EXPERIMENT-1

AIM OF THE EXPERIMENT

Write a program to read a 3×3 matrix & print it.

```
#include<stdio.h>
Void main()
{
Intarr1[3][3],i,j;
Printf("\n\n read a 2d array of size 3×3 and print the matrix :\n")
Printf ("----------\n");
\n* stored values into the array*\
Printf("input elements in the matrix:\n");
For(i=0;i<3;i++)
{
For(j=0;j<3;j++)
{
Printf ("element-[%d],[%d]:",I,j);
Scanf("%d",& arr1[i][j]);
}
}
Printf("\n the matrix is :\n");
For(i=0;i<3;i++)
{
Printf("\n";
For(j=0;j<3;j++)
Printf("%d\t",arr1[i][j]);
}
Printf("\n\n);
}
```

Output:-

```
    Input element in the matrix:
element-[0],[0]:1
element - [0],[1]:2
element - [0],[2]:3
element - [1],[0]:4
element - [1],[1]:5
element - [1],[2]:6
element - [2],[0]:7
element - [2],[1]:8
element - [2],[2]:9

    The matrix is
    1    2    3
    4    5    6
    7    8    9
```

EXPERIMENT-2

AIM OF THE EXPERIMENT

Write a program to add two 3*3 matrix.

```
#include<stdio.h>
#include<conio.h>
Void main ()
{
int a [3][3],b[3][3],c[3][3],I,j;
Clrscr();
Printf("Enter elements of 1st matrix:");
For(i=0;i<3;i++)
{
For(j=0;j<3;j++)
Scarf("%d",&a[i] [j]);
}
Printf("Enter elements of 2nd matrix:" );
For (i=0;i<3;i++)
{
For(j=0;j<3;j++)
Scanf("%d",&b[i][j]);
}
For (i=0;i<3;i++)
{
For (j=0;j<3;J++)
C[i][j]=a[i][j]+b[i][j];
}
Print ("The new matrix :\n");
For(i=0;i<3;i++)
{
For (j=0;j<3;j++)
Printf ("%d",c[i][j]);
Printf ("\n");
}
Getch();
}
```

I/P-:

```
1   2   3
4   5   6
7   8   9
```

O/P-:

```
2   4   6
8   10   12
14   16   18
```

EXPERIMENT-3

AIM OF THE EXPERIMENT

WAP TO PRINT THE TRANSPOSE OF THE MATRIX:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[3][3],i,j,r,c,t[3][3];
printf("enter row");
scanf("%d",&r);
printf("enter column");
scanf("%d",&c);
printf("enter elements");
for(i=0;i<r;i++)
   {
for(j=0;j<c;j++)
scanf("%d",&a[i][j]);
   }
for(i=0;i<r;i++)
   {
for(j=0;j<c;j++)
t[i][j]=a[i][j];
   }
printf("transpose matrix:");
for(i=0;i<r;i++)
   {
for(j=0;j<r;j++)
printf("%d",t[i][j]);
printf("\n");
   }
}
```

I/P:-

```
enter row:3
enter column:-3
enter elements:-
1       2       3
4       5       6
7       8       9
```

O/P:-

```
1       4       7
2       5       8
3       6       9
```

EXPERIMENT-4

AIM OF THE EXPERIMENT

WAP to delete the elemenet at location 4:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10],i,pos;
printf("enter the elements");
for(i=0;i<10;i++)
scanf("%d",&a[i]);
printf("enter the position of element to deleted");
scanf("%d",&pos);
for(i=pos;i<9;i++)
a[i]=a[i+1];
printf("final array");
for(i=0;i<9;i++)
printf("%d\n",a[i]);
}
```

I/P:-

```
2
6
7
8
9
6
1
3
5
10
```

O/P:-final array

```
2
6
7
8
6
1
3
5
10
```

EXPERIMENT-5

AIM OF THE EXPERIMENT

WAP to enter your name & print it:-

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char name[20];
clrscr();
gets(name);
puts(name);
getch();
}
```

I/P:-SubhasmitaParida

O/P:- Subhasmita Parida

EXPERIMENT-6

AIM OF THE EXPERIMENT

WAP to find the length of your name:-

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char name[20];
int l;
clrscr();
gets(name);
puts(name);
   l=Strln(name);
put(l);
getch();
}
```

I/P Subhasmita

O/P 10

EXPERIMENT-7

AIM OF THE EXPERIMENT

Write a program to point the reverse of a string:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
char name[10]="computer";
intn,l;
   n=Strln(name);
for(i=n;i>=0;i--)
printf("%c",name[i]);
getch();
}
```

O/P:- retupmoc

EXPERIMENT-8

AIM OF THE EXPERIMENT

Write a program to sort 5 sting.

