

LAB#08 EXERCISES

QUESTION # 1

Create a C program that swaps the values of two integers using a user-defined function, swapIntegers. The user inputs two integer values, and the program uses the function to swap them. It should perform the swap, and display the updated values.

QUESTION # 2

Write a C program with a user-defined function calculate to perform basic arithmetic operations such as addition, subtraction, multiplication, and division. The program should take two numbers and an operation choice as input, and then use the function to perform the operation.

QUESTION # 3

You are working on a text processing program. Create a C program that reads a text input from the user and searches for a specific character (e.g., 'a') within the text using the strchr function. Display the total count of occurrences of the character in the input text.

QUESTION # 4

Your task is to create a C program that performs password length validation and user authentication based on the given requirements below:

- a) Prompts the user to enter a password.
- b) Validates the entered password by checking if it is at least 8 characters long.
- c) If the password meets the length requirement, the program should compare it to a stored password "Secure123."
- d) If the entered password matches the stored password, display "Login successful. Welcome!" Otherwise, display "Login failed. Incorrect password."

QUESTION # 5

In this C program, you are tasked with creating a function called decideCarUsage that helps users decide whether they should use their car on a particular day of the week. Users provide the numeric part of their car's number and the day of the week (1 to 7). The program applies a simple rule: even-

numbered cars should be used on even days, and odd-numbered cars on odd days. The function returns 1 if the car should be used and 0 if it should not.

QUESTION # 6

You are given an array of integers. Write a C program that defines a user-defined function processArray to calculate the sum, maximum, and minimum values in the array. The program should take the array and its size as parameters and use the function to compute these values.

Input: Array is [4, 8, 1, 15, 6]

Output:

Array Sum: 34

Maximum Value: 15

Minimum Value: 1

QUESTION # 7

You are developing a C program for a coffee shop that offers discounts based on customer loyalty and purchase history. The program should work as follows:

The program should have a user-defined function named calculateDiscount that takes two parameters: the customer's total purchase amount and the number of times they have visited the shop in the past month.

determine the discount based on the following criteria:

1. If the customer has visited the shop more than 10 times in the past month and their total purchase amount is \$50 or more, they get a 15% discount.
2. If the customer has visited the shop more than 5 times in the past month and their total purchase amount is \$30 or more, they get a 10% discount.
3. For all other customers, no discount is applied.

The function should return the calculated discount amount.

In the main part of the program, prompt the user to input their total purchase amount and the number of times they have visited the shop. Call the calculateDiscount function to calculate the discount, and display the discount amount to the user.