

Lecture 27

Practice



QUIZ

قَالَ رَبِّ اشْرَحْ لِي صَدْرِي ۝
﴿٢٥﴾

[فَالَّذِي نَسِيَ كَهُولَ دَعَى رَبَّهُ أَشْرَحَ لَهُ مَنْ يَرَى لِي صَدْرِي مِيرَا سِينَهُ]

وَيَسِّرْ لِي آمْرِي ۝
﴿٢٦﴾

[وَيَسِّرْ لَهُ آسَانَ كَهُولَ دَعَى لَيْهُ مَنْ يَرَى لِي آمْرِي مِيرَا كَامَ]

وَاحْلُلْ عُقْدَةً مِنْ لَسَانِي ۝
﴿٢٧﴾

[وَاحْلُلْ لَهُ كَهُولَ دَعَى عُقْدَةً گَرَهُ مِنْ سَيِّدِي سَيِّدِي زَبَانَ]

يَفْقَهُوا قَوْلِي ۝
﴿٢٨﴾

[يَفْقَهُوا وَهُوَ سَمْجَه سَكِينَ [قَوْلِي مِيرِي بَاتَ]

4 QUESTIONS / FEEDBACK / CONCERNS



SE SECA SLIDE OF FAME

5



NO ONE
WEEK - 1



Muhammad Daniyal
Hammad (BSSE23046)
WEEK - 2



Syed Hashim Abbas
(BSSE23084)
WEEK - 3



Umar Ahmad
(BSSE23032)
WEEK - 4



Umar Ahmad
(BSSE23032)
WEEK - 5



Fatima Noorulain
BSSE23003
WEEK - 6



Umar Ahmad
(BSSE23032)
WEEK - 7



YOUR NAME
WEEK - 8



YOUR NAME
WEEK - 9



YOUR NAME
WEEK - 10



YOUR NAME
WEEK - 11



YOUR NAME
WEEK - 12



YOUR NAME
WEEK - 13



YOUR NAME
WEEK - 14



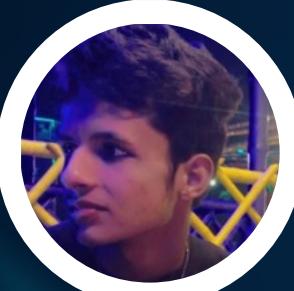
YOUR NAME
WEEK - 15

SE SEC B SLIDE OF FAME

6



Muhammad Mukarram
BSSE23029
WEEK - 1



Muhammad Abdullah
(BSSE23087)
WEEK - 2



Muhammad Abdullah
(BSSE23087)
WEEK - 3



Fasiha Rohail
(BSSE23041)
WEEK - 4



Muhammad Abdullah
(BSSE23087)
WEEK - 5



Hazira Azam
BSSE23019
WEEK - 6



Jamshaid Ahmed
BSSE23012
WEEK - 7



YOUR NAME
WEEK - 8



YOUR NAME
WEEK - 9



YOUR NAME
WEEK - 10



YOUR NAME
WEEK - 11



YOUR NAME
WEEK - 12



YOUR NAME
WEEK - 13



YOUR NAME
WEEK - 14



YOUR NAME
WEEK - 15

RECAP

GitHub

Tools (Cygwin, IDE, GitHub)

Approach towards a word problem

Flowcharts

Flowcharts Advantages & Disadvantages

Algorithms

Pseudocode

Numbers Systems (Decimal, Binary, Octal & Hexadecimal)

Ten's Complement

Twos Complement

main function

Stream in and stream out operators

if else

Functions

Data Types

Arithmetic Operators

Relational Operators

Loops (While, for , do while)

Nested Loops

Switch cases

RECAP

Function Overloading

Scope of variables

Function Prototype and Definition

Default Value in parameters of functions

Parameters by value vs Parameters by Reference

Recursion

Arrays

2D Arrays / Multi Dimensional Arrays

Pointers

Structs

Filing

DMA

Templates

Static Variables

TASK 1

A company that wants to send data over the Internet has asked you to write a program that will encrypt it so that it may be transmitted more securely. All the data is transmitted as four-digit integers. Your program should read a four-digit integer in main() entered by the user and encrypt it as follows:

1. Replace each digit with the result of adding 7 to the digit and getting the remainder after dividing the new value by 10. Then swap the first digit with the third, and swap the second digit with the fourth. Then display the encrypted integer.
2. After encryption, the program will ask input an encrypted four-digit integer and decrypts it (by reversing the encryption scheme) to form the original number and return the decrypted number.

