Problem 01:

problem_01.c > main()

```c
#include <stdio.h>
#include <string.h>
#define NUM_WORDS 5
#define MAX_LENGTH 20
// Function to check if a word is a palindrome
int isPalindrome(char word[]){
    int length = strlen(word);
    for (int i = 0; i < length / 2; i++){
        if (word[i] != word[length - i - 1]){
            return 0;
        }
    }
    return 1;
}
int main(){
    char words[NUM_WORDS][MAX_LENGTH];

    printf("Enter %d words (maximum %d characters each):\n", NUM_WORDS, MAX_LENGTH - 1);
    for (int i = 0; i < NUM_WORDS; i++){
        printf("Word %d: ", i + 1);
        scanf("%s", words[i]);
    }

    printf("\nResults:\n");
    for (int i = 0; i < NUM_WORDS; i++){
        if (isPalindrome(words[i])){
            printf("%s: Palindrome\n", words[i]);
        }
        else{
            printf("%s: Not Palindrome\n", words[i]);
        }
    }
    return 0;}
```

```
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000> cd "c:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000\" ; if ($?) { gcc problem_01.c -o problem_01 } ; if ($?) { .\problem_01 }
Enter 5 words (maximum 19 characters each):
Word 1: madam
Word 2: racecar
Word 3: level
Word 4: radar
Word 5: civic

Results:
madam: Palindrome
racecar: Palindrome
level: Palindrome
radar: Palindrome
civic: Palindrome
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000>
```

Problem 02:

problem_02.c > main()

```c
#include <stdio.h>
// program that swaps the values of two integers using
void swapIntegers(int num1,int num2){
    int temp = num1;
    num1 = num2;
    num2 = temp;

    printf("\nAfter Swapping");
    printf("\nFirst integer --> %d",num1);
    printf("\nSecond integer --> %d",num2);
}

int main(){
    int num1,num2;
    printf("Program to swap values of two integers");
    printf("\nEnter first integer: ");
    scanf("%d",&num1);
    printf("Enter second integer: ");
    scanf("%d",&num2);

    swapIntegers(num1,num2);
    return 0;
}
```

```
PS C:\Users\DELL\OneDrive\Desktop\PF lab
s Sir Nouman\Labs home tasks\Lab-09_24k-
2000> cd "c:\Users\DELL\OneDrive\Desktop
\PF labs Sir Nouman\Labs home tasks\Lab-
09_24k-2000\" ; if ($?) { gcc problem_02
.c -o problem_02 } ; if ($?) { .\problem
_02 }
Program to swap values of two integers
Enter first integer: 542
Enter second integer: 214

After Swapping
First integer --> 214
Second integer --> 542
PS C:\Users\DELL\OneDrive\Desktop\PF lab
s Sir Nouman\Labs home tasks\Lab-09_24k-
2000>
```

Problem 03:

problem_03.c > ...

```c
#include <stdio.h>
// Function that checks if a given integer is a prime number.
int isPrime(int num){
    if (num <= 1){
        return 0;
    }
    for (int i = 2; i * i <= num; i++){
        if (num % i == 0){
            return 0;
        }
    }
    return 1;
}

int main(){
    int num, result;

    printf("Enter number to check whether it is a prime: ");
    scanf("%d", &num);

    result = isPrime(num);

    if (result == 1){
        printf("%d is a prime number.\n", num);
    } else{
        printf("%d is not a prime number.\n", num);
    }

    return 0;
}
```

```
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nou
man\Labs home tasks\Lab-09_24k-2000> cd "c:\Users
\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs ho
me tasks\Lab-09_24k-2000\" ; if ($?) { gcc proble
m_03.c -o problem_03 } ; if ($?) { .\problem_03 }

Enter number to check whether it is a prime:
13
13 is a prime number.
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nou
man\Labs home tasks\Lab-09_24k-2000>
```

