



Daffodil International University

Lab Report

Course: SE122

(Structured Programming Lab)

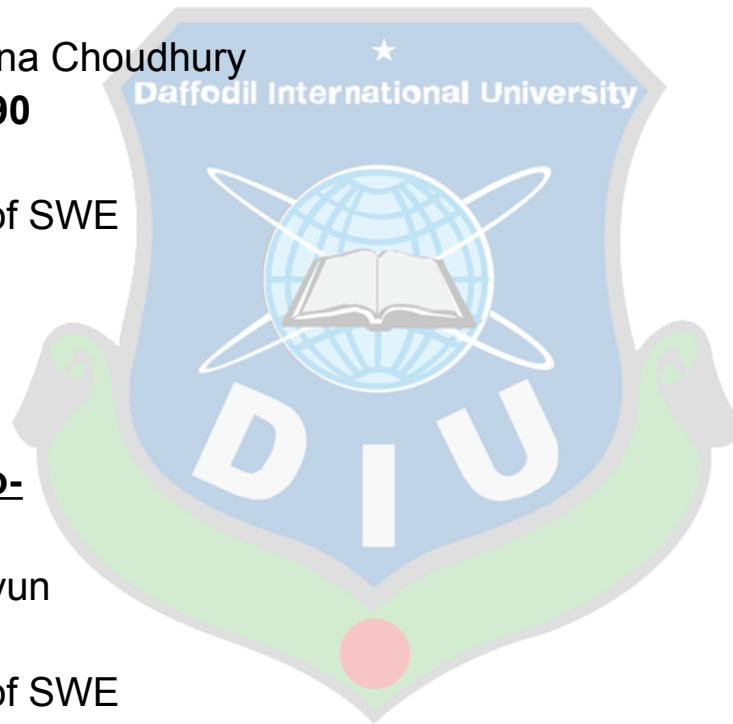
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/*ID:221-35-990

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/*Problem-01:Write a program in C to store elements in an array and print it.*/

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int i,a,values[100000]; //this array can hold upto 100000 variables
```

```
    printf("Enter the number of terms: ");
```

```
    scanf("%d",&a);    //taking input for size of the array
```

```
    printf("Enter integers:\n");
```

```
    for(i=0; i<a; i++)
```

```
    {
```

```
        scanf("%d", &values[i]); // taking input and storing it in an array
```

```
    }
```

```
    printf("Displaying integers:\n");
```

```
    // printing elements of the array
```

```
    for(i=0; i<a; i++)
```

```
    {
```

```
        printf("%d\n", values[i]);
```

```
    }
```

```
    return 0;
```

```
}
```

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/*Problem-02:Write a program in C to read n number of values in an array and display it in reverse order.*/

```
#include <stdio.h>
int main()
{
    int i=1,n,values[100000]; //this array can hold upto 100000 values

    printf("Enter the number of terms: ");
    scanf("%d",&n);    //taking input for size of the array

    printf("\nEnter integers:\n");

    for(i=1; i<=n; i++)
    {
        scanf("%d", &values[i]); // taking input and storing it in an array
    }

    printf("\nDisplaying integers in reversed order:\n");

    // printing elements of the array
    for(i=n; i>=1; i--)
    {
        printf("%d\n", values[i]);
    }
    return 0;
}
```

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/*Problem-03:Write a program in C to find the sum of all elements of the array.*/

#include <stdio.h>

int main()

{

int i=1,n,values[100000],sum=0; //this array can hold upto 100000 values

printf("Enter the number of terms: ");

scanf("%d",&n); //taking input for size of the array

printf("\nEnter integers:\n");

for(i=1; i<=n; i++)

{

*scanf("%d", &values[i]); // taking input and storing it in an array
sum=sum+values[i];*

}

printf("\nSum of all elements of the array is= %d",sum);

return 0;

}

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/*Problem-04:Write a program in C to copy the elements of one array into another array.*/

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int arr1[100000], arr2[100000];
```

```
    int i, n;
```

```
    printf("Input the number of elements to be stored in the array :");
```

```
    scanf("%d",&n);
```

```
    printf("Input %d elements in the array :\n",n);
```

```
    for(i=0; i<n; i++)
```

```
    {
```

```
        printf("Element - %d : ",i);
```

```
        scanf("%d",&arr1[i]);
```

```
    }
```

```
    //Copy elements of the first array into the second array.
```

```
    for(i=0; i<n; i++)
```

```
    {
```

```
        arr2[i] = arr1[i];
```

```
    }
```

```
    //Prints the elements of first array
```

```
    printf("\n\nThe elements stored in the first array are :\n");
```

```
    for(i=0; i<n; i++)
```

```
    {
```

```
        printf("% 5d", arr1[i]);
```

```
    }
```

```
    //Prints the elements copied into the second array.
```

```
    printf("\n\nThe elements copied into the second array are :\n");
```

```
    for(i=0; i<n; i++)
```

```
    {
```

```
        printf("% 5d", arr2[i]);
```

```
    }
```

```
    printf("\n\n");
```

```
    return 0;
```

```
}
```

