**DAY-1 EXPERIMENTS:**

1)ARITHMETIC OPERATIONS

#include <stdio.h>

int main()

{

int num1, num2;

int sum, sub, mult, mod;

float div;

printf("Enter any two numbers: ");

scanf("%d%d", &num1, &num2);

sum = num1 + num2;

sub = num1 - num2;

mult = num1 \* num2;

div = (float)num1 / num2;

mod = num1 % num2;

printf("SUM = %d\n", sum);

printf("DIFFERENCE = %d\n", sub);

printf("PRODUCT = %d\n", mult);

printf("QUOTIENT = %f\n", div);

printf("MODULUS = %d", mod);

return 0;

}

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2)REVERSE NUMBERS

#include <stdio.h>

int main(){

int Num, rev\_Num = 0, remainder;

printf("Enter the number to reverse: ");

scanf("%d", &Num);

while (Num != 0){

remainder = Num % 10;

rev\_Num = rev\_Num \* 10 + remainder;

Num = Num/10;

}

printf("The reversed number is: %d", rev\_Num);

return 0;

}

--------------------------------------------------------------------------------------------------------------

3)FACTORIAL:

#include <stdio.h>

int main(){

int i,f=1,num;

printf("Input the number : ");

scanf("%d",&num);

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

f=f\*i;

printf("The Factorial of %d is: %d\n",num,f);

}

-----------------------------------------------------------------------

4)PERFECT NUMBER:

#include<stdio.h>

#include<conio.h>

void main()

{

int num, rem, sum = 0, i;

printf("Enter a number\n");

scanf("%d", &num);

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

{

rem = num % i;

if (rem == 0)

{

sum = sum + i;

}

}

if (sum == num)

printf(" %d is a Perfect Number");

else

printf("\n %d is not a Perfect Number");

getch();

}

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5)ELIGIBLE FOR VOTE:

#include<stdio.h>

int main()

{

int age;

printf("enter age:");

scanf("%d",&age);

if(age>=18){

printf("eligible to vote");

}

else{

printf("%d not eligigble ");

printf("%d years to wait ",18-age);

}

}

##################################################################################

6)EVEN OR ODD NUMBER:

#include <stdio.h>

int main() {

int num;

printf("Enter an integer: ");

scanf("%d", &num);

if(num % 2 == 0)

printf("%d is even.", num);

else

printf("%d is odd.", num);

return 0;

}

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7)P TO Q STATEMENT:

#include<stdio.h>

int main()

{

int p,q,r,i,c=0;

printf("Enter P :");

scanf("%d",&p);

printf("Enter Q :");

scanf("%d",&q);

printf("Enter R :");

scanf("%d",&r);

for(i=p;i<=q;i++)

{

if(c!=r)

{

printf("%d ",i);

c++;

}

else

{

c++;

continue;

}

}

return 0;

}

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8)MULTIPLICATION TABLE:

#include <stdio.h>

int main() {

int n, i, range;

printf("Enter m: ");

scanf("%d", &n);

do {

printf("Enter n: ");

scanf("%d", &range);

} while (range <= 0);

for (i = 1; i <= range; ++i) {

printf("%d \* %d = %d \n", n, i, n \* i);

}

return 0;

}

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9)LEAP YEAR:

#include <stdio.h>

int main() {

int year;

printf("Enter a year: ");

scanf("%d", &year);

if (year % 400 == 0) {

printf("%d is a leap year.", year);

}

else if (year % 100 == 0) {

printf("%d is not a leap year.", year);

}

else if (year % 4 == 0) {

printf("%d is a leap year.", year);

}

else {

printf("%d is not a leap year.", year);

}

return 0;

}

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10)SUM OF DIGITS:

#include <stdio.h>

int main()

{

int n, t, sum = 0, remainder;

printf("Enter an integer\n");

scanf("%d", &n);

t = n;

while (t != 0)

{

remainder = t % 10;

sum = sum + remainder;

t = t / 10;

}

printf("Sum of digits of %d = %d\n", n, sum);

return 0;

}

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11)PERMUTATION:

#include <stdio.h>

#include <string.h>

void swap(char \*x, char \*y)

{

char temp;

temp = \*x;

\*x = \*y;

\*y = temp;

}

void permute(char \*a, int l, int r)

