business Analyst
3	Background Analysis	4 days	Wed 5/15/24	Mon 5/20/24	2	Business Analyst
4	Team Formation	1 day	Tue 5/21/24	Tue 5/21/24	3	Project Manager
5	**Requirement Analysis**	**7 days**	**Fri 5/24/24**	**Mon 6/3/24**	**1**	
11	**System Design**	**10 days**	**Tue 6/4/24**	**Mon 6/17/24**	**5**	
12	UML diagram design	6 days	Tue 6/4/24	Tue 6/11/24		UI/UX designer,Business Analyst,Frontend developer,Backend developer,Development tools[1]
13	User Interface prototyping	4 days	Wed 6/12/24	Mon 6/17/24	12	Frontend developer,UI/UX designer,Business Analyst,Development tools[3]
14	**Coding**	**10 days**	**Tue 6/18/24**	**Mon 7/1/24**	**11**	
15	Frontend development	3 days	Tue 6/18/24	Thu 6/20/24		Frontend developer[200%],Development tools[2]
16	Backend development	1.5 days	Fri 6/21/24	Mon 6/24/24	15	Backend developer[300%],Development tools[4],Database Admin
17	Implementation constraints	1 day	Mon 7/1/24	Mon 7/1/24	15,16	Frontend developer,Backend developer
18	**Testing**	**11 days**	**Wed 7/3/24**	**Wed 7/17/24**	**14**	
19	Unit Testing	4 days	Wed 7/3/24	Mon 7/8/24		Testing tools[2],Quality Assurance Engineer,Software tester
20	Integration testing	3 days	Tue 7/9/24	Thu 7/11/24	19	Software tester,Backend developer,Frontend developer,Testing tools[3]
21	Security checks	2 days	Fri 7/12/24	Mon 7/15/24	20	Quality Assurance Engineer,Software tester,Testing tools[2]
22	Bug Analysis	2 days	Tue 7/16/24	Wed 7/17/24	21,20	Backend developer,Software tester,Testing tools[2]
23	Deployment	1 day	Thu 7/18/24	Thu 7/18/24	18	Cloud Hosting Service[6,000.00৳]
24	**Maintenance**	**5 days**	**Fri 7/19/24**	**Thu 7/25/24**	**23**	
25	User acceptance and feedback	2 days	Fri 7/19/24	Mon 7/22/24		User Tester[5,000.00৳],Project Manager,Quality Assurance Engineer
26	Performance Analysis	1 day	Tue 7/23/24	Tue 7/23/24	25	Project Manager,Quality Assurance Engineer,Backend developer
27	Upgrades	2 days	Wed 7/24/24	Thu 7/25/24	26,25	Frontend developer,Backend developer,Project Manager

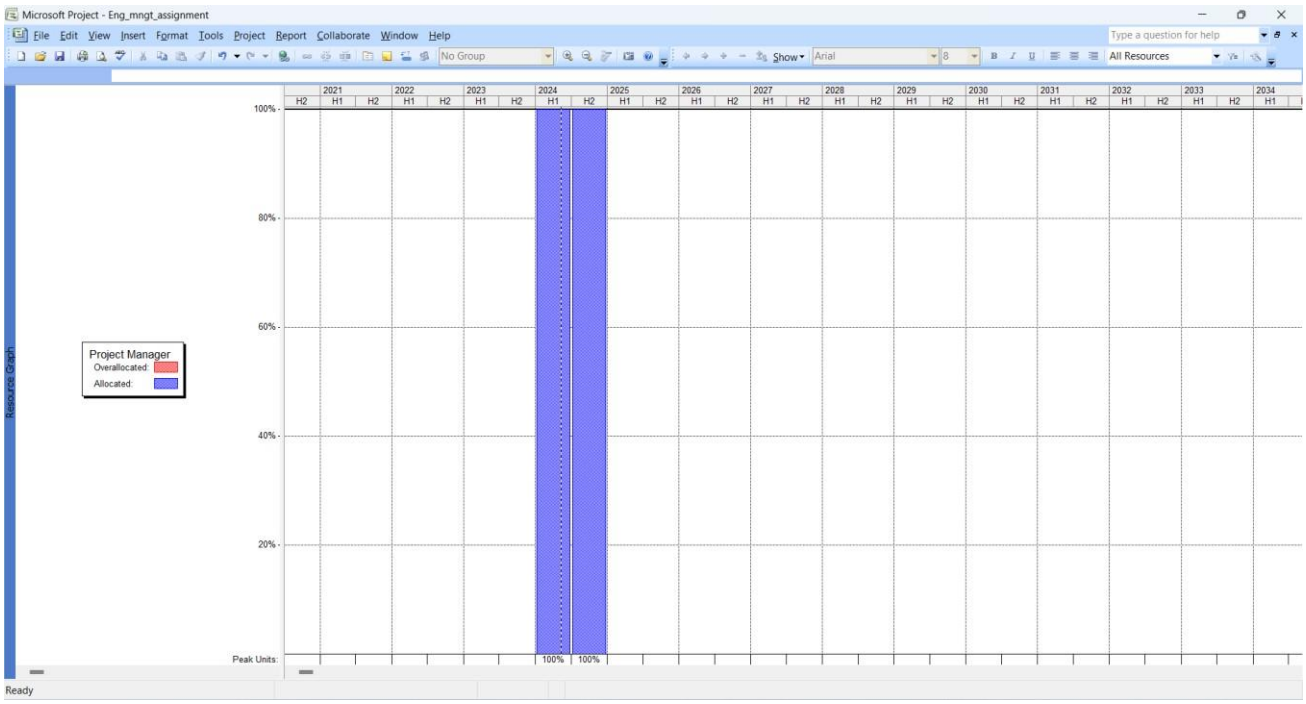
Resource Sheet:

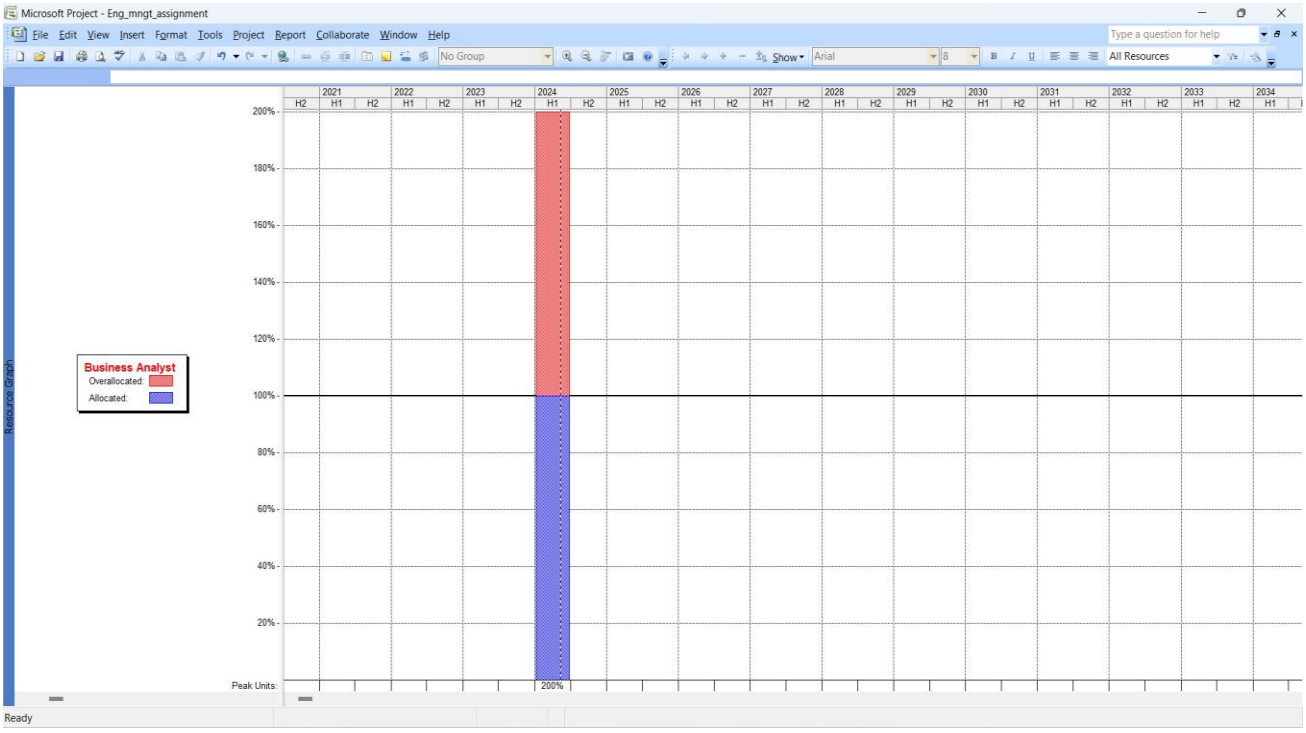
		Resource Name	Type	Material Label	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use	Accrue At	Base Calendar	Code
1		Project Manager	Work		P		100%	280,000.00৳/mon	0.00৳/hr	0.00৳	Prorated	Standard	
2	⚠	**Business Analyst**	**Work**		**B**		**100%**	**200,000.00৳/mon**	**0.00৳/hr**	**0.00৳**	**Prorated**	**Standard**	
3		UI/UX designer	Work		U		100%	3,600.00৳/day	0.00৳/hr	0.00৳	Prorated	Standard	
4	⚠	**Frontend developer**	**Work**		**F**		**100%**	**4,500.00৳/day**	**500.00৳/hr**	**0.00৳**	**Prorated**	**Standard**	
5	⚠	**Backend developer**	**Work**		**BD**		**100%**	**4,500.00৳/day**	**500.00৳/hr**	**0.00৳**	**Prorated**	**Standard**	
6		Quality Assurance Engineer	Work		Q		100%	800.00৳/hr	0.00৳/hr	0.00৳	Prorated	Standard	
7		Database Admin	Work		D		100%	600.00৳/hr	0.00৳/hr	0.00৳	Prorated	Standard	
8		Software tester	Work		S		100%	800.00৳/hr	500.00৳/hr	0.00৳	Prorated	Standard	
9		Testing tools	Material		T			400.00৳		0.00৳	Prorated		
10		Development tools	Material		DT			600.00৳		0.00৳	Prorated		
11		Cloud Hosting Service	Cost		C						Prorated		
12		User Tester	Cost		UT						Prorated		

