S M Mahboor Hussain 25K-0749 BCS-1C

Question 1:

PAC Chart:

DATA GIVEN	REQUIRED RESULT(S)
→ Transaction Amount → Transaction Country → Transaction Timing	→ Flag any suspicious transaction
REQUIRED PROCESSING	**SOLUTION ALTERNATIVE(S)**
→ Store daily spending limit and usual countries of transaction as constants. → Make a variable to store total transaction amount for the day. → Take as input the number of transactions for past hour. If it is above the limit, then flag the transaction, otherwise proceed. → Take as input the country that transaction is taking place in. If it is unusual, then flag the transaction, otherwise proceed. → Take as input the amount of transaction. If adding it to the daily total brings it above the daily limit, then flag the transaction, otherwise proceed.	→ Instead of taking number of transactions as input, we can run a loop and keep track of the transactions using a date/time variable. → The currency in which transaction is being made can be changed based on country of transaction.

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IPO Chart:

INPUT	PROCESS	MODULE REFERENCE	OUTPUT
→ Number of transactions in the past hour → Total of Previous transactions → Amount for current transaction → Country of Transaction	→ Take all data as input → Check if number of transactions is above 3, in which case flag transaction → Add current amount to previous total → In case total becomes higher than limit, flag transaction → Check if country is unusual, in which case flag the transaction → Otherwise proceed	*INPUT* *IF-THEN* *COMPUTE* *IF-THEN* *IF-THEN* *ELSE*	→ "Transaction Flagged" OR "Transaction Completed" based on previous conditions.

Algorithm:

Step 1: Ask for number of transactions in past hour.

Step 2: If there have already been 3 transactions in past hour, print “Transaction Flagged” and end.

Step 3: Ask for country of transaction

Step 4: If country is unusual. Print “Transaction Flagged” and end.

Step 5: Otherwise, ask for total of previous transactions and amount of current transaction.

Step 6: Add current amount to previous total.

Step 7: If result of calculation above exceeds the daily limit, then print “Transaction Flagged” and end.