{

int i;

if (l == r)

printf("%s\n", a);

else

{

for (i = l; i <= r; i++)

{

swap((a + l), (a + i));

permute(a, l + 1, r);

swap((a + l), (a + i));

}

}

}

int main()

{

char str[] = "ABC";

int n = strlen(str);

permute(str, 0, n-1);

return 0;

}

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12)SIMPLE INTEREST:

#include <stdio.h>

int main()

{

float principle, rate, sinterest;

int time;

printf("Enter Principle Amount, Rate %% per Annum and Time\n");

scanf ("%f %f %d", &principle, &rate, &time);

sinterest = (principle \* rate \* time)/ 100.0;

printf ("Principle Amount = %5.2f\n", principle);

printf ("Rate %% per Annum = %5.2f%\n", rate);

printf ("Time = %d years\n", time);

printf ("Simple Interest = %5.2f\n", sinterest);

}

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13)ARMSTRONG NUMBER:

#include <stdio.h>

int main()

{

int i, originalNum, num, lastDigit, sum;

long fact;

printf("Enter any number to check Strong number: ");

scanf("%d", &num);

originalNum = num;

sum = 0;

while(num > 0)

{

lastDigit = num % 10;

fact = 1;

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

{

fact = fact \* i;

}

sum = sum + fact;

num = num / 10;

}

if(sum == originalNum)

{

printf("%d is STRONG NUMBER", originalNum);

}

else

{

printf("%d is NOT STRONG NUMBER", originalNum);

}

return 0;

}

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14)NTH PRIME NUMBER:

#include <stdio.h>

#include<math.h>

int

main ()

{

int rangenumber, c = 0, num = 2, i, letest = 0;

printf ("Enter Nth Number\n");

scanf ("%d", &rangenumber);

while (c != rangenumber)

{

int count = 0;

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

{

if (num % i == 0)

{

count++;

break;

}

}

if (count == 0)

{

c++;

letest = num;

}

num = num + 1;

}

printf ("%dth prime number is %d ",rangenumber,letest);

return 0;

}

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15)PYTHAGEROAN:

#include<stdio.h>

main(){

int initial,final,a,b,c,m,n;

printf("Enter the range in which you want to search for Pythagorean Triplets:\nInitial: ");

scanf("%d",&initial);

printf("\nFinal: ");

scanf("%d",&final);

printf("The Pythogorean Triplets in the given range are as follows:\n\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

for(m=initial;m<=final;m++){

for(n=initial;n<=final;n++){

a=m\*m-n\*n;

b=2\*m\*n;

c=m\*m+n\*n;

if(a<=final&&b<=final&&c<=final&&a>=initial&&b>=initial&&c>=initial){

printf("%d , %d , %d\n",a,b,c);

}

}

}

}

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**DAY 2 EXPERIMENTS**

1)COMPOSITE NUMBER:

#include<stdio.h>

int main (){

int i,n,a[100],count=0;

printf("enter size:");

scanf("%d",&n);

printf("enter elements\n");

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

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

}

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

if(a[i]==2){

continue;

}

else if(a[i]%2==0){

count++;

}

}

if(count>2){

}

printf("total composite number are: %d",count);

}

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2)NEGATIVE NUMBERS IN AN ARRAY

#include<stdio.h>

int main()

{

int Size, i, a[10];

printf("\n Please Enter the Size of an Array : ");

scanf("%d", &Size);

printf("\n Please Enter the Array Elements : ");

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

{

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

}

printf("\n List of Negative Numbers in this Array : ");

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

{

if(a[i] < 0)

{

printf("%d ", a[i]);

}

}

return 0;

}

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3)REVERSE AN ARRAY

#include <stdio.h>

int main()

{

int arr[] = {1, 2, 3, 4, 5};

int length = sizeof(arr)/sizeof(arr[0]);

printf("Original array: \n");

for (int i = 0; i < length; i++) {

printf("%d ", arr[i]);

}

printf("\n");

printf("Array in reverse order: \n");

for (int i = length-1; i >= 0; i--) {

printf("%d ", arr[i]);

}

return 0;

}

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4)TRANSPOSE MATRIX

#include <stdio.h>

#define N 4

void transpose(int A[][N], int B[][N])

{

int i, j;

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

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

B[i][j] = A[j][i];

}

int main()

