ID	Investigation	Findings	Action Taken	Notes	Status
1	Missing / blank data	Dataset is complete. No missing data found	None	Dataset ready for next step.	Completed
2	Duplicate rows	No duplicate data found.	None	Dataset ready for next step.	
3	Numerical data range check.	There are high bill amounts and negative bill amounts.	Flagged for further investigation	Age range within normal range. Pay status range within set parameters. Bill and payment amounts show negative and high values, candidate for further exploration and investigation to check for validity and possible outlier.	Completed
4	Negative Balances	Negative balances are likely valid and not a result of data entry error.	Isolated customer ID 8356 and 18116 for further analysis and sample. Created a table to compare the bill amount and payment based on month. A column for balance was added to clarify how the payment were affecting the balance.	Negative values are likely due to overpayment as shown in payment and bill history. The values do not have perfect alignment, this is likely due to missing granular information about other payments and activities during the month or after bill cycle. Analysis of detailed transactions will yield deeper insights about the exact amounts.	Completed
5	Verbal Data Trimming	Extra spaces detected in verbal columns (Sex, Marrital status, Education, etc.)	Timmed all verbal columns toremove leading, trailing, and repeated spaces.	Verified consistency after trimming. Dataset ready for next step.	Completed

Numerical Data Range Check

	Credit Limit	Age	Pay Status April 2005	Pay Status May 2005	Pay Status June 2005	Pay Status July 2005	Pay Status Aug 2005	Pay Status Sept 2005	Bill April 2005	Bill May 2005	Bill June 2005	Bill July 2005	Bill Aug 2005	Bill Sept 2005
Minimum	$10,000.00	21	-2	-2	-2	-2	-2	-2	-339603	-81334	-170000	-157264	-69777	-165580
Maximum	$1,000,000.00	79	8	8	8	8	8	8	961664	927171	891586	1664089	983931	964511

	Payment April 2005	Payment May 2005	Payment June 2005	Payment July 2005	Payment Aug 2005	Payment Sept 2005		Notes
Maximum	0	0	0	0	0	0		Age range within normal range. Pay status range within set parameters. Bill and payment amounts show negative and high values, candidate for further exploration and investigation to check for validity and possible outlier.
Minimum	528666	426529	621000	896040	1684259	873552		

Negative Bill Amount Investigation

		Bill (NTD)	Payment (NTD)	Balance (NTD)	Observation		Notes
	April 2005	149655	5003	144652	Partial payment, balance carried over		Negative values are likely due to overpayment as shown in payment and bill history. The values do not have perfect alignment, this is likely due to missing granular information about other payments and activities during the month or after bill cycle. Analysis of detailed transactions will yield deeper insights about the exact amounts.
	May 2005	142645	10002	132643	Partial payment, balance carried over		
ID: 8356	June 2005	-81334	331788	-413122	Overpayment, causing negative balance		
	July 2005	90857	81569	9288	Partial payment, balance carried over		
	August 2005	90857	5020	85837	Partial payment, balance carried over		
	September 2005	91908	6000	85908	Partial payment, balance carried over		
	April 2005	166416	6100	160316	Partial payment, balance carried over		
	May 2005	164040	6000	158040	Partial payment, balance carried over		
	June 2005	166969	6000	160969	Partial payment, balance carried over		
ID: 18116	July 2005	-157264	332809	-490073	Overpayment, causing negative balance		
	August 2005	9932	0	9932	Partial payment, balance carried over		
	September 2005	6203	5079	1124	Partial payment, balance carried over		