BHARATIYA VIDYA BHAVANS
SARDAR PATEL INSTITUTE OF TECHNOLOGY
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai

Experiment 5

Group Members:

Shreya Shetty 2019140059

Shruti Shetty 2019140060

Project Title: Resort Property Management System

Aim: To perform Earned Value Analysis

Activity Duration & Cost Table :

Phase I

Task	Activity Node	Predecessor	Duration	Cost/Day	Total Cost
Requirement Analysis	A		4	500	2,000
Defining Problem Statement	B	A	1	600	600
Defining Objectives and Features	C	B	2	300	600
Proposal Documentation	D	B,C	1	200	200
Project Proposal Approval	E	D	1	500	500
+ Add Task					
			9 sum	2,100 sum	3,900 sum

Phase II

Task	Activity Node	Predecessor	Duration	Cost/Day	Total Cost
Phase II Documentation and Presentation	L	I, K	1	1,000	1,000
Implementation of Booking System	K	J	6	400	2,400
Implementation of User System	I	H	6	200	1,200
Login-Signup Implementation	H	F, G	2	500	1,000
Implementation of Property System	J	F	6	300	1,800
Database connectivity and setup	G	F	2	500	1,000
Designing UI	F	E	7	1,000	7,000
+ Add Task					
			30 sum	3,900 sum	15,400 sum

Phase III

Task	Activity Node	Predecessor	Duration	Cost/Day	Total Cost
Testing	O	M, N	6	300	1,800
Deployment	P	O	8	600	4,800
Phase III Documentation	Q	O, P	5	500	2,500
Final Project Report Preparation	R	Q	6	1,000	6,000
Final Presentation	S	R	6	100	600
Implementation of Payment System	M	L	8	500	4,000
Implementation of Inventory Management	N	M	9	500	4,500
+ Add Task					
			48 sum	3,500 sum	24,200 sum

Actual % Completed (98 days - till November 2) Table :

Phase I

Task	Activity Node	Actual Complete	Incurred Cost
Requirement Analysis	A	100%	2,000
Defining Problem Statement	B	100%	500
Defining Objectives and Features	C	100%	600
Proposal Documentation	D	100%	300
Project Proposal Approval	E	100%	400
+ Add Task			
	0 sum	500% sum	3,800 sum

Phase II

Task	Activity Node	Actual Complete	Incurred Cost
Designing UI	F	100%	6,000
Database connectivity and setup	G	90%	1,100
Login-Signup Implementation	H	80%	800
Implementation of User System	I	60%	1,000
Implementation of Property System	J	80%	900
Implementation of Booking System	K	50%	1,000
Phase II Documentation and Presentation	L	5%	100
+ Add Task			
	0 sum	465% sum	10,900 sum

Phase III

Task	Activity Node	Actual Complete	Incurred Cost
Implementation of Payment System	M	20%	700
Implementation of Inventory Management	N	20%	500
Testing	O	0%	0
Deployment	P	0%	0
Phase III Documentation	Q	0%	0
Final Project Report Preparation	R	0%	0
Final Presentation	S	0%	0
+ Add Task			
	0 sum	40% sum	1,200 sum

Planned Value (PV):

- Planned Value is the approved value of the work to be completed in a given time. It is the value that you should have earned as per the schedule.
- As per the PMBOK Guide, "Planned Value (PV) is the authorized budget assigned to work to be accomplished for an activity or WBS component.
- The formula to calculate Planned Value is simple. Take the planned percentage of the completed work and multiply it by the project budget and you will get Planned Value.
- The total Planned Value for the project is known as Budget at Completion (BAC).
- Planned Value = (Planned % Complete) X (BAC)
- Planned Value is also known as **Budgeted Cost of Work Scheduled (BCWS)**.

Actual Cost (AC):

- Actual Cost is the total cost incurred for the actual work completed to date. Simply put, it is the amount of money you have spent to date.
- As per the PMBOK Guide, "Actual Cost (AC) is the total cost actually incurred in accomplishing work performed for an activity or WBS component."
- Actual Cost is also known as **Actual Cost of Work Performed (ACWP)**.
- Finding Actual Cost is the simplest of all.
- There is no special formula to calculate the Actual Cost. It is an amount that has been spent and you can find it easily in the question.

Earned Value (EV):

- Earned Value is the value of the work actually completed to date. If the project is terminated today, Earned Value will show you the value that the project has produced.
- As per the PMBOK Guide, "Earned Value (EV) is the value of work performed expressed in terms of the approved budget assigned to that work for an activity or WBS component."
- Although all three elements have their own significance, Earned Value is more useful because it shows you how much value you have earned from the money you have spent to date.
- Earned Value is also known as the **Budgeted Cost of Work Performed (BCWP)**.
- The formula to calculate Earned Value is also simple. Take the actual percentage of the completed work and multiply it by the project budget and you will get the Earned Value.
- Earned Value = % of completed work X BAC (Budget at Completion).

ACWP, BCWP, BCWS Calculations:
98 Days(2 Nov)

Phase I

Task	Activity Node	ACWP	BCWP	BCWS
Requirement Analysis	A	2,000	2,000	2,000
Defining Problem Statement	B	500	600	600
Defining Objectives and Features	C	600	600	600
Proposal Documentation	D	300	200	200
Project Proposal Approval	E	400	500	500

Phase II

Task	Activity Node	ACWP	BCWP	BCWS
Designing UI	F	6,000	7,000	7,000
Database connectivity and setup	G	1,100	900	1,000
Login-Signup Implementation	H	800	800	1,000
Implementation of User System	I	1,000	720	1,200
Implementation of Property System	J	900	1,440	1,800
Implementation of Booking System	K	1,000	1,200	2,400
Phase II Documentation and Presentation	L	100	50	1,000

Phase III

Task	Activity Node	ACWP	BCWP	BCWS
Implementation of Payment System	M	700	800	4,000
Implementation of Inventory Management	N	500	900	2,000
Testing	O	0	0	0
Deployment	P	0	0	0
Phase III Documentation	Q	0	0	0
Final Project Report Preparation	R	0	0	0
Final Presentation	S	0	0	0

CPI, CV, SPI, SV Calculations:

- **Cost Performance Index (CPI):** The cost performance index (CPI) is a measure of the conformance of the actual work completed (measured by its earned value) to the actual cost incurred: **CPI = EV / AC**.
- **Schedule Performance Index (SPI):** The schedule performance index (SPI) is a measure of the conformance of actual progress (earned value) to the planned progress: **SPI = EV / PV**.
- **Cost Variance (CV):** The CV is the difference between the earned value of the work performed and the executed budget (Actual Cost). **CV= EV-AC**.
- **Schedule Variance (SV):** The SV is the difference between the earned value of the work performed and the planned value of the work scheduled. SV= EV-PV
- SPI and CPI less than 1 and SV and CV negative refers to something is wrong with respect to schedule and cost in the project.

	ACWP	BCWP	BCWS
TOTAL SUM	15900	17710	25300

CPI	CV	SPI	SV
1.113836478	1810	0.7	-7590

Earned value analysis Conclusion:

Since CPI is 1.113836478 i.e. greater than 1, this means the project is not over budget, and instead it is under budget.
Since CV is 1810 i.e. not negative, this means the project is not over budget, and instead it is under budget.
Since SPI is 0.7 i.e. less than 1, this means the project is behind schedule.
Since SV is -7590 i.e. negative, this means the project is behind schedule.