{

int A[N][N] = { { 1, 1, 1, 1 },

{ 2, 2, 2, 2 },

{ 3, 3, 3, 3 },

{ 4, 4, 4, 4 } };

int B[N][N], i, j;

transpose(A, B);

printf("Result matrix is \n");

for (i = 0; i < N; i++) {

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

printf("%d ", B[i][j]);

printf("\n");

}

return 0;

}

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5)REMOVE DUPLICATES

#include <stdio.h>

int removeDuplicates(int arr[], int n)

{

if (n == 0 || n == 1)

return n;

int temp[n];

int j = 0;

for (int i = 0; i < n - 1; i++)

if (arr[i] != arr[i + 1])

temp[j++] = arr[i];

temp[j++] = arr[n - 1];

// Modify original array

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

arr[i] = temp[i];

return j;

}

int main()

{

int arr[] = { 1, 2, 2, 3, 4, 4, 4, 5, 5 };

int n = sizeof(arr) / sizeof(arr[0]);

n = removeDuplicates(arr, n);

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

printf("%d ", arr[i]);

return 0;

}

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6)DIAGONAL MATRIX

#include <stdio.h>

const int M = 4;

const int N = 4;

void printDiagonalSums(int mat[M][N])

{

int principal = 0, secondary = 0;

for (int i = 0; i < M; i++)

{

for (int j = 0; j < N; j++)

{

if (i == j)

principal += mat[i][j];

if ((i + j) == (N - 1))

secondary += mat[i][j];

}

}

printf("%s", "Principal Diagonal:");

printf("%d\n", principal);

printf("%s", "Secondary Diagonal:");

printf("%d\n", secondary);

}

int main()

{

int a[][4] = {{1, 2, 3, 4},

{5, 6, 7, 8},

{1, 2, 3, 4},

{5, 6, 7, 8}};

printDiagonalSums(a);

return 0;

}

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7)MINIMUM AND MAXIMUM

#include <stdio.h>

#include <conio.h>

int main()

{

int a[1000],i,n,min,max;

printf("Enter size of the array : ");

scanf("%d",&n);

printf("Enter elements in array : ");

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

{

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

}

min=max=a[0];

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

{

if(min>a[i])

min=a[i];

if(max<a[i])

max=a[i];

}

printf("minimum of array is : %d",min);

printf("\nmaximum of array is : %d",max);

return 0;

}

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8)NTH MAX & NTH MIN

#include <stdio.h>

int main()

{

int arr1[100];

int i, mx, mn, n;

printf("\n\nFind maximum and minimum element in an array :\n");

printf("--------------------------------------------------\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]);

}

mx = arr1[0];

mn = arr1[0];

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

{

if(arr1[i]>mx)

{

mx = arr1[i];

}

if(arr1[i]<mn)

{

mn = arr1[i];

}

}

printf("Maximum element is : %d\n", mx);

printf("Minimum element is : %d\n\n", mn);

}

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9)BINARY SEARCH

#include<stdio.h>

int main()

{

int c, first, last, middle, n, search, array[100];

printf("Enter number of elements\n");

scanf("%d",&n);

printf("Enter %d integers\n", n);

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

scanf("%d",&array[c]);

printf("Enter value to find\n");

scanf("%d",&search);

first = 0;

last = n - 1;

middle = (first+last)/2;

while( first <= last )

{

if ( array[middle] < search )

first = middle + 1;

else if ( array[middle] == search )

{

printf("%d found at location %d.\n", search, middle+1);

break;

}

else

last = middle - 1;

middle = (first + last)/2;

}

if ( first > last )

printf("Not found! %d is not present in the list.\n", search);

return 0;

}

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**DAY 3 EXPERIMENTS**

1)ADD TWO NUMBERS USING POINTERS

#include <stdio.h>

int main()

{

int a,b;

int \*p,\*q;

scanf("%d%d",&a,&b);

printf("%d\n",a+b);

p=&a;

q=&b;

printf("%d",\*p+\*q);

}

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2)BIG OF TWO NUMBERS USING POINTERS

#include <stdio.h>

int main()

{

int a,b,big;

int \*p,\*q;

scanf("%d%d",&a,&b);

p=&a;

q=&b;

if(\*p>\*q)

big=\*p;

else

big=\*q;

printf("BIG=%d",big);

}

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3)LARGEST NUM IN ARRAY USING DMALLOC

