WEEK 8

Write a C program to simulate the following contiguous memory allocation techniques

a) Worst-fit

b) Best-fit

c) First-fit

a) Worst-fit

CODE:

```
#include<stdio.h>
#include<conio.h>
#define max 25
void main()
{
int frag[max],b[max],f[max],i,j,nb,nf,temp,highest=0;
static int bf[max],ff[max];
printf("\n\tMemory Management Scheme - Worst Fit");
printf("\nEnter the number of blocks:");
scanf("%d",&nb);
printf("Enter the number of files:");
scanf("%d",&nf);
printf("\nEnter the size of the blocks:-\n");
for(i=1;i<=nb;i++)
{
        printf("Block %d:",i);
        scanf("%d",&b[i]);
}
printf("Enter the size of the files :-\n");
for(i=1;i<=nf;i++)
{
        printf("File %d:",i);
        scanf("%d",&f[i]);
}
for(i=1;i<=nf;i++)
{
```

```
        for(j=1;j<=nb;j++){
                if(bf[j]!=1) {
                        temp=b[j]-f[i];
                        if(temp>=0)
                        if(highest<temp){
                                ff[i]=j;
                                highest=temp;
                        }
                }
        }
        frag[i]=highest;
        bf[ff[i]]=1;
        highest=0;
}
printf("\nFile_no:\tFile_size :\tBlock_no:\tBlock_size:\tFragement");
for(i=1;i<=nf;i++)
printf("\n%d\t\t%d\t\t%d\t\t%d\t\t%d",i,f[i],ff[i],b[ff[i]],frag[i]);
}
```

OUTPUT:

```
        Memory Management Scheme - Worst Fit
Enter the number of blocks:3
Enter the number of files:2

Enter the size of the blocks:-
Block 1:5
Block 2:2
Block 3:7
Enter the size of the files :-
File 1:1
File 2:4

File_no:        File_size :     Block_no:       Block_size:     Fragement
1               1               3               7               6
2               4               1               5               1
```

b) Best-fit

CODE:

```
#include<stdio.h>
#include<conio.h>
#define max 25
void main(){
	int frag[max],b[max],f[max],i,j,nb,nf,temp,lowest=10000;
	static int bf[max],ff[max];
	printf("\nEnter the number of blocks:");
	scanf("%d",&nb);
	printf("Enter the number of files:");
	scanf("%d",&nf);
	printf("\nEnter the size of the blocks:-\n");
	for(i=1;i<=nb;i++)
	{
		printf("Block %d:",i);
		scanf("%d",&b[i]);
	}
	printf("Enter the size of the files :-\n");
	for(i=1;i<=nf;i++){
		printf("File %d:",i);
		scanf("%d",&f[i]);
	}
	for(i=1;i<=nf;i++){
		for(j=1;j<=nb;j++){
			if(bf[j]!=1){
				temp=b[j]-f[i];
				if(temp>=0)
				if(lowest>temp){
					ff[i]=j;
					lowest=temp;
				}
			}
		}
```

```
            frag[i]=lowest;
            bf[ff[i]]=1;
            lowest=10000;
        }
        printf("\nFile No\tFile Size \tBlock No\tBlock Size\tFragment");
        for(i=1;i<=nf && ff[i]!=0;i++)
            printf("\n%d\t\t%d\t\t%d\t\t%d\t\t%d",i,f[i],ff[i],b[ff[i]],frag[i]);
}
```

OUTPUT:

```
Enter the number of blocks:3
Enter the number of files:2

Enter the size of the blocks:-
Block 1:5
Block 2:2
Block 3:7
Enter the size of the files :-
File 1:1
File 2:4

File No File Size       Block No        Block Size      Fragment
1               1               2               2               1
2               4               1               5               1
```

c) First-fit

CODE:

```
#include<stdio.h>
#include<conio.h>
#define max 25
void main(){
	int frag[max],b[max],f[max],i,j,nb,nf,temp;
	static int bf[max],ff[max];
	printf("\n\tMemory Management Scheme - First Fit");
	printf("\nEnter the number of blocks:");
	scanf("%d",&nb);
	printf("Enter the number of files:");
	scanf("%d",&nf);
	printf("\nEnter the size of the blocks:-\n");
	for(i=1;i<=nb;i++){
		printf("Block %d:",i);
		scanf("%d",&b[i]);
	}
	printf("Enter the size of the files :-\n");
	for(i=1;i<=nf;i++){
		printf("File %d:",i);
		scanf("%d",&f[i]);
	}
	for(i=1;i<=nf;i++){
		for(j=1;j<=nb;j++){
			if(bf[j]!=1){
				temp=b[j]-f[i];
				if(temp>=0){
					ff[i]=j;
					Break;
				}
			}
		}
		frag[i]=temp;
```

```
            bf[ff[i]]=1;
        }
        printf("\nFile_no:\tFile_size :\tBlock_no:\tBlock_size:\tFragement");
        for(i=1;i<=nf;i++)
        printf("\n%d\t\t%d\t\t%d\t\t%d\t\t%d",i,f[i],ff[i],b[ff[i]],frag[i]);
}
```

OUTPUT:

```
        Memory Management Scheme - First Fit
Enter the number of blocks:3
Enter the number of files:2

Enter the size of the blocks:-
Block 1:5
Block 2:2
Block 3:7
Enter the size of the files :-
File 1:1
File 2:4

File_no:        File_size :     Block_no:       Block_size:     Fragement
1               1               1               5               4
2               4               3               7               3
```