

# Programming and Data Structures Lab [CS19003][Section-1]

## Assignment-6

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Write a C program for the task as described below. Save the file as **A06\_Roll.Number.c**. Build and run to check your program. Upload the .c file for the assignment in MS teams.

1. Generate two tables of the form  $\{ID, Card\ Number, Usage\ Limit\}$  and  $\{ID, User\ Name\}$ . i Your program should take the number of entries in the database  $n$  from the user and generate the first table and the second table by calling two different functions.

In the first table 16-digit card numbers must be randomly generated (First digit of the card numbers should not be zero). Randomly assign a 'Usage Limit' less than 1000 for each card. Use a one dimensional integer array to store the first table. Card numbers must be distinct.

In the second table the names of the users should be provided by the user ( names must be at most 10 character long). Note that ID in both the tables link each user name to their respective Card Number and Usage Limit.

Write functions to print those tables and call them from the main(). [25]

2. Write functions to search those tables based on the ID and based on user names. The function should print the result in case the search is successful, otherwise it should print an error message. [35]
3. Write a function to update Usage Limit corresponding to a user name. Print the updated result. If the name is not not valid, print an error message. [30]
4. Write a function using which each user can use their card. The function takes card number and an amount as input, checks whether the card number is valid. If the card is valid then it checks whether the amount is less than or equal to the Usage Limit. If that is the case then the transaction should take place. In the case of a failure, the program should output appropriate error messages like *Invalid Card Number, Limit exceeded*. [10]

**Sample Output:** Here is one sample output:

Please enter n: 3

Table 1:

ID 1:	Card Number: 9128 8726 0987 2701	Limit: 351
ID 2:	Card Number: 5110 0476 6657 6363	Limit: 430

ID 3: Card Number: 9765 7784 2411 8240 Limit: 783

Table 2:

ID 1: Name: Ram

ID 2: Name: Shyam

ID 3: Name: Madhu

Enter 1 to Search

Enter 2 to Update

Enter 3 to Use card

Enter 4 to exit

Please enter your choice: 1

Enter 1 to search by ID and 2 to search by name

Enter your choice: 1

Please enter an ID: 2

ID 2: Name: Shyam Card Number: 5110 0476 6657 6363 Limit: 430

Enter 1 to Search

Enter 2 to Update

Enter 3 to Use card

Enter 4 to exit

Please enter your choice: 1

Enter 1 to search by ID and 2 to search by name

Enter your choice: 2

Please enter a Name: Ram

ID 1: Name: Ram Card Number: 9128 8726 0987 2701 Limit: 351

Enter 1 to Search

Enter 2 to Update

Enter 3 to Use card

Enter 4 to exit

Please enter your choice: 2

Please enter the name: Ram

Please enter new Limit: 400

Updated Table 1:

ID 1:	Card Number: 9128 8726 0987 2701	Limit: 400
ID 2:	Card Number: 5110 0476 6657 6363	Limit: 430
ID 3:	Card Number: 9765 7784 2411 8240	Limit: 783

Enter 1 to Search

Enter 2 to Update

Enter 3 to Use card

Enter 4 to exit

Please enter your choice: 3

Enter card number: 9765 7784 2411 8240

Enter amount: 900

Error: The limit is less than the amount entered

Enter 1 to Search

Enter 2 to Update

Enter 3 to Use card

Enter 4 to exit

Please enter your choice: 4

Goodbye!