#include<stdio.h>

#include<stdlib.h>

int main()

{

int i, num;

float \*data;

printf("Enter total number of elements(1 to 100): ");

scanf("%d",&num);

data=(float\*)calloc(num,sizeof(float));

if(data==NULL)

{

printf("Error! Memory not Allocated.");

exit(0);

}

printf("\n");

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

{

printf("Enter element %d:",i+1);

scanf("%f",data+i);

}

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

{

if( \*data < \*(data+i))

\*data = \*(data+i);

}

printf("Largest Element = %.2f",\*data);

return 0;

}

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4)LENGTH OF STRING

#include<stdio.h>

#include<conio.h>

int string\_ln(char\*);

int main() {

char str[20];

int length;

printf("\nEnter any string : ");

gets(str);

length = string\_ln(str);

printf("The length of the given string %s is : %d", str, length);

getch();

}

int string\_ln(char\*p)

{

int count = 0;

while (\*p != '\0') {

count++;

p++;

}

return count;

}

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5)ADD WITH CALL BY REFERENCE

#include <stdio.h>

long addTwoNumbers(long \*, long \*);

int main()

{

long fno, sno, sum;

printf("\n\n Pointer : Add two numbers using call by reference:\n");

printf("-------------------------------------------------------\n");

printf(" Input the first number : ");

scanf("%ld", &fno);

printf(" Input the second number : ");

scanf("%ld", &sno);

sum = addTwoNumbers(&fno, &sno);

printf(" The sum of %ld and %ld is %ld\n\n", fno, sno, sum);

return 0;

}

long addTwoNumbers(long \*n1, long \*n2)

{

long sum;

sum = \*n1 + \*n2;

return sum;

}

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6)STORE & RETRIEVE IN ARRAY

#include <stdio.h>

int main()

{

int arr1[25], i,n;

printf("\n\n Pointer : Store and retrieve elements from an array :\n");

printf("------------------------------------------------------------\n");

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

scanf("%d",&n);

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

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

{

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

scanf("%d",arr1+i);

}

printf(" The elements you entered are : \n");

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

{

printf(" element - %d : %d \n",i,\*(arr1+i));

}

return 0;

}

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7)SWAP

#include <stdio.h>

void swapNumbers(int \*x,int \*y,int \*z);

int main()

{

int e1,e2,e3;

printf("\n\n Pointer : Swap elements using call by reference :\n");

printf("------------------------------------------------------\n");

printf(" Input the value of 1st element : ");

scanf("%d",&e1);

printf(" Input the value of 2nd element : ");

scanf("%d",&e2);

printf(" Input the value of 3rd element : ");

scanf("%d",&e3);

printf("\n The value before swapping are :\n");

printf(" element 1 = %d\n element 2 = %d\n element 3 = %d\n",e1,e2,e3);

swapNumbers(&e1,&e2,&e3);

printf("\n The value after swapping are :\n");

printf(" element 1 = %d\n element 2 = %d\n element 3 = %d\n\n",e1,e2,e3);

return 0;

}

void swapNumbers(int \*x,int \*y,int \*z)

{

int tmp;

tmp=\*y;

\*y=\*x;

\*x=\*z;

\*z=tmp;

}

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8)FACTORIAL USING POINTERS

# include<stdio.h>

int main( )

{

int num, fact=1 ;

int \*pn, \*pf ;

printf(" Enter any Number : ") ;

scanf("%d ",& num) ;

pn = & num ;

pf = & fact ;

do

{

\*pf = ( \*pf ) \* ( \*pn ) ;

\*pn = \*pn - 1 ;

}while( \*pn > 0) ;

printf("\n Factorial of entred number is : %d ",\*pf) ;

return ( 0 );

}

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9)STUDENT GRADE

#include<stdio.h>

void main()

{

int marks;

printf("Enter your marks ");

scanf("%d",&marks);

if(marks<0 || marks>100)

{

printf("Wrong Entry");

}

else if(marks<50)

{

printf("Grade F");

}

else if(marks>=50 && marks<60)

{

printf("Grade D");

}

else if(marks>=60 && marks<70)

{

printf("Grade C");

}

else if(marks>=70 && marks<80)

{

printf("Grade B");

}

else if(marks>=80 && marks<90)

{

printf("Grade A");

}

else

{

printf("Grade A+");

}

}