```
#include<stdio.h>
#include<string.h>
#include<conio.h>
Void main
{
IntI,j,count;
Char str[10][10], temp[10]
Clrscr();
Puts(“how many strings you are going to enter”);
Scanf(“%d”,& count):
Puts(“enter string one by one; “):
For(i=0:i<=count,i++)
Gets(str[i]);
For(i=0;i<=count;i++)
For(j=i+1;j<+count;i++)
{
If (strcmp (str[i],str[j]>0)
{
Strcpy(temp,str[i]);
Strcpy(str[i],str[j]);
Strcpy(str[j],temp);
}}
Printf(“order sorted strings:”);
For(i=0;i<=count;i++)
Puts(str[i])
```

```
Getch();
}
```

I/P – how many string you are going to enter:5
Enter string one by one :
Graph
Tree
Linked list
Queue
Stack

O/P- order sorted string:
Graph
Linked list
Queue
Stack
Tree

EXPERIMENT-9

AIM OF THE EXPERIMENT

write a program to get the first name from your name

```
#include <stdio.h>
#include<string.h>
Void main()
{
Char str[30],sub[30];
Intposition,length,c=0;
Printf("Enter the position & length of substring")
Scanf("%d%d",&position ,& length);
While(c<length)
{
Sub[c]=str [position+c-1];
C++;
}
Sub[c]=\0';
Printf ("Required substring is %s",sub);
}
```

I/P-Enter your name: subhasmitaparida Enter the position & length of substring :0,10
O/P-Required substring is subhasmita

EXPERIMENT-10

AIM OF THE EXPERIMENT

Wap to enter 2 string ,concatenate& find the new one.

```
#include<stdio.h>
{
Char S1 [12]="Hello"
```

```
Char S2 [12]=”World”
Char S3 [12];
Strcpy (S3,S1)
Printf(“%S”,s3);
Printf(“%s”,Strcat (S1,S2)
}
```

O/P-Hello
Helloworld

EXPERIMENT-11

AIM OF THE EXPERIMENT

Write a program to insert an element 100 at location 3 in an array of 5 element.

```
#include<stdio.h>
#include<conio.h>
Void main()
{
Int[5],I,pos,value=100;
Printf(“Enter elements:”);
For(i=0: i<5,i++)
Scanf(“%d”,a[i]);
Printf(Enter position:”);
For(i=4; i>=pos-1; i--)
a[i+1]=a[i];
a[pos-1]=value;
printf(“Final array is:”);
for(i=0; i<=5: i++)
pintf(“%d”,a[i]);
}
```

I/P Enter elements
2

4

25

20

12
Enter position :3
o/p
2
4
25
100
20
12

EXPERIMENT-12

AIM OF THE EXPERIMENT

Write a program to operate push, pop, show, operation of a stack.

```
#include<stdio.h>
Intstack[100], i, choice=0, n, top=1;
Void push();
Void pop();
Void show();
Void main();
{
Printf (“Enter the no. of elements in the stack”);
Scanf (“%d”,&n);
Printf (“Stack operation : \n”);
While (choice!=5)
{
Printf (“Choose one from the below options : \n”);
Printf (“\n1 . Push \n2. Pop \n3. Show \n4.End”);
Printf (“\n Enter your choice \n”);
Scanf (“%d”, &choice);
Switch (choice);
{
Case 1:
{
Push();
Break;
}
Case 2:
{
Pop();
Break;
}
Case 3:
{
Show();
Break;
}
Case 4:
{
Printf (“exiting”);
Break;
}
default:
{
Printf (“ Please enter valid choice”);
}
};
}}
Void push()
{
Intval;
If (top==n)
Printf (“\n OVERFLOW “);
Else
```

