PROGRAM NUMBER :3

AIM:

Write a C program to simulate the following file allocation strategies.

a) Sequential

b) Indexed

c) Linked

PROGRAM

a) Sequential

```
ng@ng-TravelMate-5742:~/system$ cat sequential.c
#include<stdio.h>
#include <stdlib.h>
void main()
{
int f[50], i, st, len, j, c, k, count = 0;
for(i=0;i<50;i++)
f[i]=0;
printf("Files Allocated are : \n");
x: count=0;
printf("Enter starting block and length of files: ");
scanf("%d%d", &st,&len);
for(k=st;k<(st+len);k++)
if(f[k]==0)
count++;
if(len==count)
{
for(j=st;j<(st+len);j++)
if(f[j]==0)
{
f[j]=1;
printf("%d\t%d\n",j,f[j]);
}
if(j!=(st+len-1))
printf("The file is allocated to disk\n");
}
else
printf("The file is not allocated \n");
printf("Do you want to enter more file(Yes - 1/No - 0)");
scanf("%d", &c);
if(c==1)
  goto x;
else
  exit(0);
}

ng@ng-TravelMate-5742:~/system$
```

OUTPUT

```
ng@ng-TravelMate-5742:~/system$ gcc sequential.c
ng@ng-TravelMate-5742:~/system$ ./a.out
Files Allocated are :
Enter starting block and length of files: 14   3
14      1
15      1
16      1
The file is allocated to disk
Do you want to enter more file(Yes - 1/No - 0)1
Enter starting block and length of files: 14   4
The file is not allocated
Do you want to enter more file(Yes - 1/No - 0)1
Enter starting block and length of files: 14  1
The file is not allocated
Do you want to enter more file(Yes - 1/No - 0)0
ng@ng-TravelMate-5742:~/system$
```

PROGRAM

b) Indexed

```
ng@ng-TravelMate-5742:~/system$ cat indexed.c
#include<stdio.h>
#include<stdlib.h>
void main()
{
int f[50], index[50],i, n, st, len, j, c, k, ind,count=0;
for(i=0;i<50;i++)
f[i]=0;
x:printf("Enter the index block: ");
scanf("%d",&ind);
if(f[ind]!=1)
{
printf("Enter no of blocks needed and no of files for the index %d on the d
scanf("%d",&n);
}
else
{
printf("%d index is already allocated \n",ind);
goto x;
}
y: count=0;
for(i=0;i<n;i++)
{
scanf("%d", &index[i]);
if(f[index[i]]==0)
count++;
}
if(count==n)
```

```
{
for(j=0;j<n;j++)
f[index[j]]=1;
printf("Allocated\n");
printf("File Indexed\n");
for(k=0;k<n;k++)
printf("%d-------->%d : %d\n",ind,index[k],f[index[k]]);
}
else
{
printf("File in the index is already allocated \n");
printf("Enter another file indexed");
goto y;
}
printf("Do you want to enter more file(Yes - 1/No - 0)");
scanf("%d", &c);
if(c==1)
goto x;
else
exit(0);
}
ng@ng-TravelMate-5742:~/system$
```

OUTPUT

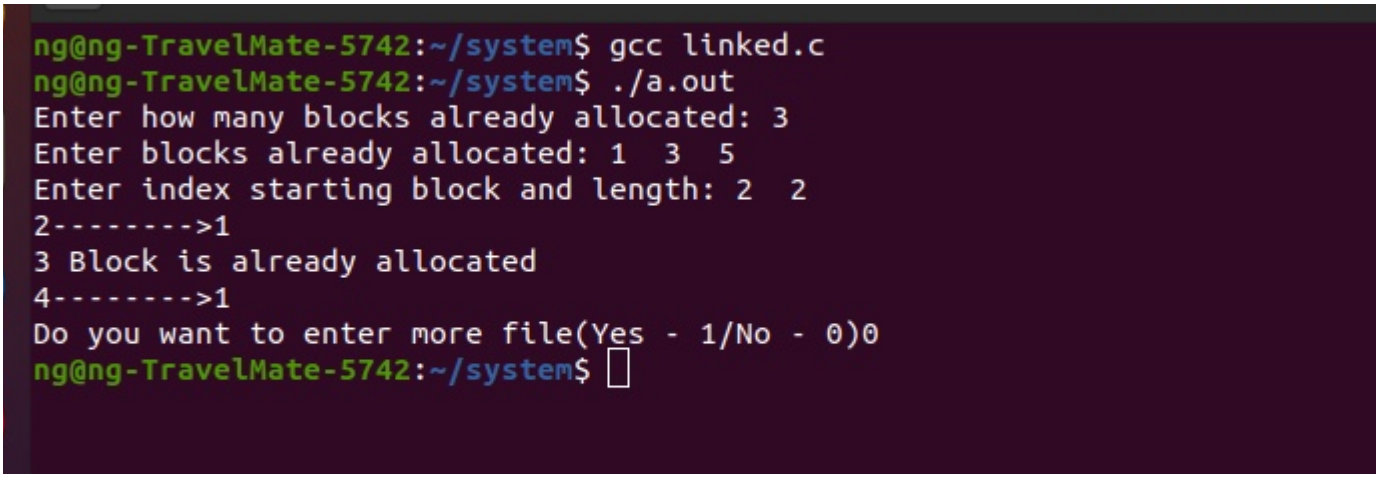
```
ng@ng-TravelMate-5742:~/system$ gcc indexed.c
ng@ng-TravelMate-5742:~/system$ ./a.out
Enter the index block: 5
Enter no of blocks needed and no of files for the index 5 on the disk :
4
1   2    3    4
Allocated
File Indexed
5-------->1 : 1
5-------->2 : 1
5-------->3 : 1
5-------->4 : 1
Do you want to enter more file(Yes - 1/No - 0)1
Enter the index block: 4
4 index is already allocated
Enter the index block: 6
Enter no of blocks needed and no of files for the index 6 on the disk :
2
7  8
Allocated
File Indexed
6-------->7 : 1
6-------->8 : 1
Do you want to enter more file(Yes - 1/No - 0)0
ng@ng-TravelMate-5742:~/system$
```

PROGRAM

c) Linked

```
ng@ng-TravelMate-5742:~/system$ cat linked.c
#include<stdio.h>
#include<stdlib.h>
void main()
{
int f[50], p,i, st, len, j, c, k, a;
for(i=0;i<50;i++)
f[i]=0;
printf("Enter how many blocks already allocated: ");
scanf("%d",&p);
printf("Enter blocks already allocated: ");
for(i=0;i<p;i++)
{
scanf("%d",&a);
f[a]=1;
}
x: printf("Enter index starting block and length: ");
scanf("%d%d", &st,&len);
k=len;
if(f[st]==0)
{
for(j=st;j<(st+k);j++)
{
if(f[j]==0)
{
f[j]=1;
printf("%d-------->%d\n",j,f[j]);
}
else
{
printf("%d Block is already allocated \n",j);
k++;
}
}
}
else
printf("%d starting block is already allocated \n",st);
printf("Do you want to enter more file(Yes - 1/No - 0)");
scanf("%d", &c);
if(c==1)
goto x;
else
exit(0);
}
ng@ng-TravelMate-5742:~/system$
```

OUTPUT



RESULT

Program is executed successfully and output is obtained.

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