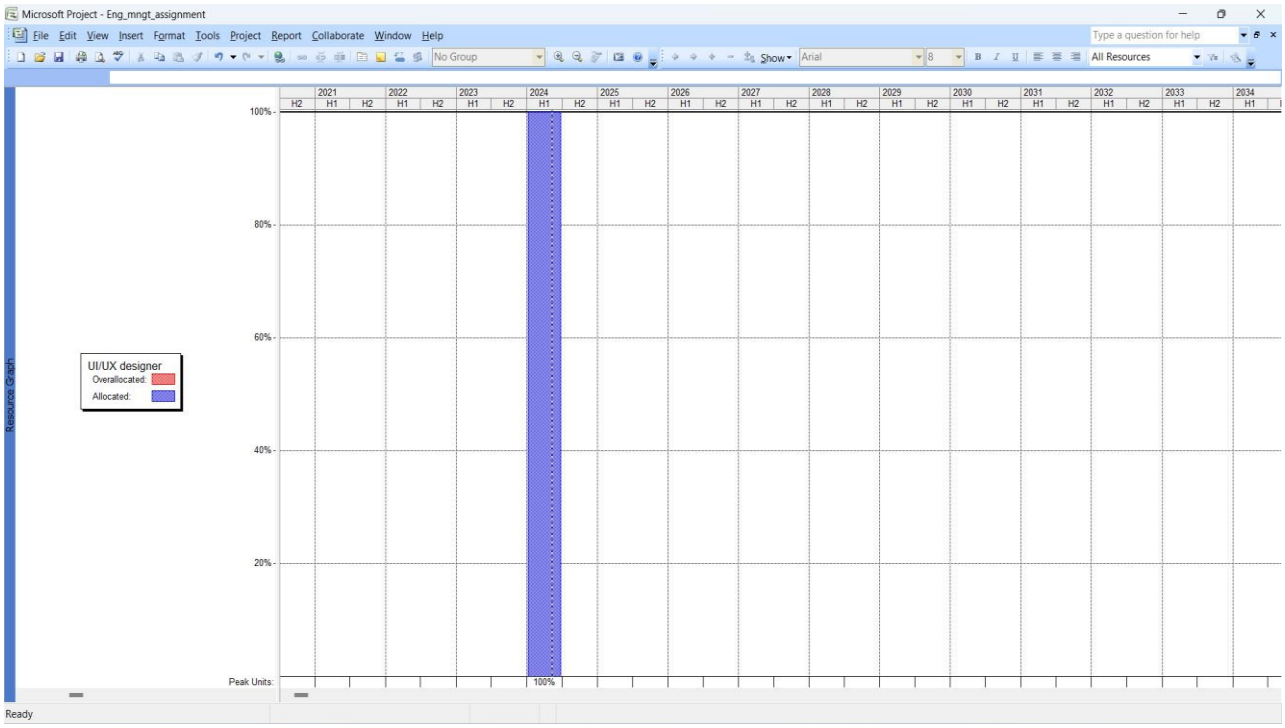
Gantt chart:



Resource graphs of all Resources:



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Peak Units:
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Resource Graph
UI/UX designer
Overallocated:
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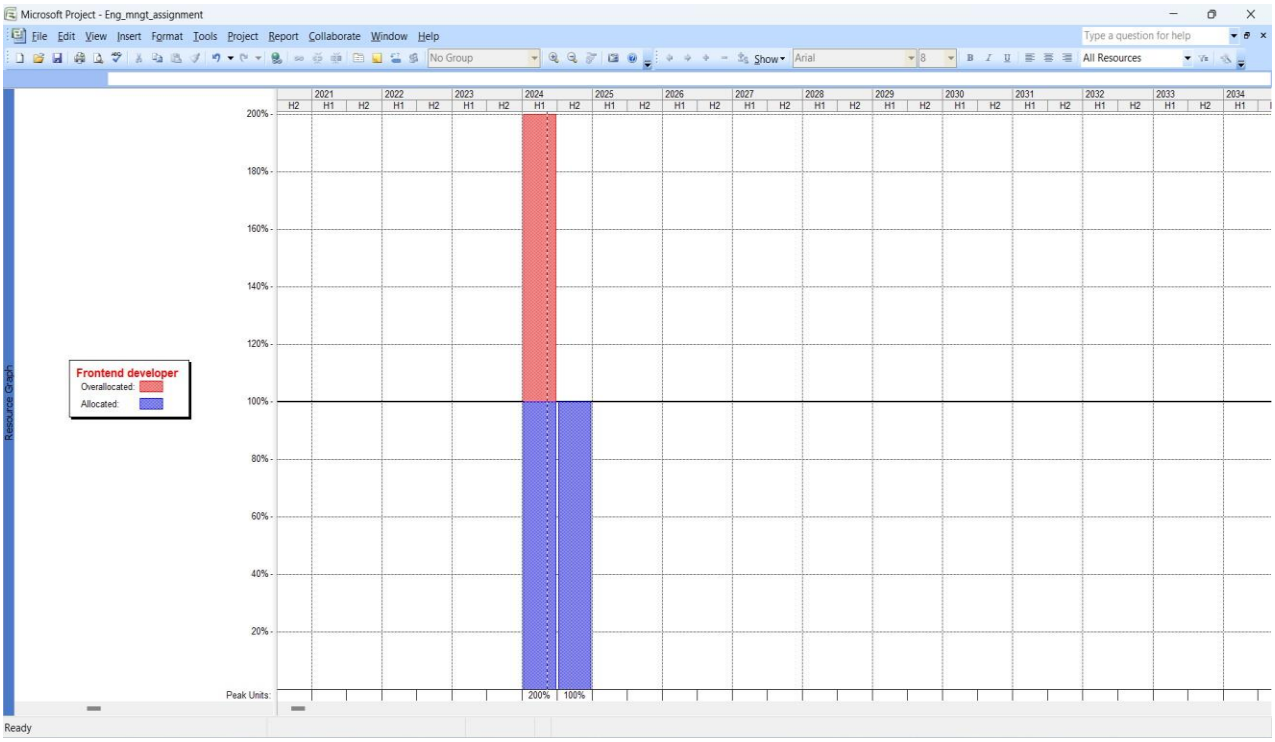
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Peak Units:
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Resource Graph
Frontend developer
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Allocated:
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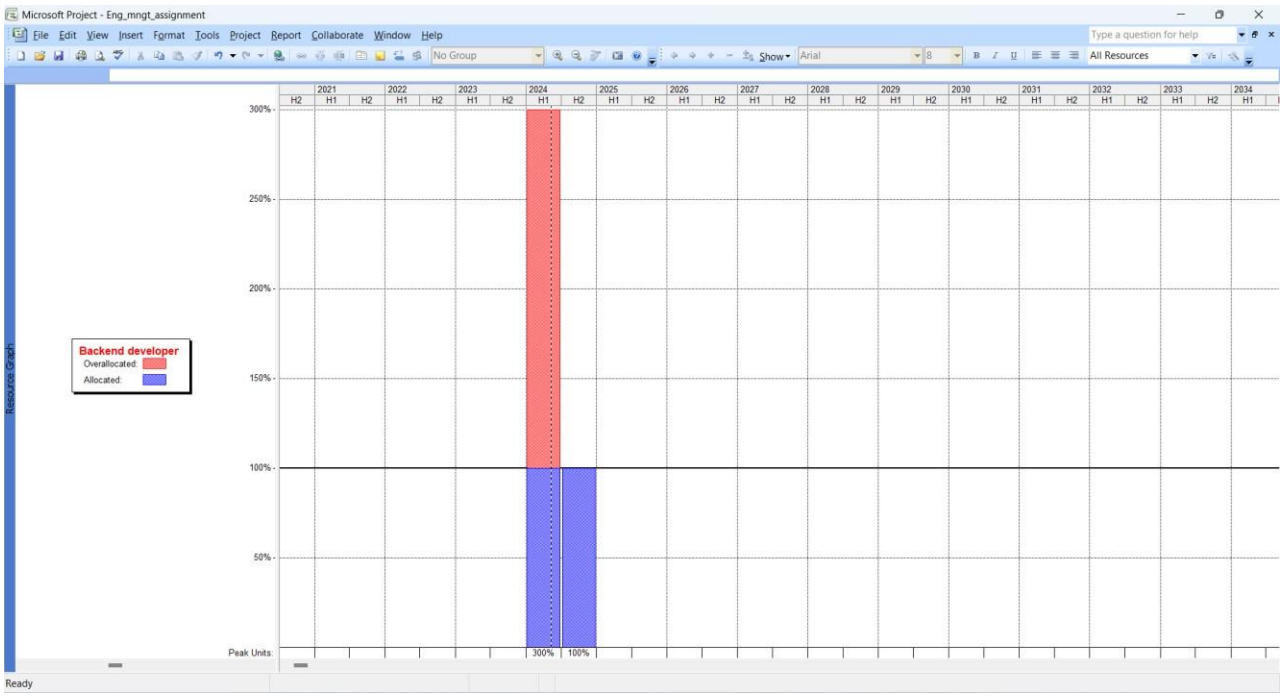
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Backend developer
Overallocated:
Allocated:
Resource Graph
Peak Units:
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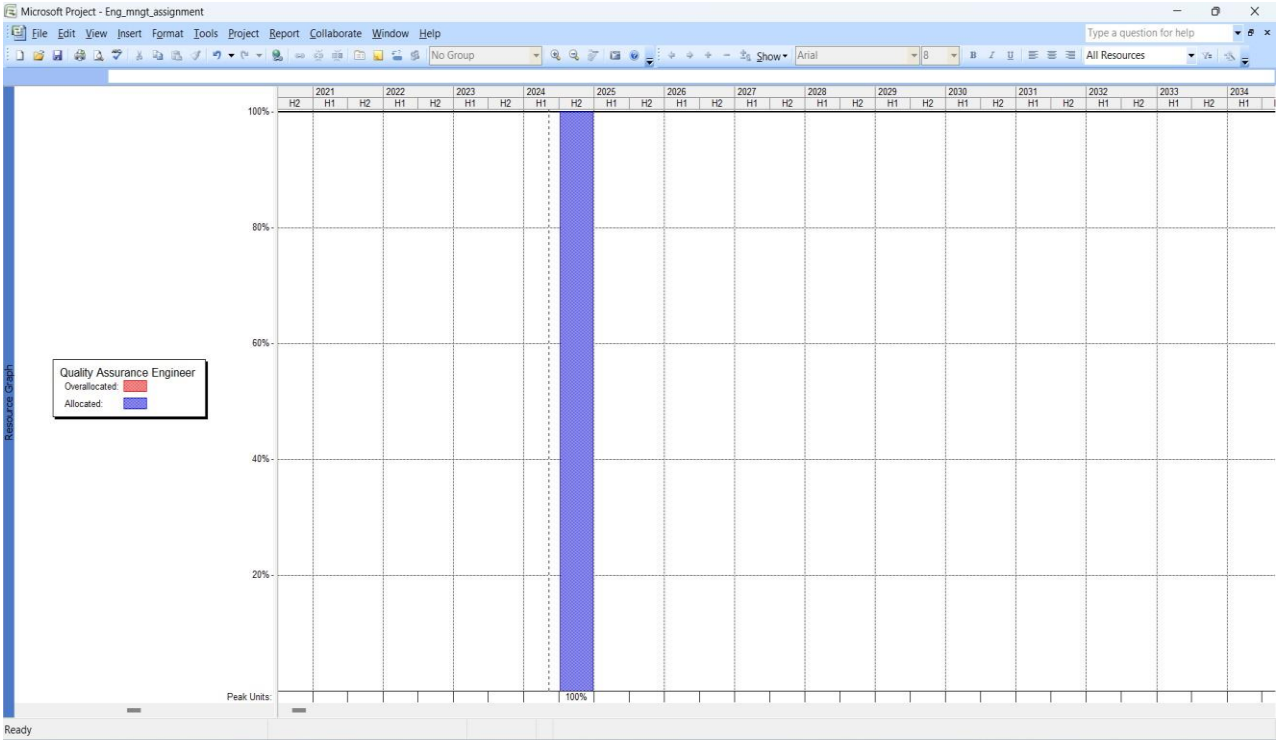
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All Resources
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20%
Quality Assurance Engineer
Overallocated:
Allocated:
Resource Graph
Peak Units:
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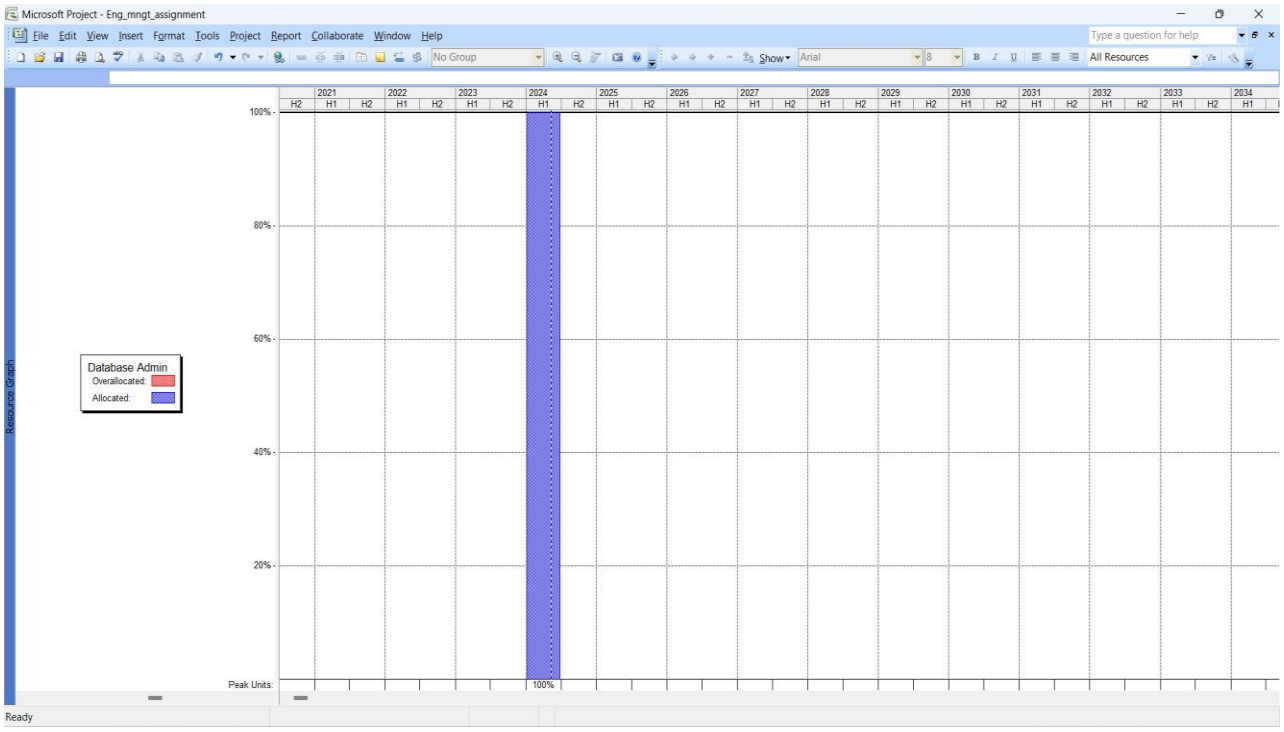
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All Resources
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Peak Units:
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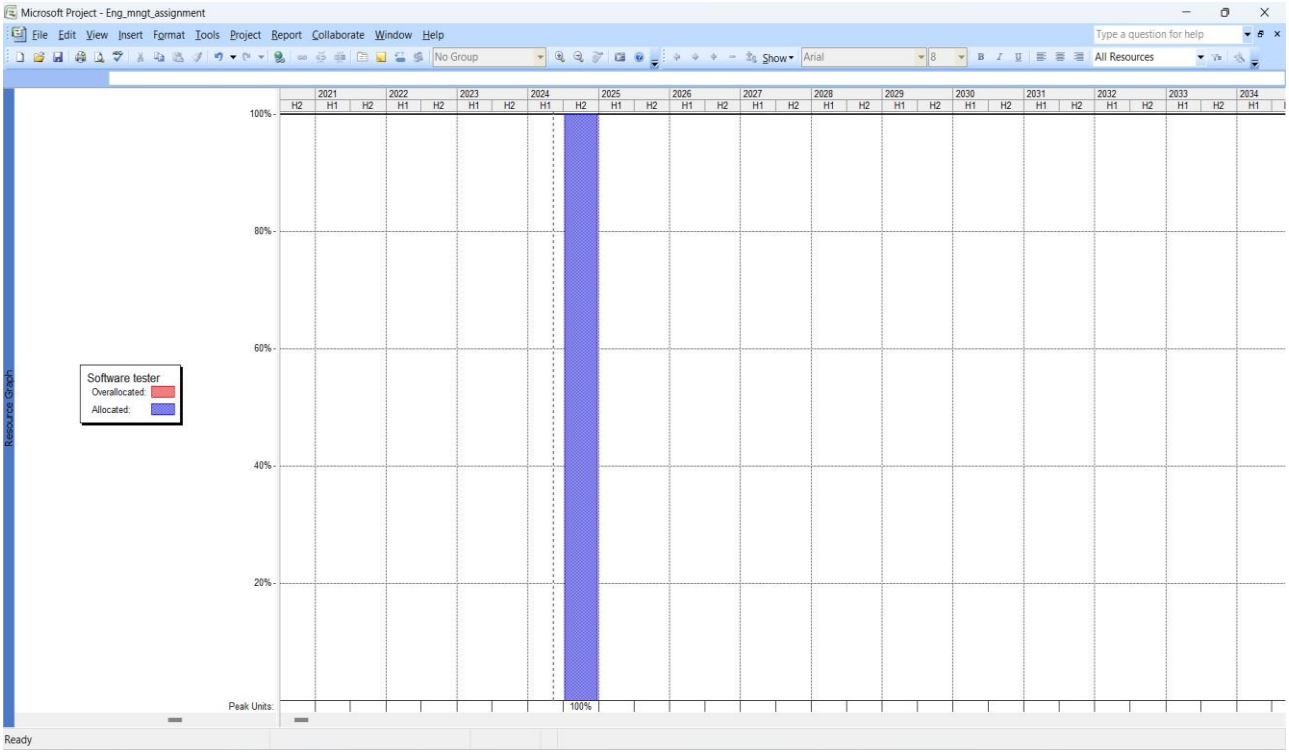
Resource Graph
Database Admin
Overallocated:
Allocated:
Ready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No Group
Show
Arial
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All Resources
2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034
H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1 H2 H1
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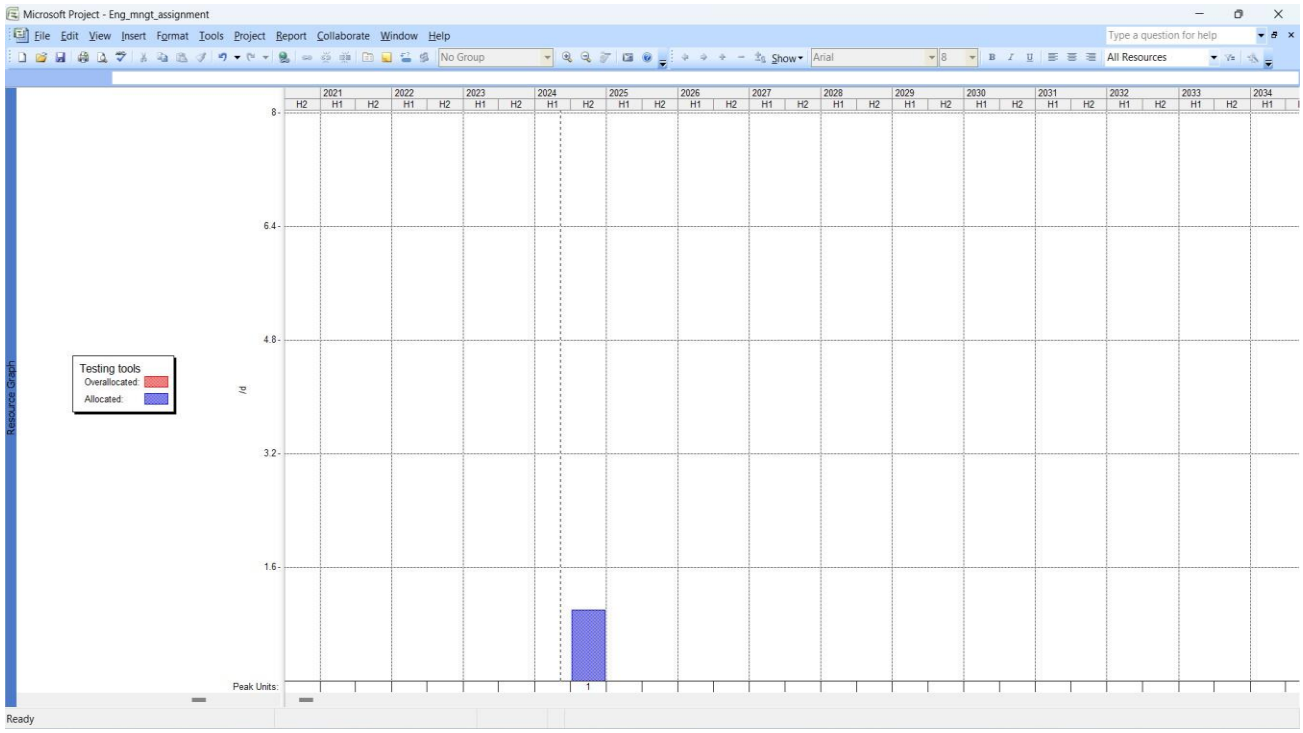
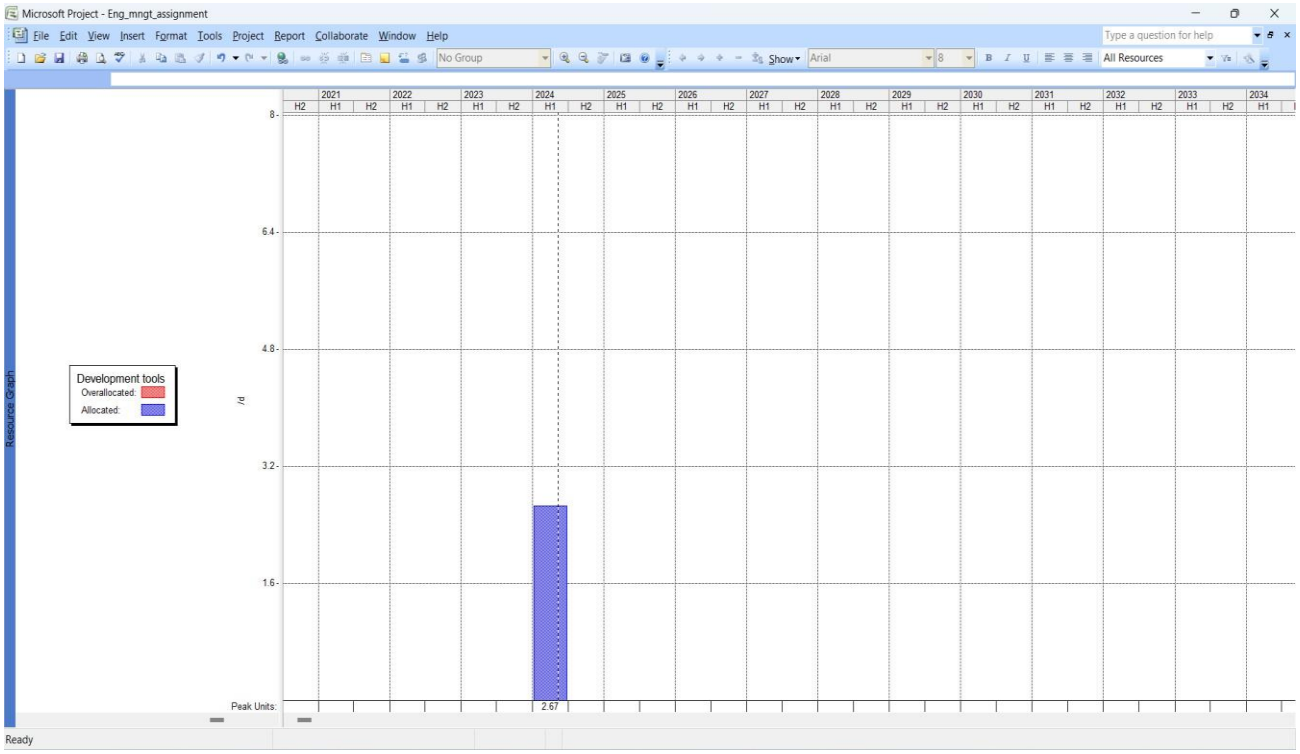
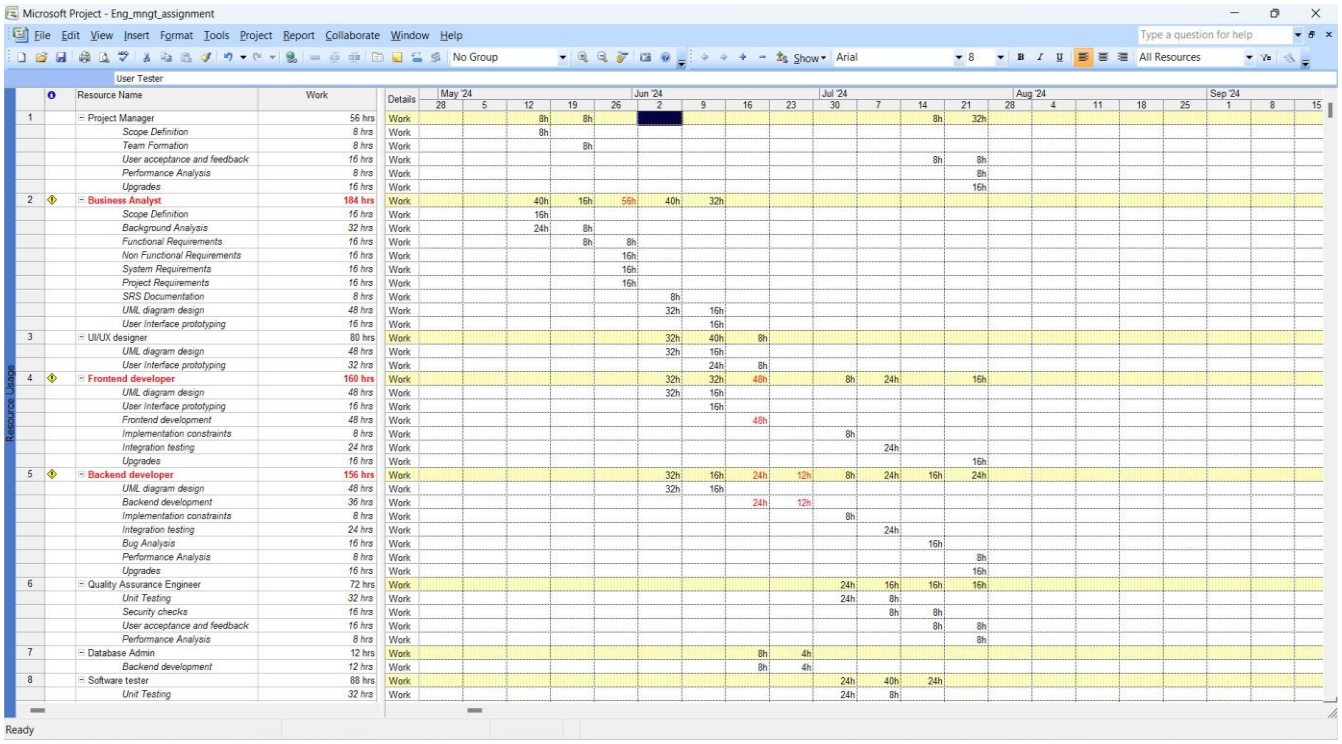
40%
20%
Peak Units:
100%
Resource Graph
Software tester
Overallocated:
Allocated:
Ready

