

BASE CONVERSION

```
#include<stdio.h>
#include<string.h>
#include<math.h>
int main()
{
int rem[100],a=0,i,dec,bin,hex,oct,temp,sum=0,set=0;
char ns1[20],ns2[20];
printf("Convert Number System :");
scanf("%s", ns1);
printf("\nTo Number System :");
scanf("%s", ns2);

if(strcmp(ns1,"decimal")==0 && strcmp(ns2,"binary")==0)
{
    set=1;
    printf("\nEnter decimal number :");
    scanf("%d", &dec);

    temp=dec;
    for(i=0;i<100;i++)
    {
        while(dec>0)
        {
            rem[i]=dec%2;
            dec=dec/2;
            i++;
            a++;
        }
        if(dec==0)
        {
            break;
        }
    }
    printf("\n NUMBER CONVERSION(DECIMAL TO BINARY) :\n\n The Binary number of %d is",
temp);
    for(i=a;i>0;i--)
    {
        printf("%d",rem[i-1]);
    }
}
```

```

}

else if(strcmp(ns1,"decimal")==0 && strcmp(ns2,"octal")==0)
{
    set=1;
    printf("\nEnter decimal number :");
    scanf("%d", &dec);

    temp=dec;
    for(i=0;i<100;i++)
    {
        while(dec>0)
        {
            rem[i]=dec%8;
            dec=dec/8;
            i++;
            a++;
        }
        if(dec==0)
        {
            break;
        }
    }
    printf("\n NUMBER CONVERSION(DECIMAL TO OCTAL) :\n\n The Octal number of %d is ",
    temp);
    for(i=a;i>0;--i)
    {
        printf("%d",rem[i-1]);
    }
}

else if(strcmp(ns1,"decimal")==0 && strcmp(ns2,"hex")==0)
{
    set=1;
    printf("\nEnter decimal number :");
    scanf("%d", &dec);

    temp=dec;
    for(i=0;i<100;i++)
    {
        while(dec>0)
        {
            rem[i]=dec%16;
            dec=dec/16;

```

```

        i++;
        a++;
    }
    if(dec==0)
    {
        break;
    }
}
printf("\n NUMBER CONVERSION(DECIMAL TO HEXADECIMAL) :\n\n The Hexadecimal
number of %d is ",
temp);
for(i=a;i>0;i--)
{
    if(rem[i-1]<10)
        printf("%d",rem[i-1]);
    else if(rem[i-1]==10)
        printf("A");
    else if(rem[i-1]==11)
        printf("B");
    else if(rem[i-1]==12)
        printf("C");
    else if(rem[i-1]==13)
        printf("D");
    else if(rem[i-1]==14)
        printf("E");
    else if(rem[i-1]==15)
        printf("F");
}
}

```

```

if(strcmp(ns1,"binary")==0 && strcmp(ns2,"decimal")==0)
{
    set=1;
    printf("\nEnter binary number :");
    scanf("%d", &bin);

    temp=bin;
    while(bin>0)
    {
        rem[0]=bin%10;
        bin=bin/10;
        sum=sum+rem[0]*pow(2,a);
        a++;
    }
}

```

```

    }
    printf("\n NUMBER CONVERSION(BINARY TO DECIMAL) :\n\n The decimal number of %d
is %d ",
    temp,sum);

}

else if(strcmp(ns1,"octal")==0 && strcmp(ns2,"decimal")==0)
{
    set=1;
    printf("\nEnter octal number :");
    scanf("%d", &oct);

    temp=oct;
    while(oct>0)
    {
        rem[0]=oct%10;
        oct=oct/10;
        sum=sum+rem[0]*pow(8,a);
        a++;
    }
    printf("\n NUMBER CONVERSION(DECIMAL TO OCTAL) :\n\n The octal number of %d is
%d ",
    temp,sum);
}

else if(strcmp(ns1,"hex")==0 && strcmp(ns2,"decimal")==0)
{
    set=1;
    printf("\nEnter hexadecimal number :");
    scanf("%d", &hex);

    temp=hex;
    while(hex>0)
    {
        rem[0]=hex%10;
        hex=hex/10;
        sum=sum+rem[0]*pow(16,a);
        a++;
    }
    printf("\n NUMBER CONVERSION(DECIMAL TO HEXADECIMAL) :\n\n The decimal number
of %d is %d ",
    temp,sum);
}

```

```
else if(set==0)
{
    printf("\nEnter valid number system!");
}
printf("\n");
return 0;
}
```

Output:

Decimal to Binary

```
Convert Number System :decimal
To Number System :binary
Enter decimal number :231

NUMBER CONVERSION(DECIMAL TO BINARY) :

The Binary number of 231 is 11100111

...Program finished with exit code 0
Press ENTER to exit console. 
```

Decimal to Octal

```
Convert Number System :decimal
To Number System :octal
Enter decimal number :8645

NUMBER CONVERSION(DECIMAL TO OCTAL) :

The Octal number of 8645 is 20705

...Program finished with exit code 0
Press ENTER to exit console.
```

Decimal to Hexadecimal

```
Convert Number System :decimal
To Number System :hex
Enter decimal number :3980

NUMBER CONVERSION(DECIMAL TO HEXADECIMAL) :

The Hexadecimal number of 3980 is F8C

...Program finished with exit code 0
Press ENTER to exit console.
```

Binary to Decimal

```
Convert Number System :binary
To Number System :decimal
Enter binary number :1010111

NUMBER CONVERSION(BINARY TO DECIMAL) :

The decimal number of 1010111 is 87

...Program finished with exit code 0
Press ENTER to exit console.
```

Octal to Decimal

```
Convert Number System :octal
To Number System :decimal
Enter octal number :786

NUMBER CONVERSION(DECIMAL TO OCTAL) :

The octal number of 786 is 518

...Program finished with exit code 0
Press ENTER to exit console.
```

Hexadecimal to Decimal

```
Convert Number System :hex
To Number System :decimal
Enter hexadecimal number :1456

NUMBER CONVERSION(DECIMAL TO HEXADECIMAL) :

The decimal number of 1456 is 5206

...Program finished with exit code 0
Press ENTER to exit console.
```