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/*Problem-05: Write a program in C to count a total number of duplicate elements in an array.*/

#include <stdio.h>

int main()

{

int arr1[100];

int arr2[100];

int arr3[100];

int n,mm=1,ctr=0;

int i, j;

printf("Input the number of elements to be stored in the array :");

scanf("%d",&n);

printf("Input %d elements in the array :\n",n);

for(i=0; i<n; i++)

{

printf("element - %d : ",i);

scanf("%d",&arr1[i]);

}

*/*copy in other array*/*

for(i=0; i<n; i++)

{

arr2[i]=arr1[i];

arr3[i]=0;

}

/ mark the elements are duplicate */*

for(i=0; i<n; i++)

{

for(j=0; j<n; j++)

{

if(arr1[i]==arr2[j])

{

arr3[j]=mm;

mm++;

}

}

mm=1;

}

```
/*Prints the array */  
for(i=0; i<n; i++)  
{  
    if(arr3[i]==2)  
    {  
        ctr++;  
    }  
}  
printf("The total number of duplicate elements found in the array is: %d \n",  
ctr);  
  
printf("\n\n");  
return 0;  
}
```

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/*Problem-06: Write a program in C to print all unique elements in an array*/

```
#include <stdio.h>
int main()
{
    int arr[100000], n,ctr=0;
    int i, j;

    printf("Input the number of elements to be stored in the array: ");
    scanf("%d",&n);
    printf("\nInput %d elements in the array :\n",n);
    for(i=0; i<n; i++)
    {
        printf("Element - %d : ",i);
        scanf("%d",&arr[i]);
    }
    printf("\nThe unique elements found in the array are: \n");
    for(i=0; i<n; i++)
    {
        ctr=0;
        for(j=0; j<n+1; j++)
        {
            /*Increment the counter when the search value is duplicate.*/
            if (i!=j)
            {
                if(arr[i]==arr[j])
                {
                    ctr++;
                }
            }
        }
        if(ctr==0)
        {
            printf("%d ",arr[i]);
        }
    }
    return 0;
}
```


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/*Problem-09: Write a program in C to separate odd and even integers in separate arrays.*/

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int arr1[10], arr2[10], arr3[10];
```

```
    int i,j=0,k=0,n;
```

```
    printf("Input the number of elements to be stored in the array :");
```

```
    scanf("%d",&n);
```

```
    printf("Input %d elements in the array :\n",n);
```

```
    for(i=0; i<n; i++)
```

```
    {
```

```
        printf("Element - %d : ",i);
```

```
        scanf("%d",&arr1[i]);
```

```
    }
```

```
    for(i=0; i<n; i++)
```

```
    {
```

```
        if (arr1[i]%2 == 0)
```

```
        {
```

```
            arr2[j] = arr1[i];
```

```
            j++;
```

```
        }
```

```
        else
```

```
        {
```

```
            arr3[k] = arr1[i];
```

```
            k++;
```

```
        }
```

```
    }
```

```
    printf("\nThe Even elements are : \n");
```

```
    for(i=0; i<j; i++)
```

```
    {
```

```
        printf("%d ",arr2[i]);
```

```
    }
```

```
    printf("\nThe Odd elements are : \n");
```

```
    for(i=0; i<k; i++)
```

```
    {
```

```
        printf("%d ", arr3[i]);
```

```
    }
```

```
    return 0;
```

```
}
```

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/*Problem-18: Write a program in C to display the n terms of odd natural numbers and their sum.*/

#include <stdio.h>

int main()

{

int i,n,sum=0;

printf("Input number of terms : ");

scanf("%d",&n);

printf("\nThe odd numbers are :");

for(i=1;i<=n;i++)

{

*printf("%d ",2*i-1);*

*sum+=2*i-1;*

}

printf("\nThe Sum of odd Natural Number upto %d terms : %d \n",n,sum);

return 0;

}

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/*Problem-19: Write a program in C to display the n terms of harmonic series and their sum.*/

