1st october 2025

```c
//Q1:wap to see whether 2 strings are anagrams or not//

#include <stdio.h>
int length(char str[]);
void sort(char str[]);
int anagrams(char str1[], char str2[]);
int main()
{
   char str1[100],str2[100];
   printf("Enter first string:");
   scanf("%s",str1);
   printf("Enter second string:");
   scanf("%s",str2);

   if (anagrams(str1, str2))
   {
       printf("The strings are anagrams");
   }
   else
   {
       printf("The strings are not anagrams");
   }
}

int length(char str[])
{
   int len=0;
   while (str[len]!='\0')
   {
       len++;
   }
   return len;
}
void sort(char str[])
{
   int i,j,len=length(str);
   char temp;
   for (i=0;i<len-1;i++)
   {
       for (j=0;j<len-i-1;j++)
       {
           if (str[j]>str[j+1])
           {
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                temp=str[j];
                str[j]=str[j+1];
                str[j+1]=temp;
            }
        }
    }
}
int anagrams(char str1[], char str2[])
{
    int i, len1 = length(str1), len2 = length(str2);
    if (len1 != len2)
    {
        return 0;
    }
    sort(str1);
    sort(str2);

    for (i = 0; i < len1; i++)
    {
        if (str1[i] != str2[i])
        {
            return 0;
        }
    }
    return 1;
}
```

```
[vanidawar@Vani-MacBook-Pro projects % gcc c1q1.c -o c1
[vanidawar@Vani-MacBook-Pro projects % ./c1
 Enter first string:listen
 Enter second string:silent
 The strings are anagrams%
 vanidawar@Vani-MacBook-Pro projects %
```

```c
//Q2:wap to find second largest element in an array using a function//

#include <stdio.h>
void sortascending(int arr[], int n);
int main()
{
   int n, i;
   printf("Enter number of elements: ");
   scanf("%d", &n);
   int arr[n];
   for (i = 0; i < n; i++)
   {
       printf("Enter element:");
       scanf("%d", &arr[i]);
   }
   sortascending(arr, n);
   int secondLargest = -1;
   for (i = n-2; i >= 0; i--)
   {
       if (arr[i] != arr[n-1])
       {
           secondLargest=arr[i];
           break;
       }
   }
   if (secondLargest == -1)
   {
       printf("No second largest element exists");
   }
   else
   {
       printf("Second largest element in the array is %d",secondLargest);
   }
}
void sortascending(int arr[], int n)
{
   int i, j, temp;
   for (i = 0; i < n-1; i++)
   {
       for (j = i+1; j < n; j++)
       {
           if (arr[i] > arr[j])
           {
               temp = arr[i];
               arr[i] = arr[j];
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                arr[j] = temp;
            }
        }
    }
}
```

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vanidawar@Vani-MacBook-Pro projects % gcc c1q2.c -o c2
vanidawar@Vani-MacBook-Pro projects % ./c2
Enter number of elements: 5
Enter element:1
Enter element:5
Enter element:7
Enter element:3
Enter element:4
Second largest element in the array is 5%
```

```c
//Q3:wap to find sum of digits using recursion//

#include <stdio.h>
int sum(int n);
int main()
{
   int num;
   printf("Enter a number: ");
   scanf("%d",&num);
   int result = sum(num);
   printf("Sum of digits = %d", result);
}
int sum(int n)
{
   if (n == 0)
   {
       return 0;
   }
   else
   {
       return (n % 10) + sum(n / 10);
   }
}
```

```
vanidawar@Vani-MacBook-Pro projects % gcc c1q3.c -o c3
vanidawar@Vani-MacBook-Pro projects % ./c3
Enter a number: 345
Sum of digits = 12%
```

```c
//Q4:wap and function to swap 2 numbers using call by reference//

#include <stdio.h>
void swap(int *a, int *b);
int main()
{
   int x, y;
   printf("Enter first number:");
   scanf("%d",&x);
   printf("Enter second number:");
   scanf("%d",&y);
   printf("before swapping: x=%d, y=%d\n", x, y);
   swap(&x, &y);
   printf("after swapping: x=%d, y=%d", x, y);
}
void swap(int *a, int *b)
{
   int temp;
   temp = *a;
   *a = *b;
   *b = temp;
}
```

```
vanidawar@Vani-MacBook-Pro projects % gcc c1q4.c -o c4
vanidawar@Vani-MacBook-Pro projects % ./c4
Enter first number: 9
Enter second number: 4
Before swapping: x = 9, y = 4
After swapping: x = 4, y = 9%
```