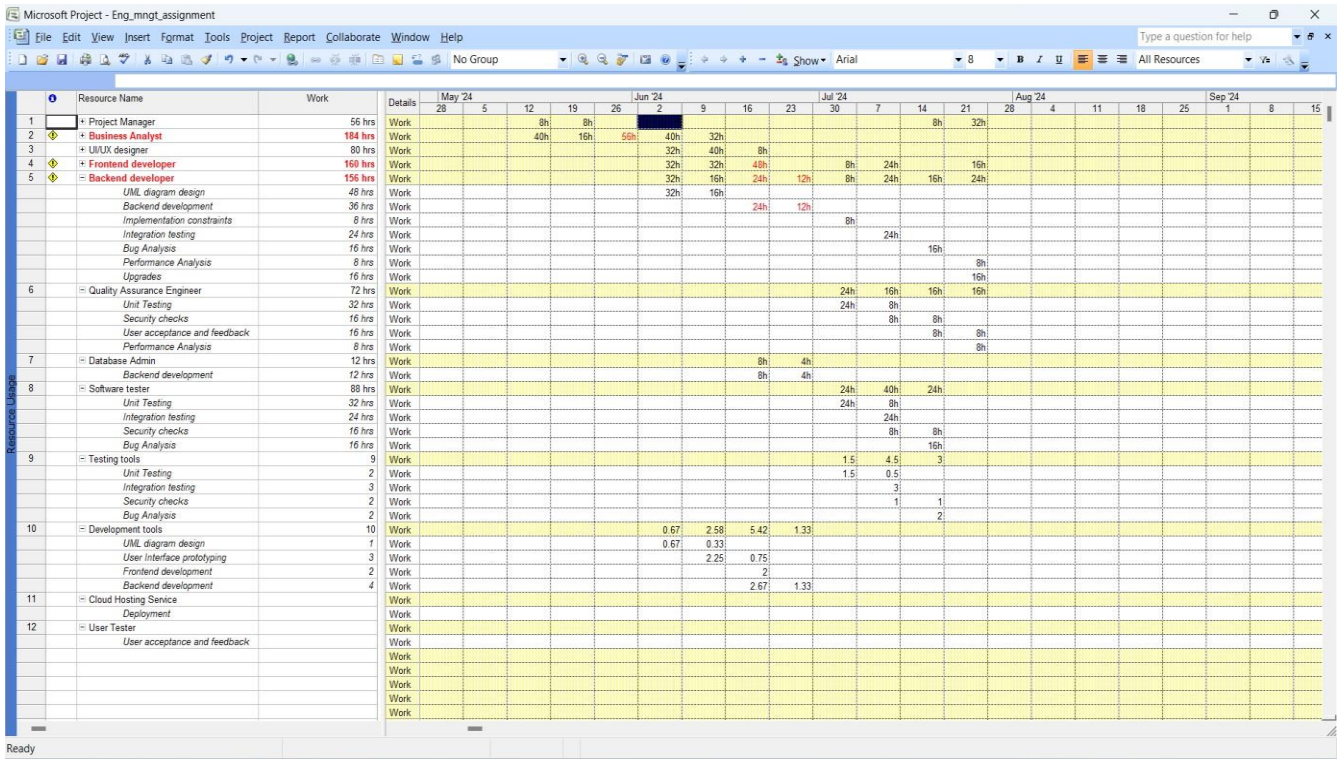




Resource Usage:

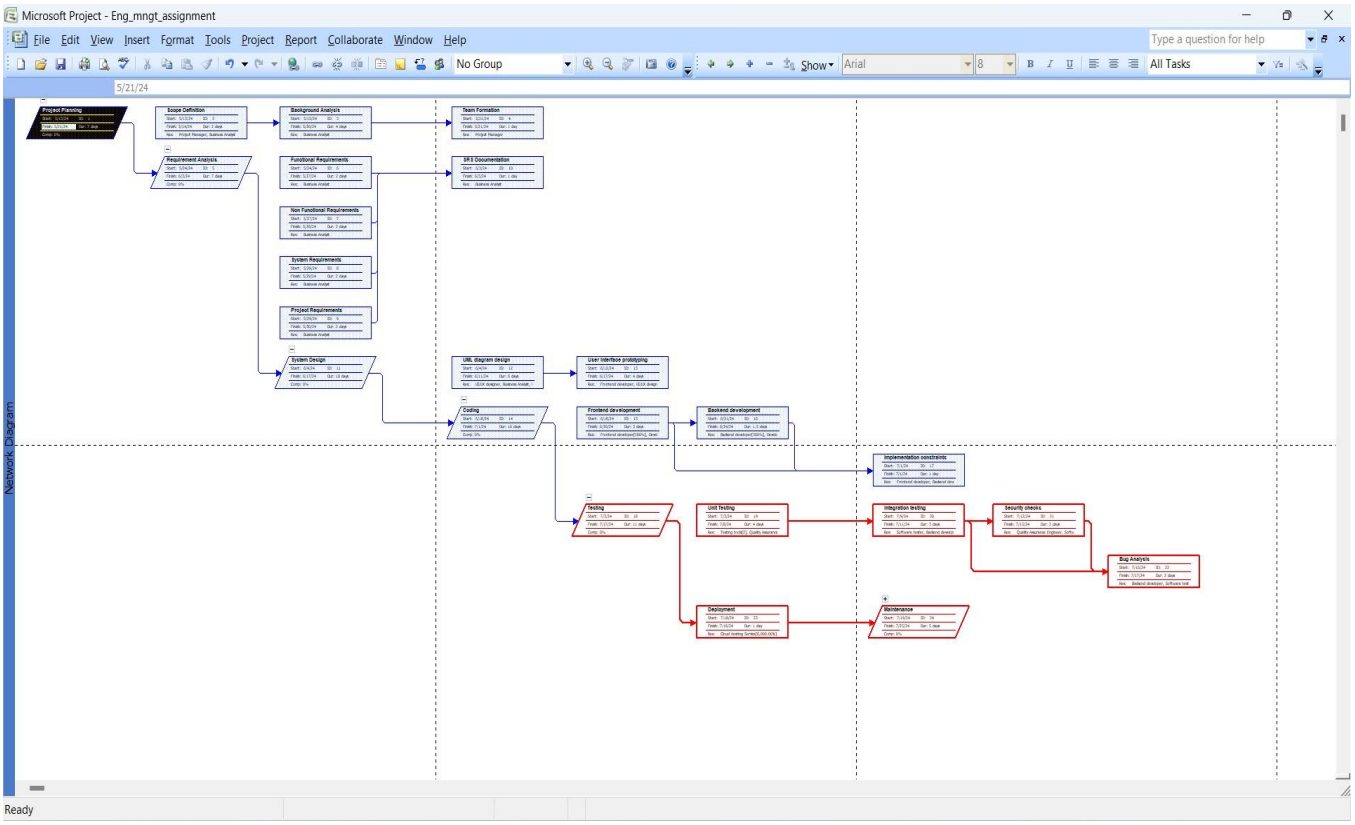


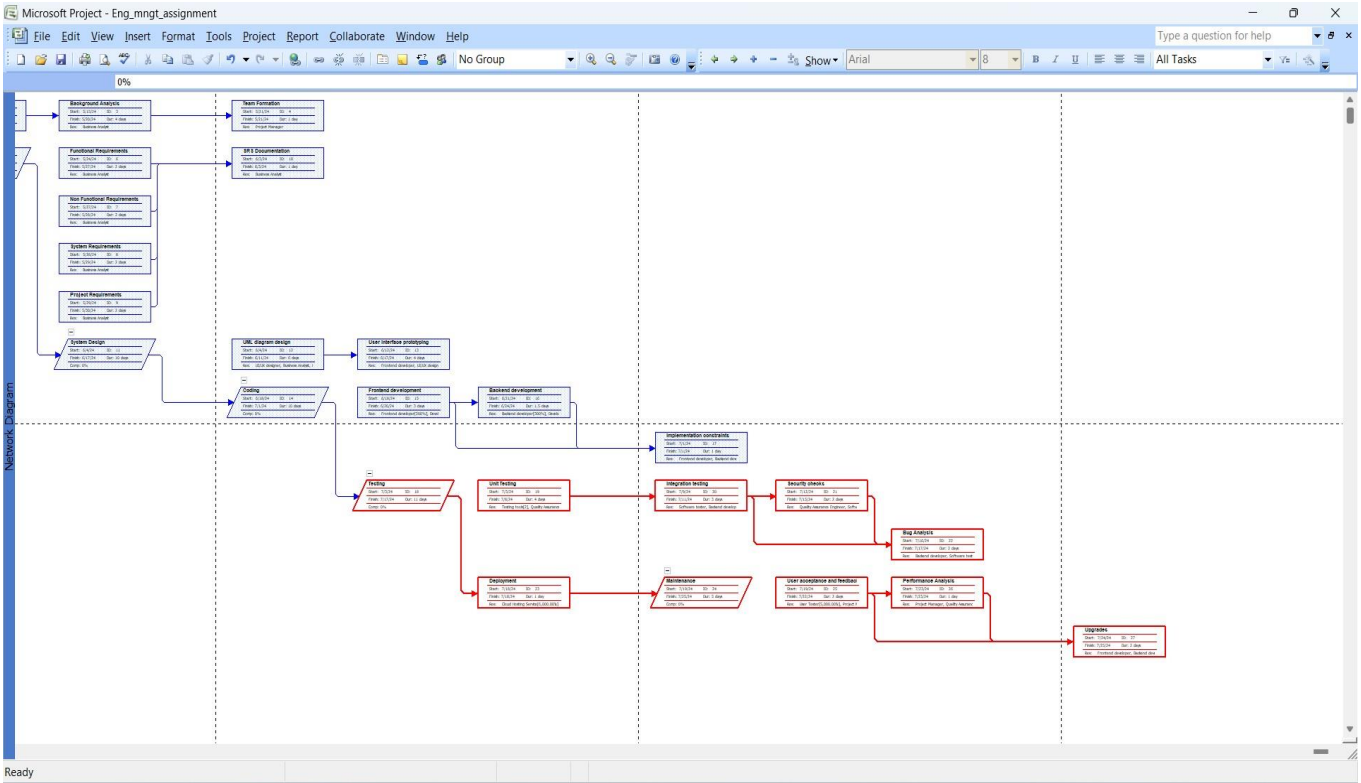
		Resource Name	Work	Details	May '24				Jun '24				Jul '24				Aug '24					Sep '24		
					28	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	1	8	15
1		Project Manager	56 hrs	Work			8h	8h								8h	32h							
		Scope Definition	*8 hrs*	Work			8h																	
		Team Formation	*8 hrs*	Work				8h																
		User acceptance and feedback	*16 hrs*	Work												8h	8h							
		Performance Analysis	*8 hrs*	Work													8h							
		Upgrades	*16 hrs*	Work													16h							
2		**Business Analyst**	**184 hrs**	Work			40h	16h	56h	40h	32h													
		Scope Definition	*16 hrs*	Work			16h																	
		Background Analysis	*32 hrs*	Work			24h	8h																
		Functional Requirements	*16 hrs*	Work				8h	8h															
		Non Functional Requirements	*16 hrs*	Work					16h															
		System Requirements	*16 hrs*	Work					16h															
		Project Requirements	*16 hrs*	Work					16h															
		SRS Documentation	*8 hrs*	Work						8h														
		UML diagram design	*48 hrs*	Work						32h	16h													
		User Interface prototyping	*16 hrs*	Work							16h													
3		UI/UX designer	80 hrs	Work						32h	40h	8h												
		UML diagram design	*48 hrs*	Work						32h	16h													
		User Interface prototyping	*32 hrs*	Work							24h	8h												
4		**Frontend developer**	**160 hrs**	Work						32h	32h	48h		8h	24h		16h							
		UML diagram design	*48 hrs*	Work						32h	16h													
		User Interface prototyping	*16 hrs*	Work							16h													
		Frontend development	*48 hrs*	Work								48h												
		Implementation constraints	*8 hrs*	Work										8h										
		Integration testing	*24 hrs*	Work											24h									
		Upgrades	*16 hrs*	Work													16h							
5		**Backend developer**	**156 hrs**	Work						32h	16h	24h	12h	8h	24h	16h	24h							
		UML diagram design	*48 hrs*	Work						32h	16h													
		Backend development	*36 hrs*	Work								24h	12h											
		Implementation constraints	*8 hrs*	Work										8h										
		Integration testing	*24 hrs*	Work											24h									
		Bug Analysis	*16 hrs*	Work												16h								
		Performance Analysis	*8 hrs*	Work													8h							
		Upgrades	*16 hrs*	Work													16h							
6		Quality Assurance Engineer	72 hrs	Work										24h	16h	16h	16h							
		Unit Testing	*32 hrs*	Work										24h	8h									
		Security checks	*16 hrs*	Work											8h	8h								
		User acceptance and feedback	*16 hrs*	Work												8h	8h							
		Performance Analysis	*8 hrs*	Work													8h							
7		Database Admin	12 hrs	Work								8h	4h											
		Backend development	*12 hrs*	Work								8h	4h											
8		Software tester	88 hrs	Work										24h	40h	24h								
		Unit Testing	*32 hrs*	Work										24h	8h									



