Part A – Strings

1. Write a program to find the length of a string (without using `strlen()`).
2. Write a program to reverse a string.
3. Write a program to count vowels and consonants in a string.
4. Write a program to compare two strings (without using `strcmp()`).
5. Write a program to check if a string is palindrome.
   Example: `"madam"` → Palindrome.
6. Write a program to concatenate two strings (without using `strcat()`).

Part B – User Defined Functions

7. Write a function `int add(int a, int b)` to return the sum of two numbers.
8. Write a function `int factorial(int n)` that returns the factorial of `n`.
9. Write a function `int isPrime(int n)` that checks if a number is prime. Use it in `main()` to print primes from `1–100`.
10. Write a function `float areaCircle(float r)` that returns the area of a circle.
11. Write a program with a function `void swap(int *a, int *b)` to swap two numbers using pointers.

Part C – Matrix (2D Arrays)

12. Write a program to read and print a matrix of size `m x n`.
13. Write a program to add two matrices of size `3 x 3`.
14. Write a program to subtract two matrices of size `3 x 3`.
15. Write a program to multiply two matrices.
16. Write a program to find the transpose of a matrix.
17. Write a program to check if a matrix is symmetric.
18. Write a program to find the sum of diagonal elements of a square matrix.
19. Write a program in C to:

- Accept an array of integers from the user.
- Use a user defined function `int countFrequency(int arr[], int n, int num)` that returns how many times `num` appears in the array.
- In `main()`, call this function for each unique element of the array and print its frequency.

Example Input/Output

```
Enter size of array: 6

Enter elements: 5 2 7 5 2 5

Output:

Element 5 occurs 3 times

Element 2 occurs 2 times

Element 7 occurs 1 time
```