

Capital University of Science and Technology

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Section:01

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1. **Choose any problem statement of your choice and do following.**

**PART A:**

**a. Explain the case study of the problem (minimum 400 words)**

**Case Study Automated Machine ATM**

The software to be designed will control a simulated automated teller machine(ATM) having a magnetic stripe reader for reading an ATM card, a customer An account is accessible through a cash card.console (keyboard and display) for interaction with the customer, a slot for depositing envelopes, a dispenser for cash (in multiples of $20), a printer fo printing customer receipts, and a key-operated switch to allow an operator to start or stop the machine. The ATM will communicate with the bank’s computer over an appropriate communication link. The ATM will service one customer at a time. A customer will be required toinsert an ATM card and enter a personal identification number (PIN) - both ofwhich will be sent to the bank for validation as part of each transaction. Thecustomer will then be able to perform one or more transactions. The card willbe retained in the machine until the customer indicates that he/she desires nofurther transactions, at which point it will be returned.The ATM must be able to provide the following services to the customer: I A customer must be able to make a cash withdrawal from any suitable account linked to the card, in multiples of $20.00. Approval must be obtained from the bank before cash is dispensed.I A customer must be able to make a deposit to any account linked to the card, consisting of cash and/or checks in an envelope. The customer will enter the amount of the deposit into the ATM, subject to manualverification when the envelope is removed from the machine by an operator. Approval must be obtained from the bank before physically

accepting the envelope. I A customer must be able to make a transfer of money between any two accounts linked to the card. I A customer must be able to make a balance inquiry of any account linked to the card.A customer must be able to abort a transaction in progress by pressing the Cancel key instead of responding to a request from the machine. The ATM will communicate each transaction to the bank and obtain verification that it was allowed by the bank. Ordinarily, a transaction will be considered complete by the bank once it has been approved. In the case of a deposit, a second message will be sent to the bank indicating that the customer has deposited the envelope. (If the customer fails to deposit the envelope within the timeout period, or presses cancel instead, no second message will be sent to the bank and the deposit will not be credited to the customer.

**PART B:**

**b. Identify the functions (at least 3) from the case study and there must me at least one function that takes 3 parameters**

**Three function:**

Void deposit(double ammount,int range,int num\_deposit);

Void transection(double amount);

Void withdraw(double amount);

**PART C:**

# 

**. Using worst case BVA, identify test cases of each function and list down all test cases.**

## Worst Case BVA testing:

In this we Test All combination of input Value.

Formula for test cases=5^.

## Function 1: Void Withdraw (double amount):

Formula in Worst Case=5^n=5^1 = 5 Test Cases

Input Values=1>=a<=10

So the min=0 , min+1=1 , normalValue=5 , max=10 , max-1=9

|  |  |  |
| --- | --- | --- |
| **TestCase** | **a** | **Output** |
| 1 | 0 | Invalid |
| 2 | 1 | Valid |
| 3 | 5 | Valid |
| 4 | 9 | Valid |
| 5 | 10 | Valid |

## Function 2: Void Transection (double amount):

Formula in Worst Case=5^n=5^1 = 5 Test Cases

Input values: 40>=a<=80

So the min=39, min+1=40, normal Value=60, max=80, max-1=79

|  |  |  |
| --- | --- | --- |
| **TestCase** | **a** | **Outputs** |
| 1 | 39 | Invalid |
| 2 | 40 | Valid |
| 3 | 60 | Valid |
| 4 | 79 | Valid |
| 5 | 80 | Valid |

## Function 3: Void Deposit(double ammount,int range,int num\_deposit);

Formula in Worst Case=5^n=5^3 = 125 Test Cases

Input Values=**1>=a<=100;**

**1>=r<=100;**

**1>=d<=100;**

Input Values: min=0 , min +1=1 , Normal Value=50, max=100 , max-1=99

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TestCase** | **a** | **r** | **d** | **Output** |
| 1 | 0 | 0 | 0 | Equalent |
| 2 | 0 | 0 | 1 | Not a triangle |
| 3 | 0 | 0 | 2 | Not a triangle |
| 4 | 0 | 0 | 3 | Not a triangle |
| 5 | 0 | 0 | 4 | Not a triangle |
| 6 | 0 | 0 | 5 | Not a triangle |
| 7 | 0 | 0 | 6 | Not a triangle |
| 8 | 0 | 0 | 7 | Not a triangle |
| 9 | 0 | 0 | 8 | Not a triangle |
| 10 | 0 | 0 | 9 | Not a triangle |
| 11 | 0 | 0 | 10 | Not a triangle |
| 12 | 0 | 1 | 1 | isoscles |
| 13 | 0 | 1 | 2 | Scaline |
| 14 | 0 | 1 | 3 | Scaline |
| 15 | 0 | 1 | 4 | Scaline |
| 16 | 0 | 1 | 5 | Scaline |
| 17 | 0 | 1 | 6 | Scalinr |
| 18 | 0 | 1 | 7 | Scaline |
| 19 | 0 | 1 | 8 | IScaline |
| 20 | 0 | 1 | 9 | Scaline |
| 21 | 1 | 0 | 0 | Isoscles |
| 22 | 1 | 1 | 1 | Eqvalent |
| 23 | 1 | 2 | 50 | Scaline |
| 24 | 1 | 50 | 50 | Isoscles |
| 25 | 1 | 50 | 55 | scaline |
| 26 | 1 | 40 | 40 | isoscles |
| 27 | 1 | 20 | 20 | isosceles |
| 28 | 1 | 30 | 50 | scaline |
| 29 | 1 | 30 | 30 | isoscles |
| 30 | 1 | 40 | 98 | scaline |
| 31 | 1 | 40 | 12 | scaline |
| 32 | 1 | 50 | 50 | isosles |
| 33 | 1 | 50 | 50 | isoscles |
| 34 | 1 | 50 | 78 | scaline |
| 35 | 1 | 50 | 98 | scaline |
| 36 | 1 | 50 | 12 | scaline |
| 37 | 1 | 70 | 30 | scaline |
| 38 | 1 | 70 | 70 | isoscles |
| 39 | 1 | 70 | 78 | scaline |
| 40 | 2 | 0 | 0 | isoscles |
| 41 | 2 | 1 | 0 | scaline |
| 42 | 2 | 2 | 2 | eqvalent |
| 43 | 2 | 3 | 2 | isoscles |
| 44 | 2 | 4 | 3 | isoscles |
| 45 | 2 | 5 | 4 | saline |
| 46 | 2 | 6 | 5 | scaline |
| 47 | 2 | 7 | 6 | scaline |
| 48 | 2 | 8 | 7 | isosles |
| 49 | 2 | 9 | 8 | ioscles |
| 50 | 2 | 10 | 9 | scaline |
| 51 | 2 | 11 | 10 | scaline |
| 52 | 2 | 12 | 12 | isoscles |
| 53 | 2 | 13 | 12 | scaline |
| 54 | 3 | 0 | 0 | isoscles |
| 55 | 3 | 1 | 1 | isoscles |
| 56 | 3 | 2 | 3 | scaline |
| 57 | 3 | 3 | 3 | eqvalent |
| 58 | 3 | 3 | 5 | isoscles |
| 59 | 3 | 5 | 6 | scaline |
| 60 | 3 | 6 | 7 | scaline |
| 61 | 3 | 7 | 7 | isoscles |
| 62 | 3 | 8 | 8 | isoscles |
| 63 | 3 | 9 | 10 | scaline |
| 64 | 3 | 10 | 10 | isoscles |