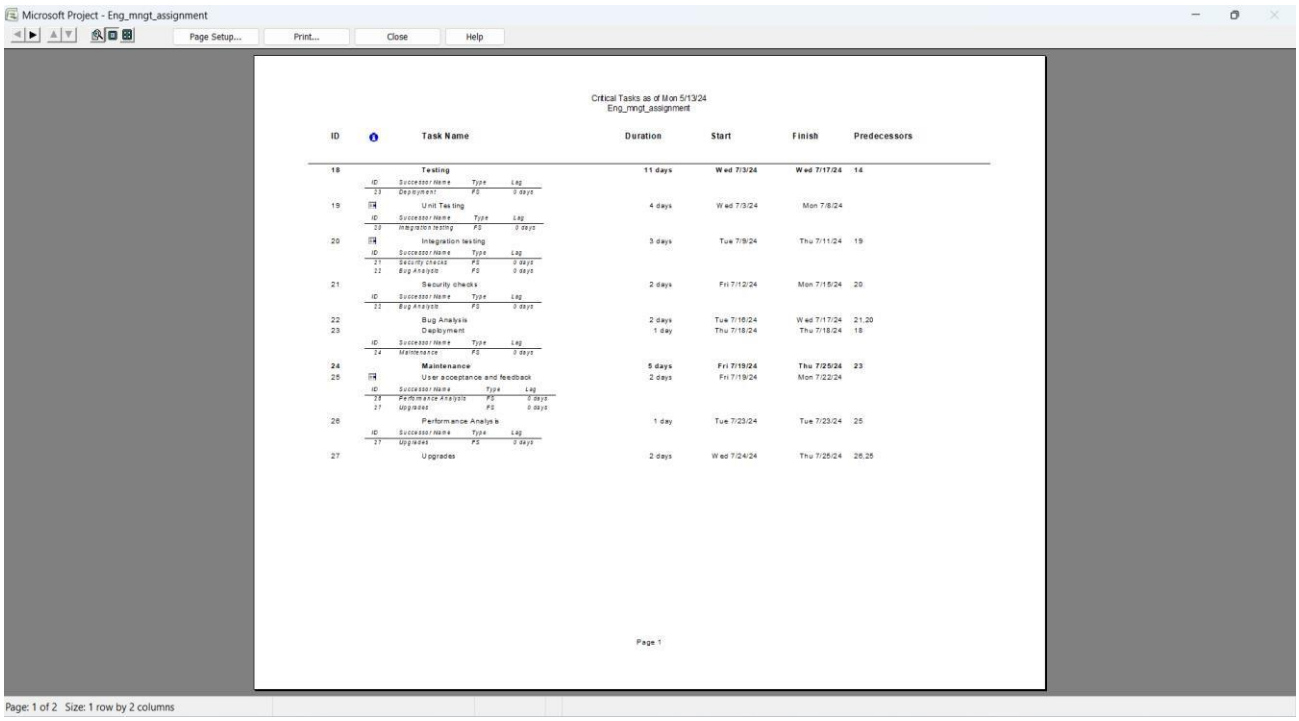
		Resource Name	Work	Details	May '24				Jun '24				Jul '24				Aug '24					Sep '24		
					28	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	1	8	15
1		Project Manager	56 hrs	Work			8h	8h								8h	32h							
2		**Business Analyst**	**184 hrs**	Work			40h	16h	56h	40h	32h													
3		UI/UX designer	80 hrs	Work						32h	40h	8h												
4		**Frontend developer**	**160 hrs**	Work						32h	32h	48h		8h	24h		16h							
5		**Backend developer**	**156 hrs**	Work						32h	16h	24h	12h	8h	24h	16h	24h							
		UML diagram design	*48 hrs*	Work						32h	16h													
		Backend development	*36 hrs*	Work								24h	12h											
		Implementation constraints	*8 hrs*	Work										8h										
		Integration testing	*24 hrs*	Work											24h									
		Bug Analysis	*16 hrs*	Work												16h								
		Performance Analysis	*8 hrs*	Work													8h							
		Upgrades	*16 hrs*	Work													16h							
6		Quality Assurance Engineer	72 hrs	Work										24h	16h	16h	16h							
		Unit Testing	*32 hrs*	Work										24h	8h									
		Security checks	*16 hrs*	Work											8h	8h								
		User acceptance and feedback	*16 hrs*	Work												8h	8h							
		Performance Analysis	*8 hrs*	Work													8h							
7		Database Admin	12 hrs	Work								8h	4h											
		Backend development	*12 hrs*	Work								8h	4h											
8		Software tester	88 hrs	Work										24h	40h	24h								
		Unit Testing	*32 hrs*	Work										24h	8h									
		Integration testing	*24 hrs*	Work											24h									
		Security checks	*16 hrs*	Work											8h	8h								
		Bug Analysis	*16 hrs*	Work												16h								
9		Testing tools	9	Work										1.5	4.5	3								
		Unit Testing	*2*	Work										1.5	0.5									
		Integration testing	*3*	Work											3									
		Security checks	*2*	Work											1	1								
		Bug Analysis	*2*	Work												2								
10		Development tools	10	Work						0.67	2.58	5.42	1.33											
		UML diagram design	*1*	Work						0.67	0.33													
		User Interface prototyping	*3*	Work							2.25	0.75												
		Frontend development	*2*	Work								2												
		Backend development	*4*	Work								2.67	1.33											
11		Cloud Hosting Service		Work																				
		Deployment		Work																				
12		User Tester		Work																				
		User acceptance and feedback		Work																				

Network Diagram:





Critical Task:



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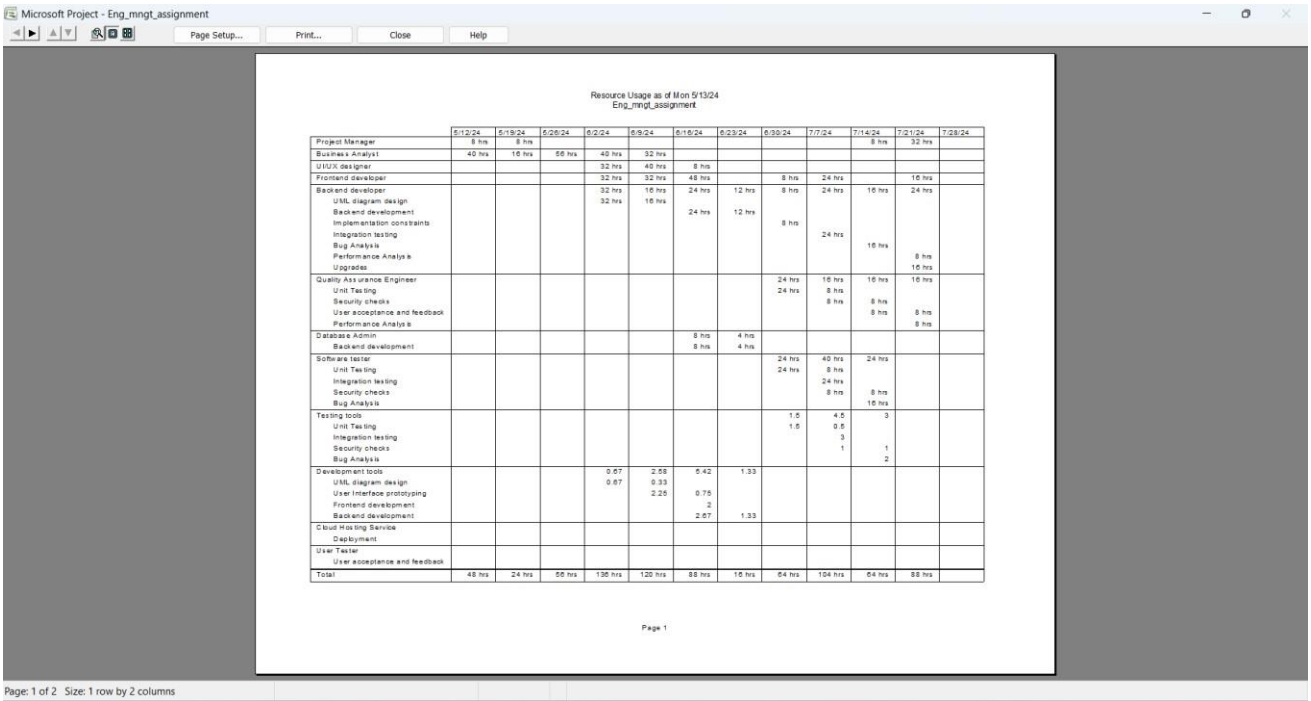
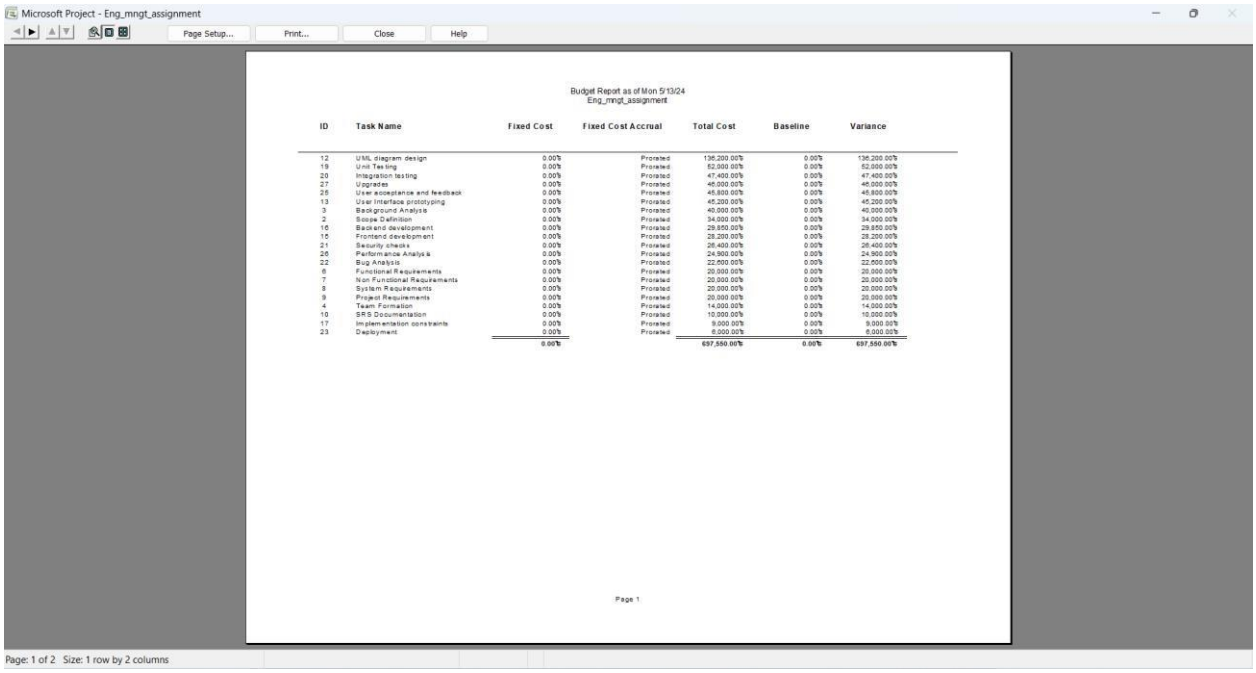


Budget Report:



overallocated resources report:

Overallocated Resources as of Mon 5/13/24
Eng_mngt_assignment

ID	Resource Name / Task ID	Task Name	Units	Work	Delay	Start	Finish	
5	Backend developer							156 hrs
	16	Backend development	300%	36 hrs	0 days	Fri 6/21/24	Mon 6/24/24	
	12	UML diagram design	100%	48 hrs	0 days	Tue 6/4/24	Tue 6/11/24	
	17	Implementation constraints	100%	8 hrs	0 days	Mon 7/1/24	Mon 7/1/24	
	20	Integration testing	100%	24 hrs	0 days	Tue 7/9/24	Thu 7/11/24	
	22	Bug Analysis	100%	16 hrs	0 days	Tue 7/16/24	Wed 7/17/24	
	26	Performance Analysis	100%	8 hrs	0 days	Tue 7/23/24	Tue 7/23/24	
	27	Upgrades	100%	16 hrs	0 days	Wed 7/24/24	Thu 7/25/24	
2	Business Analyst							184 hrs
	3	Background Analysis	100%	32 hrs	0 days	Wed 5/15/24	Mon 5/20/24	
	6	Functional Requirements	100%	16 hrs	0 days	Fri 5/24/24	Mon 5/27/24	
	7	Non Functional Requirements	100%	16 hrs	0 days	Mon 5/27/24	Tue 5/28/24	
	8	System Requirements	100%	16 hrs	0 days	Tue 5/28/24	Wed 5/29/24	
	9	Project Requirements	100%	16 hrs	0 days	Wed 5/29/24	Thu 5/30/24	
	10	SRS Documentation	100%	8 hrs	0 days	Mon 6/3/24	Mon 6/3/24	
	2	Scope Definition	100%	16 hrs	0 days	Mon 5/13/24	Tue 5/14/24	
	13	User Interface prototyping	100%	16 hrs	0 days	Wed 6/12/24	Thu 6/13/24	
	12	UML diagram design	100%	48 hrs	0 days	Tue 6/4/24	Tue 6/11/24	
4	Frontend developer							160 hrs
	13	User Interface prototyping	100%	16 hrs	0 days	Wed 6/12/24	Thu 6/13/24	
	15	Frontend development	200%	48 hrs	0 days	Tue 6/18/24	Thu 6/20/24	
	17	Implementation constraints	100%	8 hrs	0 days	Mon 7/1/24	Mon 7/1/24	
	12	UML diagram design	100%	48 hrs	0 days	Tue 6/4/24	Tue 6/11/24	
	20	Integration testing	100%	24 hrs	0 days	Tue 7/9/24	Thu 7/11/24	
	27	Upgrades	100%	16 hrs	0 days	Wed 7/24/24	Thu 7/25/24	
								500 hrs

Name	**Contribution**
Shohan Morol	Gantt chart and work break down structure and Network diagram and budget reporting
Snehasish Saha	Resource sheet and allocation of resources and Resource usage and graph