Problem 04:

problem_04.c > ...

```c
#include <stdio.h>
// Function to perform basic arithmetic operations
float calculate(float num1, float num2, char operation){
    float result;
    switch (operation){
        case '+':
            result = num1 + num2;
            break;
        case '-':
            result = num1 - num2;
            break;
        case '*':
            result = num1 * num2;
            break;
        case '/':
            if (num2 != 0){
                result = num1 / num2;
            }
            else{
                printf("Error: Division by zero is not allowed.\n");
                return 0; // Early exit for division by zero
            }
            break;
        default:
            printf("Error: Invalid operation.\n");
            return 0; // Early exit for invalid operation
    }
    return result;
}

```

```
PS C:\Users\DELL\OneDrive\Desktop\PF lab
s Sir Nouman\Labs home tasks\Lab-09_24k-
2000> cd "c:\Users\DELL\OneDrive\Desktop
\PF labs Sir Nouman\Labs home tasks\Lab-
09_24k-2000\" ; if ($?) { gcc problem_04
.c -o problem_04 } ; if ($?) { .\problem
_04 }
Enter the first number: 543
Enter the second number: 42
Enter the operation (+, -, *, /): /
Result: 12.93
PS C:\Users\DELL\OneDrive\Desktop\PF lab
s Sir Nouman\Labs home tasks\Lab-09_24k-
2000>
```

```c
int main(){
    float num1, num2, result;
    char operation;

    printf("Enter the first number: ");
    scanf("%f", &num1);
    printf("Enter the second number: ");
    scanf("%f", &num2);
    printf("Enter the operation (+, -, *, /): ");
    scanf(" %c", &operation);

    result = calculate(num1, num2, operation);

    if (operation == '+' || operation == '-' || operation == '*' || (operation == '/' && num2 != 0)) {
        printf("Result: %.2f\n", result);
    }

    return 0;
}

```

Problem 05:

problem_05.c > ...

```c
#include <stdio.h>
#include <string.h>
// Function that reverses a given string and
// stores the reversed string in reverseStr.
void reverseArray(char str[]){
    int length = strlen(str);
    char reverseStr[100];

    for (int i = 0; i < length; i++){
        reverseStr[i] = str[length - i - 1];
    }
    reverseStr[length] = '\0';
    printf("\nReversed string: %s\n", reverseStr);
}

int main(){
    char str[100];
    printf("Enter string: ");
    gets(str);

    reverseArray(str);

    return 0;
}

```

```
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000> cd "c:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000\" ; if ($?) { gcc problem_05.c -o problem_05 } ; if ($?) { .\problem_05 }

Enter string: My name is Kali.

Reversed string: .ilaK si eman yM
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000>
```

Problem 06:

problem_06.c > main()

```c
#include <stdio.h>
// function to find maximum & minimum element in an array
int minimumFuntion(int arr[], int size){
    int min = arr[0];
    for (int i = 0; i < size; i++){
        if (arr[i] < min){
            min = arr[i];
        }
    }
    return min;
}
int maximumFuntion(int arr[], int size){
    int max = arr[0];
    for (int i = 0; i < size; i++){
        if (arr[i] > max){
            max = arr[i];
        }
    }
    return max;
}
int main(){
    int size;
    printf("Enter size of an array: ");
    scanf("%d", &size);
    int arr[size];

    for (int i = 0; i < size; i++){
        printf("Enter element %d: ", i + 1);
        scanf("%d", &arr[i]);
    }
    printf("\nMinimum value in array is: %d", minimumFuntion(arr, size));
    printf("\nMaximum value in array is: %d", maximumFuntion(arr, size));
    return 0;}
```

```
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000> cd "c:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000\" ; if ($?) { gcc problem_06.c -o problem_06 } ; if ($?) { .\problem_06 }

Enter size of an array: 5
Enter element 1: 3
Enter element 2: 2
Enter element 3: 6
Enter element 4: 2
Enter element 5: 9

Minimum value in array is: 2
Maximum value in array is: 9
PS C:\Users\DELL\OneDrive\Desktop\PF labs Sir Nouman\Labs home tasks\Lab-09_24k-2000>
```