Program 1: Substring in a string

```
#include<stdio.h>
#include<string.h>

int search(char*,char*,int);

int main()
{
	char str[50],sub[50];
	printf("Enter the string you want to search in:");
	scanf("%s",str);
	fflush(stdin);
	fflush(stdout);
	printf("\nEnter sub string to be searched:");
	scanf("%s",sub);
	int n = strlen(sub);
	if (search(str,sub,n))
		printf("\nString matched");
	else
		printf("\nString not found");
	return 0;

}

int search(char *str,char *sub,int n)
{
	int c = 0;
	if(*str == '\0')
		return 0;
	else
	{
		for(int i =0;i<n;i++)
		{
			if(*str == *sub)
			{
				c++;
				search(++str,++sub,n);
			}


		}
		if(c==n)
			return 1;
		search(++str,sub,n);
	}

}
```

Program 2:Permutation

```
#include<stdio.h>
#include<string.h>
void permute(char *str,const int start,int end);
int main()
{
	printf("Enter a string:");
	char str[10];
	scanf("%s",str);
	fflush(stdout);
	int len=strlen(str);
	permute(str,0,len);
	return 0;

}
void permute(char *str,const int start,int end)
{
	char temp;
	for(int i=start;i<end-1;i++)
	{
		for(int j=i+1;j<end;j++)
		{
			temp=str[i];
			str[i]=str[j];
			str[j]=temp;
			permute(str,i+1,end);
			temp=str[i];
			str[i]=str[j];
			str[j]=temp;
		 }
	 }
	 printf("%s\n",str);

}
```

Program 3: Marks of a student

```
#include<stdio.h>
#include<string.h>
//struct_server.h
typedef struct mark{
int ma;
int en;
int ph;
int ch;
int co;
}marks;
typedef struct stu{
char srn[15];
char name[20];
int sem;
```

```
marks m;
}stud;
void read(stud s[],int n);
void average(stud s[],int n);
void sort(stud s[],int n);
void display(stud s[],int n);
//structure.c
int main()
{
	int n;
	printf("Enter no of students:");
	scanf("%d%*c",&n);
	stud s[n];
	read(s,n);
	average(s,n);
	sort(s,n);
	display(s,n);
	return 0;
}
//struct_server.c
void read(stud s[],int n)
{
	for(int i=0;i<n;i++)
	{
		printf("\nEnter your SEMESTER,marks in
(ENGLISH,MATHS,CHEMISTRY,PHYSICS,COMPUTER),SRN AND NAME in the
order:\n");
		scanf("%d\n",&s[i].sem);
		scanf("%d\n",&s[i].m.en);
		scanf("%d\n",&s[i].m.ma);
		scanf("%d\n",&s[i].m.ch);
		scanf("%d\n",&s[i].m.ph);
		scanf("%d\n",&s[i].m.co);
		scanf("%s",s[i].srn);
		fflush(stdout);
		scanf("%s",s[i].name);
		fflush(stdout);
	}
}
void average(stud s[],int n)
{
	int ma_avg=0;
	int en_avg=0;
	int ch_avg=0;
	int co_avg=0;
	int ph_avg=0;
	for(int i=0;i<n;i++)
	{
		ma_avg+=s[i].m.ma;
		en_avg+=s[i].m.en;
		ch_avg+=s[i].m.ch;
```

```
            co_avg+=s[i].m.co;
            ph_avg+=s[i].m.ph;
        }
        ma_avg/=n;
        ph_avg/=n;
        en_avg/=n;
        ch_avg/=n;
        co_avg/=n;
        printf("Enter 1 for maths average 2 for chemistry 3 for computer 4 for english and 5 for
physics:");
        int ch;
        scanf("%c",&ch);
        if(ch==1)
        printf("Average of Maths:%d\n",ma_avg);
        else if(ch==2)
        printf("Average of Chemistry:%d\n",ch_avg);
        else if(ch==3)
        printf("Average of Computer:%d\n",co_avg);
        else if(ch==4)
        printf("Average of English:%d\n",en_avg);
        else if(ch==5)
        printf("Average of Physics:%d\n",ph_avg);
        else
        printf("Get yashas to teach u english!!!!!!!!");
}
void sort(stud s[],int n)
{
        char sr[15];
        int k;
        for(int i=0;i<n-1;i++)
        {
                k=i;
                strcpy(sr,s[i].srn);
                for(int j=i+1;j<n;j++)
                {
                        if(strcmp(sr,s[j].srn)>0)
                        {
                                strcpy(sr,s[j].srn);
                                k=j;
                        }
                }
                stud str=s[i];
                s[i]=s[k];
                s[k]=str;
        }
}
void display(stud s[],int n)
{
        for(int i=0;i<n;i++)
        {
                printf("Name:%s\nSRN:%s\nSemester:%d\nMATHS:%d\nPHYSICS:%d\nCHEMIS
```

```
TRY:%d\nENGLISH:%d\nCOMPUTER:%d\n",s[i].name,s[i].srn,s[i].sem,s[i].m.ma,s[i].m.ph,s[
i].m.ch,s[i].m.en,s[i].m.co);
      }
}
```

Program 4:Tower of Hanoi

```
#include <stdio.h>


 void towers(int, char, char, char);


 int main()
 {
    int num;


    printf("Enter the number of disks : ");
    scanf("%d", &num);
    printf("The sequence of moves involved in the Tower of Hanoi are :\n");
    towers(num, 'A', 'C', 'B');
    return 0;
 }
 void towers(int num, char frompeg, char topeg, char auxpeg)
 {
    if (num == 1)
    {
       printf("\n Move disk 1 from peg %c to peg %c", frompeg, topeg);
       return;
    }
    towers(num - 1, frompeg, auxpeg, topeg);
    printf("\n Move disk %d from peg %c to peg %c", num, frompeg, topeg);
    towers(num - 1, auxpeg, topeg, frompeg);
 }
```

Program 5:IPL match

```
#include <stdio.h>
```

```
#include <stdlib.h>
typedef struct players{
  char name[25];
  char team[20];
  int matchs;
  int runs;
}ipl;
void read(ipl *play,int n);
void max(ipl play[];int n);
void match(ipl play[],int n);
int main()
{
  int n;
  printf("Enter no of players records\n" );
  scanf("%d\n",&n );
  ipl play[n];
  read(play,n);
  max(play,n);
  match(play,n);
  return 0;
}
void read(ipl *play,int n)
{
  for(int i=0;i<n;i++)
  {
    printf("Enter player name,team name,no of matches played and runs scored\n");
    scanf("%s\n",(play+i)->name );
    fflush(stdout);
    scanf("%s\n",(play+i)->team );
    fflush(stdout);
    scanf("%d\n",&(play+i)->matchs);
    scanf("%d\n",&(play+i)->runs);
```

```
  }
}
void max(ipl play[];int n)
{
  int pos=0;
  int maxi=play[0].runs;
  for(int i=1;i<n;i++)
  {
    if(maxi<play[i].runs)
    {
      pos=i;
      maxi=play[i].runs;
    }
  }
  printf("Player Name:%s\nTeam Name:%s\nMatches:%d\nRuns
Scared:%d\n",play[pos].name,play[pos].team,play[pos].matchs,play[pos].runs);
}
void match(ipl play[],int n)
{
  for (int i=0;  i <n;  i++) {
    printf("Player Name:%s\nTeam Name:%s\nMatches:%d\nRuns
Scared:%d\n",play[i].name,play[i].team,play[i].matchs,play[i].runs);
  }
}
```