```
#include <stdio.h>
int main()
{
    int i,n;
    float s=0.0;
    printf("Input the number of terms : ");
    scanf("%d",&n);
    printf("\n\n");
    for(i=1; i<=n; i++)
    {
        if(i<n)
        {
            printf("1/%d + ",i);
            s+=1/(float)i;
        }
        if(i==n)
        {
            printf("1/%d ",i);
            s+=1/(float)i;
        }
    }
    printf("\nSum of Series upto %d terms : %f \n",n,s);

    return 0;
}
```

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/*Problem-20:Write a C program to determine whether a given number is prime or not.*/

```
#include<stdio.h>
int main()
{
    int num,count=0,i;

    printf("Enter any positive number: ");
    scanf("%d",&num);

    for(i=2; i<num; i++)
    {

        if(num%i==0)
        {
            count++;
            break;
        }

    }

    if(count==0)
    {
        printf("It's a prime number.");
    }
    else
    {
        printf("It's not a prime number.");
    }

    return 0;
}
```

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/*Problem-21:Write a program in C to find the number and sum of all integers between 100 and 200 which are divisible by 9..*/

#include<stdio.h>

int main()

{

int i, sum=0;

printf("Numbers between 100 and 200, divisible by 9 : \n");

for(i=101; i<200; i++)

{

if(i%9==0)

{

printf("% 5d",i);

sum+=i;

}

}

printf("\n\nThe sum : %d \n",sum);

return 0;

}

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/*Problem-22: Write a program in C to find the sum of the series 1 +11 + 111 + 1111 + .. n terms*/

```
#include<stdio.h>
int main()
{
    int n,i;
    long sum=0;
    long int t=1;
    printf("Input the number of terms : ");
    scanf("%d",&n);
    for(i=1; i<=n; i++)
    {
        printf("%ld ",t);
        if (i<n)
        {
            printf("+ ");
        }
        sum=sum+t;
        t=(t*10)+1;
    }
    printf("\nThe Sum is : %ld\n",sum);

    return 0;
}
```

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/*Problem-23: Write the code to find the factorial of a number.*/

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int i,fact=1,number;
```

```
    printf("Enter a number: ");
```

```
    scanf("%d",&number);
```

```
    for(i=1; i<=number; i++)
```

```
    {
```

```
        fact=fact*i;
```

```
    }
```

```
    printf("Factorial of %d is: %d",number,fact);
```

```
    return 0;
```

```
}
```

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/*Problem-24: Enter a six digit number and print the number in reverse order and find the sum of its digits.*/

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int num,reverse,sum=0,remainder;
```

```
    printf("Enter a six digit number:");
```

```
    scanf("%d",&num);
```

```
    while(num!=0)
```

```
    {
```

```
        remainder=num%10;
```

```
        reverse=reverse*10+remainder;
```

```
        sum=sum+remainder;
```

```
        num=num/10;
```

```
    }
```

```
    printf("\nThe sum of its digits is=%d\n",sum);
```

```
    printf("Reverse of the number is=%d\n",reverse);
```

```
    return 0;
```

```
}
```


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***/*Problem-25: Write a menu driven program which has the following options-
i)Factorial ii) Prime or not iii) odd iv) Even v) Exit*/***

```
#include <stdio.h>
```

```
int main ()
```

```
{
```

```
int i=1,num,fact=1,count=0,choice;
```

```
printf("Enter an integer:\n");
```

```
scanf("%d",&num);
```

```
printf("\nOptions are as below:\n");
```

```
printf("(1)Factorial\t\t(2)Prime or not\t\t(3)Odd\t\t(4)Even\t\t(5)Exit\n");
```

```
printf("\nEnter your choice:\n");
```

```
scanf("%d",&choice);
```

```
switch(choice)
```

```
{
```

```
case 1:
```

```
for(i=1; i<=num; i++)
```

```
{
```

```
fact=fact*i;
```

```
}
```

```
printf("\nFactorial=%d.",fact);
```

```
break;
```

```
case 2:
```

```
for(i=2;i<num;i++)
```

```
{
```

```
if(num%i==0)
```

```
{
```

```
count++;
```

```
break;
```

```
}
```

```
}
```

```
if(count==0)
```

```

        {
            printf("\nPrime number.");
        }
    else
        {
            printf("\nNot prime number.");
        }
        break;

    case 3:
        if(num%2!=0)
        {
            printf("\nOdd.");
        }
        else
        {
            printf("\nNot odd.");
        }
        break;

    case 4:
        if(num%2==0)
        {
            printf("\nEven.");
        }
        else
        {
            printf("\nNot even.");
        }
        break;

    default:
        printf("\nExit\n");
}

return 0;
}

```