```
{
Printf (“ Enter the value :”);
Scanf (“%d” ,&val);
top=top+1;
stack[top]=val;
}}
Void pop()
{
If(top==-1)
Printf (“UNDEFLOW”);
Else
top--;
}
Void show()
{
For (i=top; i>=0; i--)
Printf (“%d \n”, stack [i]);
If(top== -1)
Printf(“stack is empty”);
}
O/P- Enter the no of elements on the stack :5
Stack operations:
Choose one from the below options:
1.Push
2.Pop
3.Show
4.End
Enter your choice: 2
UNDERFLOW
Enter your choice: 5
Please enter valid choice
Enter your choice: 1
Enter your choice: 6
Enter your choice: 1
Enter your choice: 3
Enter your choice: 1
Enter your choice: 4
Enter your choice: 1
Enter your choice: 8
Enter your choice: 1
Enter your choice: 5
Enter your choice: 1
OVERFLOW
Enter your choice : 3
5
8
4
3
6
Enter your choice: 4
```

Exiting

EXPERIMENT-13

AIM OF THE EXPERIMENT

WAP to find the LCM of 2 nos using recursion

```
#include <stdio.h>
int lcm (int a,int b)
Void main()
{
int a,b, result;
Printf("Enter two number: ");
scanf("%d%d",&a,&b);
result=lcm(a,b);
printf("The LCM of %d & %d is %d",a,b,result);
}
int lcm (inta,int b)
{
Static int common=1;
If(common%a==0&& common %b==0)
{
return common;
}
Common++;
Return lcm(a, b);
}
```

I/P Enter two nos : 15

O/P:-
The LCM of 5 & 15 is 15

EXPERIMENT-14

AIM OF THE EXPERIMENT

WAP Print first 50 natural numbers using recursion.

```
#include <stidio.h>
Intnumprint (int n);
Void main ()
{
Int n=1;
Printf("the natural numbers are :");
numprint(n);
Printf("\n");
}
Intnumprint (int n)
{
If(n<=50)
{
Printf("%d",n);
numprint (n+1);
}
}
```

output:-
the natural numbers are :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

EXPERIMENT-15

AIM OF THE EXPERIMENT

WAP to print Reverse a sentence using stack.

```
# include <stdio.h>
# include <string.h>
# define size 100
int top= -1;
Char stack [size];
Void push (char ch)
{
If (top==(size-1))
Printf (“OVERFLOW”);
else
Stack [++top]=ch;
}
Void pop ()
{
If (top== -1)
Printf (“UNDERFLOW”);
else
printf (“%c”, Stack [top -1]);
}
Void main ()
{
Char str [20];
Inti,n;
Printf (“Enter the string:”);
Gets(str);
n=strlen (str);
for (i=0; i<n; i++)
{
Push (str[i]);
}
Printf (“Reverse string is:”);
For (i=0; i<n; i++)
{
Pop ();
 }
}
```

O/P- Enter a string :
This is a stack.
Reverse string :kcats a is sihT

EXPERIMENT-16

AIM OF THE EXPERIMENT

WAP to find the factorial of a given no using recursion.

```
#include <stdio.h>
longint fact (int n);
void main()
{
Int n;
printf (“enter number:”);
scanf (“%d”,&n);
printf (“factorial is %d”, fact(n));
}
longintfact (int n)
{
if (n==1)
return 1;
else return n*fact (n-1);
}
```

I/P- enter numer : 5

O/P- factorial is : 120

EXPERIMENT-17

AIM OF THE EXPERIMENT

WAP to find the Fibonacci series using recursion.

```
#include <stdio.h>
intfibonacci (int n)
{
if (n==0)
{
return 0;
}
else if (n==1)
{
return 1; }
else
{
return (Fibonacci(n-1)+Fibonacci(n-2));
}}
Void main()
{
int n, i;
Printf(“Enter no of terms :”);
Scanf(“%d”, &n);
Printf(“Fibonacci of %d”, n);
For (i=0; i<n; i++)
{
Printf(“%d”,Fibonacci(i));
}
}
```

O/P-Enter no of term:5

Fibonacci of 5: 01123

EXPERIMENT-18

AIM OF THE EXPERIMENT

Write a program to operate insertion deletion, display operation of an queue.