```c
//Q5:waf to sort an array using functions//

#include <stdio.h>
void sort(int arr[], int n);
void printarr(int arr[], int n);
int main()
{
   int arr[100], n, i;
   printf("Enter size of array:");
   scanf("%d",&n);
   for (i = 0;i<n;i++)
   {
       printf("Enter element:");
       scanf("%d", &arr[i]);
   }
   sort(arr, n);
   printf("Sorted array: ");
   printarr(arr, n);

}
void sort(int arr[], int n)
{
   int i, j, temp;
   for (i = 0;i<n-1;i++)
   {
       for (j=0;j<n-i-1; j++)
       {
           if (arr[j]>arr[j+1])
           {
               temp = arr[j];
               arr[j] = arr[j+1];
               arr[j+1] = temp;
           }
       }
   }
}
void printarr(int arr[], int n)
{
   int i;
   for (i = 0;i<n;i++)
   {
       printf("%d ", arr[i]);
   }
   printf("\n");
}
```

```
vanidawar@Vani-MacBook-Pro projects % gcc c1q5.c -o c5
vanidawar@Vani-MacBook-Pro projects % ./c5
Enter size of array:5
Enter element:9
Enter element:2
Enter element:5
Enter element:7
Enter element:1
Sorted array: 1 2 5 7 9
```

```c
//Q6:wap to create structure student with roll no,name and marks. waf to input and
display details//

#include <stdio.h>
struct Student
{
   int rollNo;
   char name[50];
   float marks;
};
void inputdetails(struct Student *s);
void displaydetails(struct Student s);
int main()
{
   struct Student s;
   inputdetails(&s);
   displaydetails(s);
}
void inputdetails(struct Student *s)
{
   printf("Enter roll number:");
   scanf("%d", &s->rollNo);
   printf("Enter name:");
   scanf(" %s", s->name);
   printf("Enter marks:");
   scanf("%f", &s->marks);
}

void displaydetails(struct Student s)
{
   printf("Student Details:\n");
   printf("Roll No: %d\n", s.rollNo);
   printf("Name: %s\n", s.name);
   printf("Marks: %.2f", s.marks);
}
```

```
vanidawar@Vani-MacBook-Pro projects % gcc c1q6.c -o c6
vanidawar@Vani-MacBook-Pro projects % ./c6
Enter roll number:28
Enter name:vani
Enter marks:98
Student Details:
Roll No: 28
Name: vani
Marks: 98.00%
```

```c
/*Q7:wap to create a structure employee (ID, Name, Basic Pay, DA, HRA, Gross Salary)
and waf to calculate salary and display details.*/

#include <stdio.h>
struct employee
{
   int id;
   char name[100];
   int pay;
   int DA;
   int HRA;
   int salary;
};
void inputemp(struct employee *e);
void calculateemp(struct employee *e);
void displayemp(struct employee e);
int main()
{
   struct employee e;
   inputemp(&e);
   calculateemp(&e);
   displayemp(e);
}
void inputemp(struct employee *e)
{
   printf("Enter Employee ID:");
   scanf("%d",&e->id);
   printf("Enter Name:");
   scanf(" %s", e->name);
   printf("Enter Basic Pay:");
   scanf("%d", &e->pay);
   printf("Enter DA: ");
   scanf("%d", &e->DA);
   printf("Enter HRA: ");
   scanf("%d", &e->HRA);
}
void calculateemp(struct employee *e)
{
   e->salary = e->pay + e->DA + e->HRA;
}
void displayemp(struct employee e)
{
   printf("Employee Details:\n");
   printf("ID: %d\n",e.id);
   printf("Name: %s\n",e.name);
```

```c
    printf("Basic Pay: %d\n",e.pay);
    printf("DA: %.d\n",e.DA);
    printf("HRA: %d\n",e.HRA);
    printf("Gross Salary: %d",e.salary);
}
```

```
vanidawar@Vani-MacBook-Pro projects % gcc c1q7.c -o c7
vanidawar@Vani-MacBook-Pro projects % ./c7
Enter Employee ID:101
Enter Name:vani
Enter Basic Pay:50000
Enter DA: 10000
Enter HRA: 5000
Employee Details:
ID: 101
Name: vani
Basic Pay: 50000
DA: 10000
HRA: 5000
Gross Salary: 65000%
```