Measurement

Use Case id	**UC 001**
Use Case Name	ATM Transaction
Priority	High
Brief Description	This use case explains the steps using which customer can perform a transaction using an Automated Teller Machine.
Navigation	Insert Card-> Insert PIN-> Select Transaction Type-> enter Amount-> select Receipt Option-> Transaction Performed.
	The customer has inserted the card and it has been accepted upon being satisfying the following validity criteria. i. It is not expired ii. the information on the card can be read.
Post-Condition	Successful/Un-Successful transaction on the basis of sequence of actions performed.
Main/Normal Flow	1. The customer inserts PIN, ATM will validate PIN from Card's Database customer is allowed to have three successive wrong attempts and upon 4th successive wrong attempt Customer's card will be sacked by the ATM. 2. If Pin is valid, Withdrawal screen containing options:5000, 10000, 50000, 100000, Other Amount will be shown to the Customer. Customer Selects his desired Option and clicks on the 'Submit' button. 3. Successful withdrawal should meet following requirements: 3.1 Entered amount should be more than or equal to Amount present in Customer's account. 3.2 Entered amount should be less than equal to MAX_Withdrawal per day for an individual account. 3.3 Entered amount should be less than equal to MAX_Withdrawal per transaction. 3.4 Entered amount should be more than or equal to MIN_withdrawal per transaction. 3.5 Entered amount should be less than or equal to the TOTAL amount present in the ATM at the time of that transaction. 4. If the Entered amount is meeting all conditions, mentioned in point# 3, then receipt printing menu will be shown to the customer, containing two options: i. Print Receipt ii. Go Green 5. Customer will select his desired receipt option and clicks on 'Submit' button. 6. Transaction completed.

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Alternative Flow	1AF 1: If a customer enters Invalid PIN he will be asked to enter the PIN again & If a customer enters wrong PIN on 4th successive attempts his card will be captured by ATM and a dialog message will be shown to the customer like, "Your card has been captured, please contact your bank asap". 3.1 AF 1: If Entered amount is less than the Amount present in Customer's account, than transaction should not proceed and customer will be shown a respective dialog message. 3.2 AF 1: If Entered amount more than MAX_Withdrawal per day for an individual account, than transaction should not proceed and customer will be shown a respective dialog message. 3.3 AF 1: If Entered amount is more than MAX_Withdrawal per transaction than, transaction should not proceed and customer will be shown a respective dialog message. 3.4 AF 1: If Entered amount less than MIN_withdrawal per transaction, than transaction should not proceed and customer will be shown a respective dialog message. 3.5 AF 1: If Entered amount more than the TOTAL amount present in the ATM at the time of that transaction, than transaction should not proceed. and customer will be shown a respective dialog message. 6 AF 1: If customer clicks Submit button without selecting any receipt Option, than he will be asked to first select an option.

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Description:

Following is the comparison between two black box testing techniques; Decision Box & Equivalence class Partitioning upon above use case.

Goal:

Decision for better and more effective Black box test case technique in the current scenario.

i. Equivalence Class Partitioning:

TC-ID	PIN	PIN's ECP	Withdrawal Amount	Withdrawal Amount's ECP	Receipt Option	Actual Output
001	1234	0<Attempts<=4	200	1. {0 < entered amount <= 4000} 2. {0 < entered amount <= 10000} 3. {0 < entered amount <= 6000} 4. {entered amount < 500} 5. {0 < entered amount	---	"Transaction failed! The entered amount is less than the minimum withdrawal amount."

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				<= 20000}		
002	1234	0<Attempts<=4	24000	1. {entered amount > 4000} 2. {entered amount > 10000} 3. {entered amount > 6000} 4. {0 < entered amount <= 500} 5. {entered amount > 20000}	---	Un-Handled Exception. **?**
003	1234	0<Attempts<=4	800	1. {0 < entered amount <= 4000} 2. {0 < entered amount <= 10000} 3. {0 < entered amount <= 6000} 4. {0 < entered amount <= 500}	Go green	Transaction Competed.

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				5. {0 < entered amount <= 20000}		

ii. Decision box:

		Scenarios						
		TC-001	TC-002	TC-003	TC-004	TC-005	TC-006	TC-007
Conditions								
1	Valid PIN Entered before 4th attempt.	T	F	T	T	T	T	T
2	Invalid PIN Entered on Successive 4 attempts.	F	T	F	F	F	F	F
3	Entered amount >= Amount present in Customer's account.	F	--	T	T	T	T	T
4	Entered amount <= MAX_Withdrawal per day for an individual account.	--	--	F	T	T	T	T
5	Entered amount <= MAX_Withdrawal per transaction.	--	--	--	F	T	T	T