```
#include <stdio.h>
int queue [100], front = -1, rear =1,n,i, choice = 0;
voidqInsert();
voidqDelete();
void display();
void main()
{
printf ("Enter the size of queue:");
scanf ("%d", &n);
printf ("Queue Operations: ");
while (choice!=0)
{
printf ("Choose one Option:");
printf ("\n1. Qinsert \n2.Qdelete \n3. display\n4. Exit \n");
printf ("Enter choice:");
scanf ("%d", & choice);
switch(choice)
{
case 1:
qInsert ();
break;
case 2:
qDelete ;
break;
case 3:
display();
break;
case 4:

printf ("Exiting");
break;
default:
printf ("Plz enter valid choice ");
}
}
}
voidqInsert()
{
int value;
if (rear ==n-1)
printf ("Overflow");
else
{
printf ("Enter value:");
scanf ("%d", & value);
if (front ==-1)
front= 0;
rear++;
queue[rear] = value;
}
}
voidqDelete()
```

```
{
if (front ==-1)

printf ("Underflow");
else
front++;
if (front >rear)
front= rear = -1;
}
void display()
{
if (rear ==-1)
printf ("Underflow");
else
{
for (i=front; i<=rear; i++)
printf ("%d", quere [i]);
}
printf ("\n");
return 0;
}
```

```
O/P-Enter the size of queue:5
Queue Operations:
Choose one Option:
1. Qinsert
2.Qdelete
3. Display
 4. Exit
Enter your choice:2
Underflow
Enter your Choice:5
Plz enter valid choice
Enter your choice: 1
Enter Value: 4
Enter your choice: 1
Enter Value: 3
Enter your chote:1
Enter value: 2
Enter your Choice: 1
Enter value: 1
Enter your choice :1
Enter Value:5
Enter your choice : 1
overflow
Enter your Choice:2
Enter your choice: 3

3
2
1
5
```

EXPERIMENT-19

AIM OF THE EXPERIMENT

WAP to find a number in a list using sequential search.

```
#include<stdio.h>
#include<conio.h>
Void main()
{
int a[10],i,n,s;
printf("Enter no. of element:");
scanf("%d",&n);
printf("Enter elements:");
for(i=0;i<n;i++)
scanf("%d",& a[i]);
printf("Enter the element to search:");
scanf("%d",&s);
for(i=o;i<n;i++)
if(a[i]==s)
break;
if(i<n)
printf("Element found at location %d",i);
else
printf("Element not found");
}
```

I/P- Enter no. of elements :10
Enter elements :
5
1
15
20
25
30
35
40
45
50
Enter element to be search: 45
O/P –Element found at location 9.

EXPERIMENT-20

AIM OF THE EXPERIMENT

WAP to find a number in a list using binary search.

```
#include<stdio.h>
Void main()
{
int a[10],i, n, low, high, mid, key;
printf("Enter no. of element:");
scanf(%d", n);
printf(Enter elements:");
for (i=0; i<n; i++);
scanf("%d", & a[a]);
```

```
printf(“Enter value to find”);
scanf(“%d”,& hey);
low =0;
high =n-1;
mid =(low+high)/2;
while (low<=high)
{
  If (a[mid]<key)
Low+ mid+1;
Else if (a[mid] == key)
{
Printf (“%d” found at location %d”,key,mid);
Break;
}
Else
Low= mid+1;
Mid= (low+high) /2;
}
If(low>high)
Printf(“Not found”);
}
```

I/P- Enter no of element : 10
Enter elements:
2
4
6
8
10
12
14
16
18
20
Enter value to find : 14
O/P- 14 found at location 6.

EXPERIMENT-21

AIM OF THE EXPERIMENT

WAP to sort the list using Bubble sort.

```
#include<stdio.h>
Void bubblesort(int a[ ],int n)
{
Intpass,comp,temp;
for(pass=0;pass<n-1;pass++)
{
for(comp=0;comp<n-pass-1;comp++)
{
If(a[comp]>a[comp+1];
{
temp=a[comp];
a[comp]=a[comp+1];
a[comp+1]=temp;
}
```

```
}
}
}
void print (int a[ ],int n)
{
Int i;
For(i=0;i<n;i++)
printf(“%4d”,a[i]);
printf(“\n”);
}
Void main()
{
Intdata[ ]={-1,4,0,-2,9};
Int n = sizedof (data)/sizedof(data[0])
Bubblesort(data,n);
Printf(“sorted array:”);
Print(data,n);
}
o/p:sorted array:-2,-1,0,4,9
```