```
#include<stdio.h>
void sum(int a[10],int n);
void main()
{
	int i,j,a[10],n,temp;
	printf("\nenter the number of process");
	scanf("%d",&n);
	printf("\nenter the size of process");
	for(i=0;i<n;i++)
	{
		scanf("%d",&a[i]);
		for(i=0;i<n;i++)
		{
			for(j=i+1;j<n;j++)
			{
				if(a[i]==a[j])
				{
					temp=a[i];
					a[i]=a[j];
					a[j]=temp;
				}
			}
		}
	}
		printf("\nthe sorted process is \n");
		for(i=0;i<n;i++)
		printf("%d\t",a[i]);
```

```
                printf("\n");
                sum(a,n);
}
 void sum(int a[20],int n)
{
        int psum=0,sum=0,i,avg;
        for(i=0;i<n;i++)
        {
                psum=psum+a[i];
                sum=sum+psum;
        }
        printf("\ntotal retrival time is %d\n",sum);
        avg=sum/n;
        printf("\nAverage retrival time is %d\n",avg);
}
/*
student@student:~$ gcc DAA2a.c
student@student:~$ ./a.out

enter the number of process5

enter the size of process25
35
15
40
22

the sorted process is
```

25 35 15 40 22

total retrival time is 412

Average retrival time is 82

*/

```
#include<stdio.h>
int i,j,n,t=3;
int p[30],l[30],temp,m,tape[10][10],tape1[30][30];
int itemcount[10];
int c1=0,c2=0,c3=0;
float mrt[10];
void getval()
{
        printf("\nenter the number of program");
        scanf("%d",&n);
        printf("\nenter the numberof tapes");
        scanf("%d",&t);
        for(i=0;i<n;i++)
        {
                printf("Enter length of program %d",i+1);
                scanf("%d",&l[i]);
                p[i]=i;
        }
        for(i=1;i<t;i++)
```

```
        {
                for(j=0;j<30;j++)
                tape[i][j]=0;
        }
}

void sort()
{
        for(i=0;i<n;i++)
        {
                for(j=0;j<n-1;j++)
                {
                        if(l[i]>l[j+1])
                        {
                                temp=l[j];
                                l[j]=l[j+1];
                                l[j+1]=temp;

                                m=p[j];
                                p[j]=p[j+1];
                                p[j+1]=m;
                        }
                }
        }

        for(i=0;i<n;i++)
        {
                printf("program %d\t",p[i]);
```

```
                printf("length %d\n",l[i]);
        }
}

void arrange()
{
        int count=0;
        int r=0;
        for(i=0;i<10;i++)
        {
                itemcount[i]=0;
                for(i=0;i<n;i++)
                {
                count++;
                tape[count][r]=l[i];
                itemcount[count]++;
                if(count==t)
                {
                r++;
                count=0;
                }
        }
}
void printtape()
{
        int r=0;
        for(i=1;i<=t;i++)
        {
```

```
                printf("\ntape %d",i);
                while(tape[i][r]!=0)
                {
                        printf("%d\t",tape[i][r]);
                        r++;
                }
                printf("\n");
                r=0;
        }
}
void calmrt()
{
        int r=0,it,k;
        float sum[10];
        for(i=0;i<10;i++)
        {
                sum[i]=0;
        }
        j=0;
        for(i=1;i<=t;i++)
        {
                for(j=0;j<itemcount[i];j++)
                {
                        for(k=0;k<=j;k++)
                        {
                                sum[i]=sum[i]+tape[i][k];
                        }
                        r++;
```

```
                        it--;
                }
                r=0;
                mrt[i]=sum[i]/itemcount[i];
                printf("Mrt of tape %d is %f\n",i,mrt[i]);
        }
}

void finalmrt()
{
        float final_mrt=0;
        for(i=1;i<=t;i++)
        {
                final_mrt+=mrt[i];
        }
        final_mrt=final_mrt/t;
        printf("finalmrts %f\n",final_mrt);
}

int main()
{
        getval();
        sort();
        arrange();
        printtape();
        calmrt();
        finalmrt();
        return 0;
```

```
}

/*
student@student:~$ gcc DAA2b.c
student@student:~$ ./a.out

enter the number of program5

enter the numberof tapes3
Enter length of program 12
Enter length of program 21
Enter length of program 33
Enter length of program 44
Enter length of program 55
program 2       length 3
program 0       length 2
program 3       length 4
program 1       length 1
program 4       length 5

tape 131

tape 225

tape 34
Mrt of tape 1 is 3.500000
Mrt of tape 2 is 4.500000
Mrt of tape 3 is 4.000000
```

```
finalmrts 4.000000
*/
#include<stdio.h>
int n,sum=0,psum=0;
int l[10];
int rt[10];
void optimstorage();
void sortprog();
int main()
{
	int i;
	printf("Enter the no. of programs");
	scanf("%d",&n);
	printf("Enter the program length");

	for(i=0;i<n;i++)
	{
		scanf("%d",&l[i]);
	}
	optimstorage();
	return 0;
}
void optimstorage()
{
	int i;
	printf("original program length=");
	for(i=0;i<n;i++)
	{
```

```
            printf("%d\t",l[i]);
        }
        sortprog();
        printf("sorted program length:");
        for(i=0;i<n;i++)
        {
            printf("%d\t",l[i]);
        }
        for(i=0;i<n;i++)
        {
            psum=psum+l[i];
            sum=psum+l[i];
            rt[i]=sum;
        }
        printf("\n\n Total retrieval time is%d\n",rt[n-1]);
        printf("mean retrieval time is %f\n",rt[n-1]/(float)n);
}
void sortprog()
{
         int i,j,temp;
        for(i=0;i<n-1;i++)
        {
             for(j=0;j<(n-1);j++)
             {
                 if(l[j+1]<l[j])
                 {
                     temp=l[j];
                     l[j]=l[j+1];
```

```
                    l[j+1]=temp;
                }
            }
        }
}
```

```
pc:~$ gcc DAA2c.c
pc:~$ ./a.out
Enter the no. of programs 3
Enter the program length 7
2
4
original program length=7      2       4
sorted program length:2        4       7

 Total retrieval time is20
mean retrieval time is 6.666667
```