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6	Entered amount >= MIN_withdrawal per transaction.	--	--	--		F	T	T
7	Entered amount <= TOTAL amount present in the ATM at the time of that transaction.	--	--	--			F	T
8	Receipt Option Selected	--	--	--				T
Actions (Expected Output)								
1	Transaction Failed: Dialog Message: "**Your card has been captured, please contact your bank asap**".		Executed					
2	Transaction Failed: Dialog Message: "**Not enough amount in your account**".	Executed						
3	Transaction Failed: Dialog Message: "**Daily withdrawal amount for your account exceed**".			Executed				
3	Transaction Failed: Dialog Message: "**Withdrawal Limit per Transaction exceed**".				Executed			
4	Transaction Failed: Dialog Message: "**Withdrawal Limit per Transaction fall behind**".					Executed		

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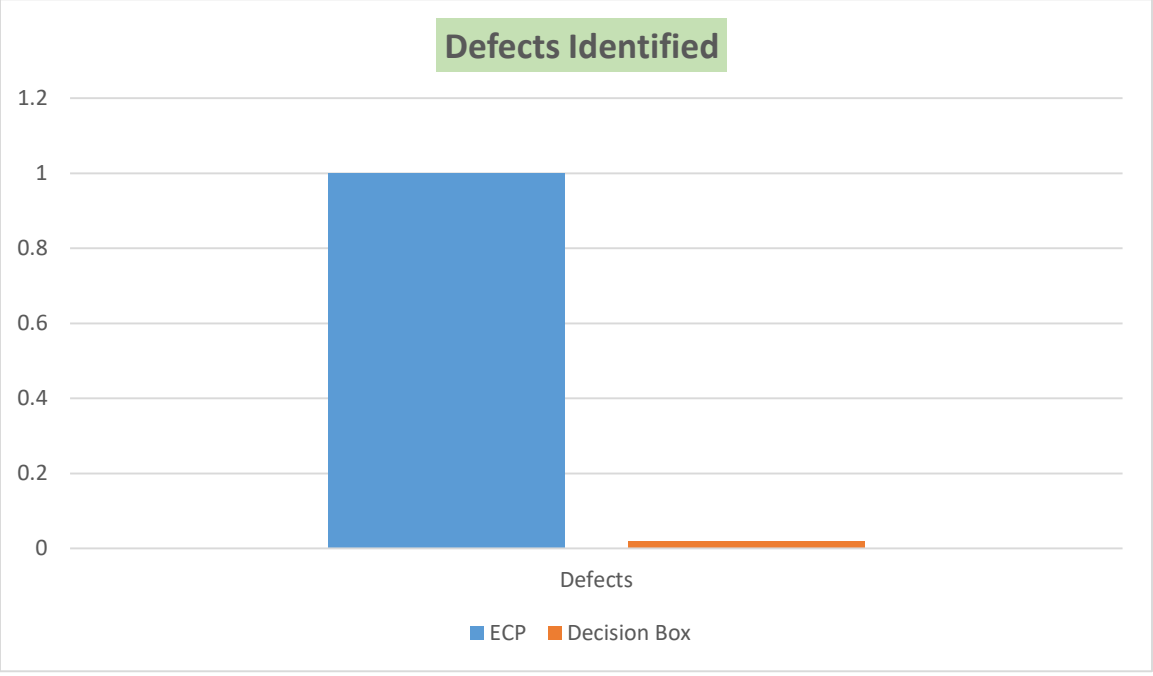
5	Transaction Failed: Dialog Message: "**ATM not have sufficient amount**".						Executed	
6	Transaction Successful.							Executed

Testing Metric:



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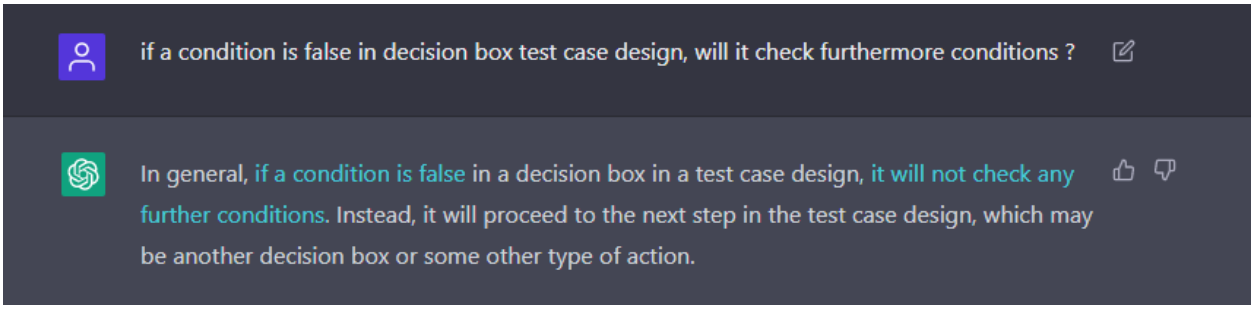
Decision:

In this particular scenario, **Equivalence Class Partitioning** is a better technique relative to decision box.

Reason:



Whereas, on the other hand in Equivalence class partitioning every class (valid/invalid) is checked against every input value in each test case.

THE END!