TASK 2

A bank account charges \$10 per month plus the following check fees for a commercial checking account:

\$.10 each for fewer than 20 checks

\$.08 each for 20-39 checks

\$.06 each for 40-59 checks

\$.04 each for 60 or more checks

The bank also charges an extra \$15 if the balance of the account falls below \$400(before any check fees are applied). Write a program that asks for the beginning balance and the number of checks written. Compute and display the bank's service fees for the month.

Input validation: Do not accept a negative value for the number of checks written. If a negative value is given for the beginning balance, display an urgent message indicating the account is overdrawn.

TASK 3

A company pays its salespeople on a commission basis. The salespeople each receive \$200 per week plus 9 percent of their gross sales for that week. For example, a salesperson who grosses \$5000 in sales in a week receives \$200 plus 9 percent of \$5000, or a total of \$650.

Write a program (using an array of counters) that determines how many of the salespeople earned salaries in each of the following ranges.

- a) \$200–299 b) \$300–399 c) \$400–499 d) \$500–599 e) \$600–699
- f) \$700–799 g) \$800–899 h) \$900–999 i) \$1000 and over.

Write the program for 20 salespersons.

TASK 4

You are required to make an application for the creation of a timetable for management of university. Timetable must be designed keeping in view the availability of vacant classes at that time.

University will provide you the following information:

- The number of courses being offered
- The number of available lecture theaters
- A particular course is being offered to which batch/batches
- The number of students expected to be enrolled in particular course
- Instructor's availability
- Assignment of course/s to particular instructor

Generate a timetable keeping in view the given information, making sure that the time and space is efficiently being utilized.

Bonus:

- Add students to courses (can be from multiple batches enrolled in same course) and then generate a timetable with no clashes

TASK 5

Suppose you own a hospital, and you have 30 doctors appointed in the hospital. You need to maintain the record of all the registered doctors and display their data when required. Create a structure Doctor, containing registration number (int), name (char []), address(nested), date of joining(nested) as structure members. Write a program that accomplish the following tasks

Main function should ask the user to enter id and password to proceed further.

Main function should display a menu either to enter the record or display the record. Program should call the function according to the user's choice.

If the user chooses to enter the record, the program should store the data in a structure array of N members (N can be taken when program runs for the first time) . Program should ask the user if he wants to enter the next record.

If the user chooses to display the record and there is a record present, the program should display the list of records (in ascending order of date of joining), if there is no record present then it should display a message of “no record found”.

Record displayed by above task should be sorted in descending order of date of joining of doctors by using a sort function

TASK 6

You are supposed to make a C++ Application for the Arfa CAFE management system. Suppose there are two employees who manage the counter, their employment IDs are 431 and 532. The program first login the employee with their ID. Do make a switching mechanism for the employee with a special flag variable. There they can make a transaction of only 2 out of 10 items for a student containing the items based on the below list.

Serial No.	item	Name	Price
1	Tea	30	
2	Small Pizza	40	
3	patties	40	
4	Pastry	40	
5	samosa	10	
6	Green salad	30	
7	Sandwich	70	
8	Burger	100	
9	Fries	100	
10	Coffee	50	

Display the list before purchase. Your system should serve n number of students, after purchasing anything the system display menu again. The program should display the Name of CAFE at the top of the console. When the employee switches the system to another employee, the program should display the total number of transactions he has done with the system and the program starts again to login system.