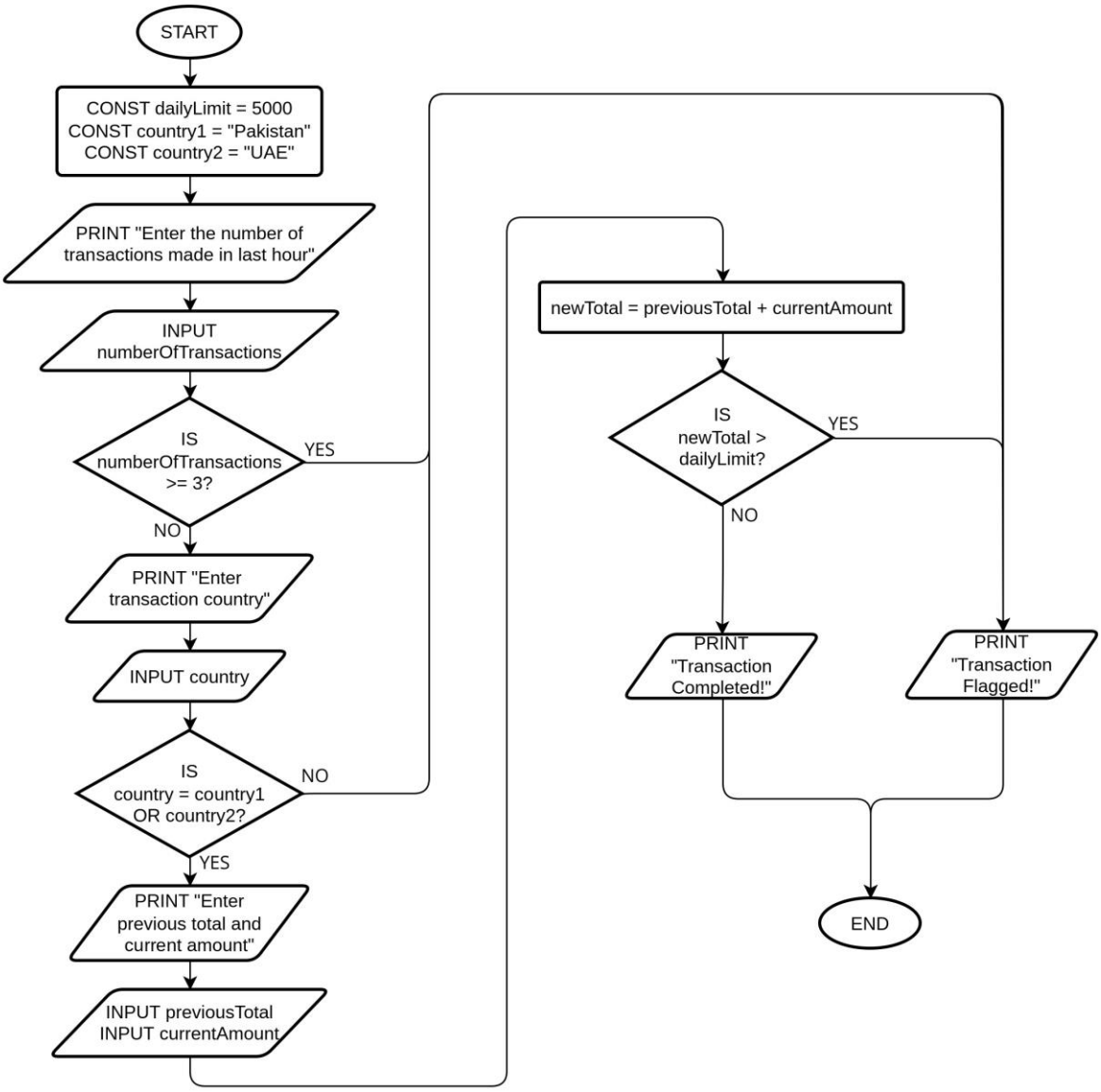
Step 8: Otherwise, print “Transaction Completed”.

Pseudocode:

```
01. START
02. CONSTANT dailyLimit = 5000, country1 = “UAE”, country2 = “Pakistan”
03. PRINT “Enter the number of transactions made in last hour: “
04. INPUT numberOfTransactions
05. IF numberOfTransactions >= 3 THEN
06.     PRINT “Transaction Flagged! (Reason: Too many transactions in a short period)”
07. ELSE
08.     PRINT “Enter the country of transaction: “
09.     INPUT country
10.     IF country != country1 AND country != country2 THEN
11.         PRINT “Transaction Flagged! (Reason: Unusual country)”
12.     ELSE
13.         PRINT “Enter the total of previous transactions for today: “
14.         INPUT previousTotal
```

```
15.             PRINT “Enter the amount for this transaction: “
16.             INPUT transactionAmount
17.             COMPUTE newTotal = previousTotal + transactionAmount
17.             IF newTotal > dailyLimit THEN
18.                     PRINT “Transaction Flagged! (Reason: Daily limit exceeded)”
19.             ELSE
20.                     PRINT “Transaction Completed!”
21.             ENDIF
22.     ENDIF
23. ENDIF
24. END
```

Flowchart:


START
CONST dailyLimit = 5000
CONST country1 = "Pakistan"
CONST country2 = "UAE"
PRINT "Enter the number of transactions made in last hour"
INPUT numberOfTransactions
IS numberOfTransactions >= 3?
YES
NO
PRINT "Enter transaction country"
INPUT country
IS country = country1 OR country2?
NO
YES
PRINT "Enter previous total and current amount"
INPUT previousTotal
INPUT currentAmount
newTotal = previousTotal + currentAmount
IS newTotal > dailyLimit?
YES
NO
PRINT "Transaction Completed!"
PRINT "Transaction Flagged!"
END